TYPOLOGY OF SPLIT-INTRANSITIVITY: LEXICAL ASPECT AND THE UNACCUSATIVE HYPOTHESIS IN JAPANESE

by

Kiyoko Toratani
May 20, 1997

MA Qualifying Paper

Since Perlmutter (1978) postulated the Unaccusative Hypothesis (UH), manifestation of unaccusativity has been claimed in various languages. While the UH *per se* may be syntactic, it has aroused much controversy whether the phenomenon be accounted for on syntactic or lexical semantic grounds. The UH states that there are two classes of intransitive verbs; unaccusative and unergative verbs. According to Perlmutter, these two classes are semantically predictable but their syntactic realizations differ. In Relational Grammar (RelG), Perlmutter (1978) argues that unaccusative verbs possess an initial 2 (*direct object*) without initial 1 (*subject*), whereas unergative verbs possess an initial 1 without initial 2. Similarly in Government and Binding (GB) theory, the arguments of unaccusative verbs are argued to be underlyingly at the internal argument position, whereas the arguments of unergative verbs are underlyingly at the external argument position. In Role and Reference Grammar (RRG), on the other hand, unaccusativity is argued to be accounted for on lexical semantic grounds based on *Aktionsart* (lexical aspect), without making any reference to the multiple-levels of syntactic representations.

Japanese is no exception to this controversy. Amongst many, the particular concern of this paper is the works by Tsujimura (1990a, 1990b) in GB and Kishimoto (1996) in RRG.[1] In this paper, I take the position of the lexical semantic account in RRG. I argue that unaccusativity claimed by Tsujimura can be accounted for by *Aktionsart*

[1] See Terada (1987), Miyagawa (1989a, 1989b) for syntactic arguments. Uchida and Nakayama (1993) and Kageyama (1996) separately employ a lexical semantic analysis to predict unaccusativity, while maintaining that unaccusativity is syntactic.

and the lexical semantic account makes more precise prediction of the phenomena. Secondly, I argue that unaccusativity is reducible to lexical aspect, contrary to Kishimoto's claim that the semantic parameter of unaccusativity is agency in Japanese.

The organization of this paper is as follows: First of all, I introduce the theoretical framework of RRG, focusing on the verbal classification developed in Van Valin and LaPolla (1997). Further, I adapt its classification to Japanese by modifying the tests devised in Hasegawa (1996). Secondly, based on the diagnostic tests, I examine the lexical semantic properties of the four constructions that may be claimed to manifest unaccusativity in Japanese; *-kake* 'do halfway' (Kishimoto, 1996); resultatives (Tsujimura, 1990b); *deverbal noun suru* (*light verbs*)(Tsujimura, 1990a, 1990b) and *-nagara* 'while'; and offer RRG account for each construction.[2] Thirdly, the relation between unaccusativity and *Aktionsart* will be discussed with reference to cross-linguistic comparison on unaccusativity. Lastly, some conclusions are presented.

1. Framework of RRG

First and foremost, we introduce the verb classification developed in Van Valin and LaPolla (1997). In RRG, the semantic analysis of verbs is grounded in verb classification in terms of *Aktionsart* ('form of action' in German) originally proposed in Vendler (1957 [1967]). *Aktionsart* class draws attentions to the intrinsic temporal properties of the verb, namely, boundedness ([±telic]) and durativeness

[2] The term *light verbs* may be used occasionally for expository purposes.

([±punctual]), as well as dynamicity ([±static]). These properties uniquely distinguish the four main classes of *Aktionsart*, namely state (e.g. *be tall, exist*), achievement (e.g., *pop, shatter*), accomplishment (e.g., *melt, dry*), and activity (e.g., *eat, walk*). The summary of these properties are given below (Van Valin and LaPolla, 1997. p.82):

a. State : [+static], [-telic], [-punctual]

b. Achievement : [-static], [+telic], [+punctual] ([-dynamic])

c. Accomplishment : [-static], [+telic], [-punctual] ([-dynamic])

d. Activity : [-static], [-telic], [-punctual] ([+dynamic])

State and activity verbs are similar in that they are both temporally unbounded (i.e., they are durative and never have an inherent temporal end-point). However, they differ from each other in that state verbs lack dynamicity. Achievement and accomplishment verbs behave analogously in that they are both temporally bounded. On the other hand, they differ in that achievement verbs lack temporal duration as [+punctual] indicates. The changes of the state denoted by achievement verbs, therefore, must occur instantaneously, while accomplishments allow temporal duration to have the change take place.

In order to distinguish the above four verb classes, RRG makes use of some of the diagnostic tests developed in Dowty (1979). The progressive form in English is used to test [-static, -punctual] which are the properties of activity and accomplishment verbs (e.g., *I am walking* (activity)., *The snow is melting* (accomplishment).). Adverbs such as q*uickly*, or *slowly* occurs also with the verbs with [-static, -punctual] (e.g., The *shirt is drying slowly* (accomplishment). *John is walking slowly* (activity).). Adverbs such as *vigorously*, or *actively* is

used to test dynamicity, which occurs with activity verbs (e.g., *John is eating vigorously.*). Prepositions *in* and *for* are used to test the temporal duration. *For*-test identifies [-static, -punctual] properties (i.e., the verb occurs with a phrase such as *for an hour*)(e.g. *John ran for an hour* (activity).*, *The balloon popped for an hour* (achievement).). *In*-test identifies [+telic] property (i.e., the verb occurs with a phrase such as *in an hour*)(e.g., The *snow melted in an hour* (accomplishment). **John ran in an hour* (activity).). Therefore, if a verb occurs with *for* but not with *in*, it is an activity verb. If a verb occurs with *in* but not with *for*, it is an achievement or accomplishment verb.

Dowty (1979) among others notes that there is a variant class of *Aktionsart* in activity verbs. First consider the following examples:

(1) John walked in the park for/*in ten minutes.

(2) John walked to the park in/*for ten minutes.

In (1), *walk* is an activity verb, though in (2) it behaves as if its [-telic] property changes to [+telic]; hence it is acting like an accomplishment. In other words, *walk* is inherently an activity verb, while it can be an accomplishment when it appears with a phrase that serves to provide an end-point of the action such as *to the park*. Van Valin and LaPolla (1997) are the first to propose to term this class *active accomplishment*, separating inherent accomplishment verbs from non-inherent counterparts. The properties for active accomplishments can be described as follows:

e. Active accomplishment : [-static]([+dynamic]), [-punctual]
non-inherently [+telic]

Further, Van Valin and LaPolla (1997) identify the existence of causative counterpart for each of the above *Aktionsart* class. For

example, a state verb (e.g., 'be afraid' as in *The boy is afraid.*) may have a causative counter part, causative state (e.g., 'frighten/scare' as in *The dog frightens/scares the boy*.), or an achievement verb (e.g., 'pop' as in *The balloon popped.*) has a causative counter part, causative achievement (e.g., *The cat popped the balloon*.). In Dowty's system, RRG's active accomplishments and causatives are fused under *accomplishments*. Further, RRG's achievements and accomplishments are fused under *achievements* in Dowty's system. With the classification by Van Valin and LaPolla (1997), we are not only able to isolate the non-causative *Aktionsart* class from the causative counterparts, and distinguish inherent accomplishment verbs from non-inherent counterparts, but also separate the telic verbs into achievements and accomplishments in the dimension of durativeness.

In RRG, each *Aktionsart* class is represented by the following system of lexical decomposition, called LOGICAL STRUCTURES (LS).

Class	LOGICAL STRUCTURE
STATE:	**predicate'** (x) or (x, y)
ACTIVITY:	**do'** (x, [**predicate'** (x) or (x, y)])[3]
ACHIEVEMENT:	INGR **predicate'** (x) or (x, y), or INGR **do'**(x, [**predicate'** (x) or (x, y)])
ACCOMPLISHMENT:	BECOME **predicate'** (x) or (x, y), or BECOME **do'**(x, [**predicate'** (x) or (x, y)])
ACTIVE ACCOMPLISHMENT:	**do'** (x, [**predicate$_1$'** (x)]) ^ BECOME **predicate$_2$'** ((y), x)
CAUSATIVE:	α CAUSE β, where α, β are LS of any type

[3] Other than these representations, an operator DO (x, **do'** ...may be used if the actor is necessarily construed as AGENT.

Note that these representations do not specify any thematic roles. In RRG, various thematic roles are reinterpreted in terms of *macroroles*. Arguments of verbs can be assigned macrorole status; i.e., be an actor or undergoer. Loosely speaking, actors and undergoers constitutes a superordinate class of thematic roles in the sense that they subsumes various thematic roles. Whether the argument of the verb is an actor or an undergoer is determined by the type of predicate the argument is contained (activity or state) as well as the position in the LS (first or second) based on the Actor-Undergoer Hierarchy shown in Figure 1.

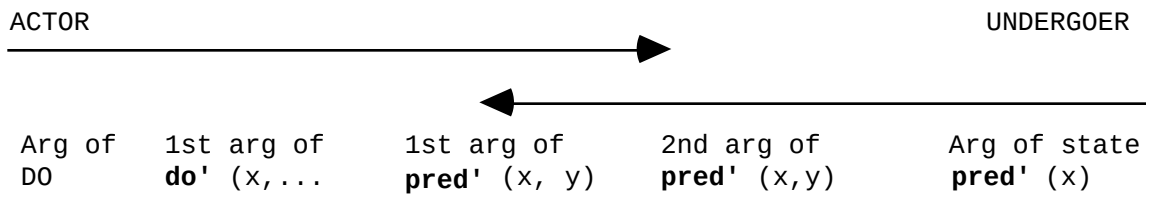

Figure 1: The Actor-Undergoer Hierarchy

For example, if the sole argument of the intransitive verb is an argument of a state predicate, it will be an *undergoer*. If it is an argument of activity predicate (i.e., **do'**), it will be an *actor*.

As for the syntactic representation, RRG employs a representation called *Layered Structure of the Clause* (LSC). In RRG, a clause is posited to consist of a unit called CORE and PERIPHERY. CORE is made up with NUCLEUS which contains predicate, and ARGUMENTS which are the arguments of the predicate. Adjunct modifiers of the CORE occur in PERIPHERY. An example of LSC for a Japanese sentence is shown in Figure 2.

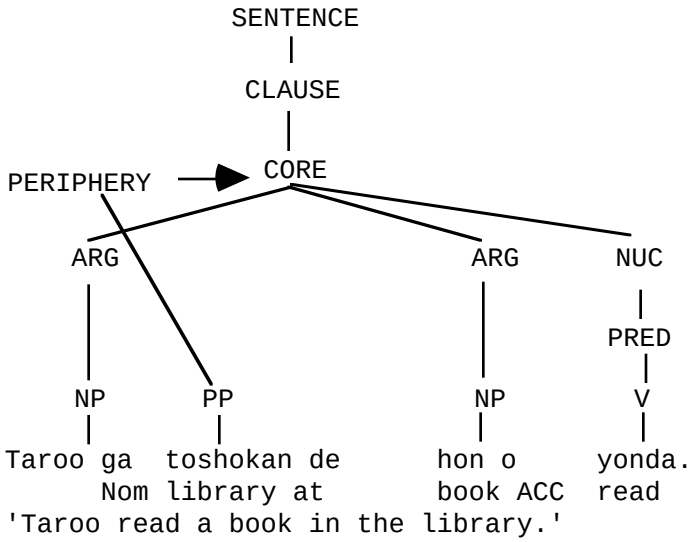

Figure 2: Layered Structure of the Clause (LSC)

The arguments in LSC will be linked to the argument positions in the LS, ensuring the linking between syntax and semantics is bidirectional.[4]

2. The diagnostic tests for Japanese verb class

This section aims to establish diagnostic tests for Japanese verb class, which will be comparable to those developed in Van Valin and LaPolla (1997), given that the basic concept of these tests are intended for cross-linguistic use. So far, Hasegawa (1996) devised the diagnostic tests for Japanese based on Dowty's verb classification, as shown in Table 1.

---

[4] See Van Valin and LaPolla (1997) for detailed discussion of the linking algorithms, as well as the topics covered in this section.

	State	Achieve-ment	Accom-plish-ment	Activ-ity
1. *for*-test (occurs with n-*zikan/nenkan*)	No	No	No	Yes
2. *in*-test (occurs with n-*zikan/nenkan de*)	No	Yes	Yes	No
3. *owar*-test (forms a compound with *owar-*)	No	No	Yes	No

Table 1: Hasegawa's (1996) diagnostic tests for Japanese

The first and the second tests are the Japanese version of *for-/in-* test. An activity verb such as *hasir-* 'run' can occur with *N-zikan/nenkan* ('for n-hours/years') but not with *n-zikan/nenkan de* ('in n-hours/years') as shown in (3).

(3) Taro-wa koen o ichi-zikan/*-de hasit-ta.
Taro-Topic park-ACC one-hour(for/*in) run-Past
'Taro ran in the park for/*in an hour.'

In the third test, the affix *owar-* 'finish' can be compounded to an activity verb of motion, creation and consumption that is obligatorily accompanied by a phrase which denotes a terminal point.

(4) Hanako-wa supagetti-o tabe-owat-ta.
Hanako-TOPIC spaghetti-ACC eat-finish-Past
'Hanako finished eating the spaghetti.'

In (4), the amount of the spaghetti Hanako ate must be bounded. It cannot be construed that it indicates Hanako's non-specific eating activity of spaghetti.

As pointed out earlier, what is classed as *achievements* in Dowty (i.e., in Hasegawa) is equivalent to coalescence of achievements and accomplishments in Van Valin and LaPolla (1997). Further, Dowty's *accomplishments* are equivalent to coalescence of Van Valin and LaPolla's active accomplishments and causatives. In order to be compatible with the verb classification in Van Valin and LaPolla (1997), we need tests

that would (a) separate telic verbs into [+punctual] (*achievements*) and [-punctual] (*accomplishments*), and (b) dissociate *active accomplishments* from *causatives*.

Let us begin from the first point; i.e., what would be the tests to separate accomplishments [+telic -punctual] from achievements [+telic +punctual]? One may propose to adapt the English test with an adverb *slowly* to Japanese which correlates with [-static -punctual]. Japanese *yukkuri* 'slowly' appears to modify primarily the verbs that denote some type of motion or movement. It seems to occur with activities but not necessarily with accomplishments unlike English. In contrast, adverbs that denote gradualness, e.g., *jyojyo-ni* 'gradually', appear to serve the purpose. They occur with accomplishments ([-punctual]) but not with achievements ([+punctual]). It does not occur with activity verbs ([+dynamic]), either. Sentences (5) and (6) show that accomplishments like *toke-* 'melt' and *kawak-* 'dry' can occur with this adverb,

(5) Koori-ga jyojyo-ni toke-ta.
ice-NOM gradually melt-PAST
'The ice melted gradually.'

(6) Sentakumono-ga jyojyo-ni kawai-ta.
laundry-NOM gradually dry-PAST
'A piece of washing laundry dried gradually.'

whereas (7) and (8) illustrate that achievements like *ochi-* 'fall down' and *ware-* 'pop/crack' cannot.[5]

(7) *Pen-ga jyojyo-ni yuka-ni ochi-ta.
pen-NOM gradually floor-to fall down-PAST
'The pen fell down to the floor gradually.'

(8) *Huusen-ga jyojyo-ni ware-ta.
balloon-NOM gradually pop-PAST
'The balloon popped gradually.'

---

[5] Achievement verbs may allow a slow motion or iterative interpretation with *jyojyo-ni* 'gradually'. That is, they cannot appear with *jyojyo-ni* without appealing to these interpretations. However, it is not the original intention of the test to depict such interpretations and they are irrelevant to the test.

An activity verb like *hasi-* 'run' cannot occur with this adverb either as shown in (9).

(9) *John-ga jyojyo-ni hasit-ta.
John-NOM gradually run-PAST
'John ran gradually.'

Thus, we can use *jyojyo-ni* 'gradually' to dissociate accomplishments from achievements.

Let us now turn to the second point (i.e., how to distinguish causatives from active accomplishments). The class of causatives consists of causative counterparts of each *Aktionsart* class (e.g., causative activity, causative achievements and so on). Japanese has a causative morpheme -(s)ase- and this morpheme can be taken to identify some of the causative classes. For example, an activity verb *hataraku* 'work'(**do'** (x, [**work'** (x)])) has an activity causative counterpart *hatarak-ase-ru* 'cause to have someone work' (α CAUSE [**do'** (x, [**work'** (x)])], where α is a LS of any type), or a state verb *odoroku* 'surprised' (**feel'** (x, [**surprised'**])) has a state causative counterpart *odorok-ase-ru* 'cause someone to feel surprised' (α CAUSE [**feel'** (x, [**surprised'**])]). For our purpose, however, a test that would isolate active accomplishments from the other four basic *Aktionsart* classes would be sufficient and it is not necessary to develop tests that would isolate all the causative counterparts from each other. Therefore we maintain Hasegawa's *owar-* ('finish') test for our current purpose. The test is effective since it works only with active accomplishments among the non-causative verbs as shown in (10)-(14).

(10) John-ga haikingu coosu o aruki-owat-ta. (active accomplishment)
John-NOM hiking course ACC walk-finish-PAST.
'John finished walking the hiking course.'

(11) *Koori-ga toke-owat-ta. (accomplishment)
ice-NOM finish-melt-PAST
'The ice finished melting.'

(12) *Mary-ga warai-owat-ta. (activity)
Mary-NOM laugh-finish-PAST
'Mary finished laughing.'

(13) *John-ga heya-ni i-owat-ta. (state)
John-NOM room-at stay-finish-PAST
'John finished staying in the room.'

(14) *Pen-ga tsukue-kara ochi-owat-ta. (achievement)
pen-NOM desk-from fall-finish-PAST
'A pen finished falling off from the desk.'

So far, we have seen tests developed out of Dowty's classification. It appears to be worth examining Kindaichi's (1979) test, which is one of pioneer works on Japanese verb classification, in order to consider its compatibility with the classification by Van Valin and LaPolla (1997).

Kindaichi's classification is based on the TE-IRU ('continuation, progressive' lit. TE-exist) construction which separates the Japanese verbs into four classes based on the interpretation of the verb when it occurs with TE-IRU.

The first class is called *joutai-doushi* 'state verbs'. The most distinguishing characteristics of this class is that they cannot occur with TE-IRU as shown in (15).

(15) *Tsukue-ga at-te-iru.
desk-NOM exist-TE-exist.
'The desk is existing.'

Verbs such as *a/ir-* 'exist', *kikoe-* 'be audible' do not occur in the TE-IRU construction, since the state is already expressed by the verb without any additional marking such as TE-IRU.

The second class is *keizoku-doushi* 'continuation verbs' (e.g., *yom-* 'read'). TE-IRU with this class denotes the progressive aspect of the event.

(16) Hon o yon-de-iru.
book ACC read-TE-exist.
'(I) am reading a book.'

In (16), an on-going action of the speaker's reading a book is depicted.

The third class is *syunkan-doushi* 'instantaneous verbs'. They express instantaneous changes of state. TE-IRU with this class expresses the continuation of the resulting state as shown in (17).

(17) Denki ga tsui-te-iru.
light NOM turn on-TE-exist.
'The light is on.'

(17) is construed that a light has already been turned on and now the state of light's being on continues.

The last class is called *dai-yon-syu no doushi* 'verbs in the fourth class'. TE-IRU with this class also expresses the continuation of the resulting state. The peculiar property of this class is that it can occur only in the TE-IRU construction but never occurs in a simple past form. In (18), the state of towering of Mr. Fuji is described.

(18) Tokyo no nisi ni Fuji-san ga sobie-te-iru(/*sobie-ta).
Tokyo of west to Mt. Fuji NOM rise(/tower/soar)-TE-exist(/*rise-PAST).
'To the west of Tokyo rises Mt. Fuji.'

In terms of the classification by Van Valin and LaPolla, the first class is equivalent to Van Valin and LaPolla's *states*. The second class is equivalent to *activities*, and the third type corresponds to *achievements*.[6] As for the fourth type, given the fact they occur in the TE-IRU construction, and that their interpretation in the TE-IRU construction is identical to that of the third class, I take this class

[6] Though there is no mentioning of accomplishments in Kindaichi, they appear to be fused in achievements, just like in Dowty's classification.

to be *achievements*, though we must note that it is a variant type in that it cannot occur in the simple past. The significance of this TE-IRU test is that it uniquely isolates states from the rest since states are the only class that does not occur in this construction.

Given the discussion above, we can now integrate the tests by Hasegawa, Van Valin and LaPolla, and Kindaichi to identify *Aktionsart* class of Japanese verbs as follows:

	State	Achieve-ment	Accom-plish-ment	Active Accomp-lish-ment	Activ-ity
1. *for*-test (occurs with n-*zikan/nenkan*)	No	No	No	No	Yes
2. *in*-test (occurs with n-*zikan/nenkan de*)	No	No*	Yes	Yes	No
3. *owar*-test (forms a compound with *owar*-)	No	No	No	Yes	No
4. occurs with *yukkuri* 'slowly	No	No	**Yes/ No	Yes	Yes
5. occurs with *jyojyo-ni* 'gradually'	No	No	Yes	No	No
6. Te-IRU***	No	Yes	Yes	Yes	Yes

Note: * Due to the instantaneous property of the verb, a phrase like *issyun-de* (in one second) must be used to have the appropriate interpretation.

** Yukkuri appears to occur if the verb involves motion/movement such as *agaru* 'go up'.

*** Achievements induce the interpretation of continuation of the resultative state (result), while activities and active accomplishments induce the interpretation of the continued action (progressive). Accomplishments may have both result and progressive interpretation.

Table 2: Diagnostic tests for Japanese verbs

Below, we show some examples of verb classification in Japanese based on the diagnostics tests developed above:

Class	Verbs	Gloss	Logical Structure (LS)
State	i-, ar-	be	**be-at'** (x, y)
	kikoe-	be audible	**audible'** (y); **audible'** ((x), y)
Activity	waraw-	laugh	**do'** (x, [**laugh'** (x)])
	odor-	dance	**do'** (x, [**dance'** (x)])
	hasir-	run	**do'** (x, [**run'** (x)])
Achievement	hair-	enter	INGR **go.into'** (x, y)
	ochi-	fall	INGR **fall'** (x)
	ware-	crack	INGR **cracked'** (x)
Accomplishment	toke-	melt	BECOME **melt'** (x)
	hukuram-	swell	BECOME **swelled'** (x)
	kawak-	dry	BECOME **dry'** (x)
Active Accomplishment	eki made hasir-	run to the station	**do'** (x, [**run'** (x)])^BECOME **be-at'** (y, x)

Table 3: Japanese verb classification

3. The constructions

This section discusses various constructions that may be claimed to demonstrate unaccusativity in Japanese. An account in RRG will be offered for the grammatical contrast in each construction.

3.1. The *-kake* construction

Kishimoto (1996) argues that the parameter of unaccusativity in Japanese is volition. Therefore, intransitive verbs that require agent macrorole arguments are unergative verbs and those that require non-agent macrorole arguments are unaccusative verbs. He further claims that unaccusativity in Japanese can be diagnosed by what he calls a *deverbal nominal construction* such as (19)(I will call it the *-kake construction* since the later section deals with another construction which involves a deverbal nominal.).

(19) tabe-kake-no banana
eat-KAKE-GEN banana
'the half-eaten banana'

Kishimoto proposes that the possibility of forming the *-kake* construction can be characterized by the following rule which applies to both intransitive and transitive verbs (p.269):[7]

(20) A deverbal nominal may modify only the lowest ranking nonagent macrorole argument on the Actor-Undergoer hierarchy in the LS of the verb.

For intransitive verbs, (20) can be paraphrased that the argument must be a nonagent to be modified by *-kake*, since there would be a single argument. Hence, a sentence like (21) whose argument is a nonagent argument (*koori* 'ice') is grammatical, conforming to the rule of (20),

(21) toke-kake-no koori
melt-KAKE-GEN ice
'the half-melted ice'

whereas, a sentence like (22) whose argument is an agent (*Kazue*) turns out to be ungrammatical.

(22)?*hasiri-kake-no Kazue
run -KAKE-GEN Kazue
'Kazue who ran half way.'

Contrary to his account, I argue that the rule of (20) does not necessarily predict the grammaticality of the *-kake* construction; and that it is the compatibility of lexical aspect between *-kake* and the verb that determines it. Furthermore, I argue that the counterexamples to the rule of (20) which are judged to be idiosyncratic or irregular in Kishimoto can be accounted for by an analysis in terms of lexical aspect.

We begin by observing the characteristics of the *-kake* construction more closely. Observe (19)(repeated here as (23)) once more.

---

[7] See Kishimoto (1996) for other possibilities (or impossibilities) to form *-kake* constructions (e.g., passive, causative, adjunct).

(23) tabe-kake-no banana
     eat-KAKE-GEN banana
     'the half-eaten banana'

This construction consists of two NPs, the restrictive modifier (*tabe-kake* 'eat-KAKE') and the head noun (*banana*), bridged by the genitive particle *no*. Here, *-kake* is an adverbial nominal derived from verbal infinitives in Martin's (1975) term. If the *effector* (i.e., instigator of the action) is to be expressed, it will be case marked either by *ga* 'NOM' as in (24) or *no* 'GEN' as in (24').

(24)[[Hanako-ga tabe]-kake]-no banana
      Hanako-NOM eat-KAKE-GEN banana
      'the banana which Hanako ate halfway.'

(24')[[Hanako-no [tabe-kake]]-no banana
      Hanako-GEN eat-KAKE-GEN banana
      'the banana which Hanako ate halfway.'

The non-modified counterpart of (24) can be expressed as in (25).

(25) Hanako-ga banana-o tabe-kake-te-iru.
      Hanako-NOM banana-ACC eat-KAKERU-TE-exist
  (a) 'Hanako is about to eat the banana.'
  (b) 'Hanako has eaten the banana halfway.'

In (25), *-kake* is a stem of an achievement verb *kakeru* in contrast to *-kake* in the *-kake* construction of (23).[8] The verb *kakeru* may involve two interpretations, 'be about to' as in (25a) and 'do halfway' as in (25b). While Kindaichi (1955[1976]) observes that *durative* verbs trigger 'do halfway' interpretation and *punctual* verbs trigger 'be about to' interpretation, Himeno (1979) points out that if *-kakeru* focuses on the change of state of *durative* verbs (i.e., the change from non-eating state to eating state in the case of (25)), we obtain 'be about to' interpretation as in (25a). In contrast, if the inchoative phase of the

---

[8] In order to distinguish *-kake* of adverbial nominal from *-kake* of the verb stem, I will use *kake* for the nominal form and *kakeru* for the verb form.

durative property of the verb is focused (i.e., the inchoative phase of 'eating the banana'), we obtain 'do halfway' interpretation as in (25b).

Among the verbs which have durative properties, active accomplishments have both interpretations but other durative verbs such as activities (e.g., *nak-* 'cry', *aruk-* 'walk') have only 'be about to' interpretation, or accomplishment verbs (e.g., *kawak-* 'dry', *atatamar-* 'become warm') have only 'do halfway' interpretation. That is, what is described as *durative* verbs in Himeno represents active accomplishments and this is the only class that has both interpretations. On the other hand, the other classes have just one interpretation.

Why, then, is it the case that 1) only active accomplishments have both 'do halfway' and 'be about to' interpretations; and that 2) other classes yield one particular interpretation? I propose that the number of interpretations correlate with the number of the predicates in the LS. That is, *kakeru* can yield one interpretation when it marks one predicate. When the LS consists of two predicates, it therefore yields two interpretations. Observe the LS of each class below:

Class		LOGICAL STRUCTURE	Interpretation
ACTIVITY	:	**do'** (x, [**predicate'** (x))	'be about to'
ACHIEVEMENT	:	INGR **predicate'** (x)	'be about to'
ACCOMPLISHMENT	:	BECOME **predicate'** (x)	'do halfway'
ACTIVE ACCOMPLISHMENT	:	**do'** (x, [**predicate$_1$'**(x)]) ^ BECOME **predicate$_2$'** ((y), x)	'be about to'/ 'do halfway'

The LS of activity, achievement, and accomplishment verbs consists of one predicate. On the other hand, the LS of active accomplishment verbs consist of two predicates. The first one is the LS of an activity and the second one is the LS of an accomplishment. If active accomplishments are compounded with *kakeru*, there are two possible

predicates which it can mark. When *kakeru* marks the first part of LS (**do'** (x, **predicate'** (x)), it yields 'be about to' interpretation, and when it marks the second part of LS (BECOME **predicate'** (x)), it yields 'do halfway' interpretation.

We now consider why one class triggers one particular interpretation. I argue that this follows from the aspectual properties of the verb with which *kakeru* is compounded. Recall that Kindaichi and Himeno discussed that *durative* and *punctual* verbs give rise to different interpretations. What is emphasized in their discussions appears to be the aspectual properties in the dimension of duration. However, we should be reminded of the fact that not only duration but also telicity is involved here. Below, we see how these two properties go hand in hand in determining the interpretation with *kakeru*.

Kakeru is concerned with changes of state; therefore it cannot form a compound with [+static] verbs as shown in (26).

(26) *Taro-ga Tokyo-ni i-kake-te-iru/kake-ta.
Taro-NOM Tokyo-at exist-KAKERU-TE-PROGRESSIVE/KAKE-PAST
*'Taro is about to stay in Tokyo.'
*'Taro is halfway stayed in Tokyo.'

Further, I take that *kakeru* denotes the inchoative phase leading toward change of states. In the case of activity verbs, since the activity itself is unbounded, the involved changes of state is the initial point at which the activity takes place. Since this point itself does not involve duration, the inchoative phase would be an instantaneous point that is immediately before the action takes place. Accordingly, a compound of *kakeru* and *hasir-* 'run' (i.e., *hasiri-kakeru* 'run-KAKERU') means that someone is about to run. That is, when *kakeru* marks the LS

of **do'** (x, [**predicate'** (x)), the compound yields 'be about to' interpretation.

As for achievement verbs, changes of state refers to the temporal end-point of the event. Due to the [+punctual] property, the change takes place instantaneously. Therefore, the inchoative phase leading toward changes of state would be the instantaneous point immediately before the event takes place. Accordingly, a compound of *kakeru* and *sin-* 'die' (i.e., *sini-kakeru* 'die-KAKERU') means that someone is about to die. That is, when *kakeru* marks the LS of INGR **predicate'** (x), the compound yields 'be about to' interpretation.

In the case of accomplishment verbs, change of states refers to the temporal end-point of the process. Due to its durative property, the inchoative phase leading toward change of states cannot be instantaneous, but rather it would involve a temporal span. Therefore, in a sentence like (27),

(27) Heya-ga atatamari-kake-ta (accomplishment)
room-NOM become warm-KAKE-PAST
'The room has become warm half way.

atatamari-kakeru (become warm-KAKERU) cannot mean that the room has almost become warm. Rather, the room is at the inchoative stage of becoming warm; i.e. the inchoative stage of a durative process that leads toward a telic point. Therefore, with the LS of BECOME **predicate'** (x), the compound yields 'do halfway' interpretation.

Let us now turn to active accomplishments. Observe (28) and its LS (28').

(28) Hanako-ga banana-o tabe-kake-ta (active accomplishment)
Hanako-NOM banana-ACC eat-KAKE-PAST
(a)'Hanako is about to eat the banana.'
(b)'Hanako has eaten the banana halfway.'

(28') **do'** (Hanako, [**eat'**(Hanako, banana)]) ^ BECOME **consumed'** (banana)

As discussed earlier, active accomplishments consist of activity LS and accomplishment LS. Given the discussion above, it is clear why (28) involve these two interpretations. When *kakeru* marks the activity predicate, we obtain 'be about to' interpretation (i.e., inchoative stage of eating; Hanako may have started peeling the banana but not eaten it yet). On the other hand, if *kakeru* marks the accomplishment predicate, we obtain 'do halfway' interpretation (i.e., inchoative stage of banana's being consumed; some portion of the banana has been consumed by Hanako).

Now note that only 'do halfway' interpretation is available in the *-kake* construction (see (21) and (23)). In this construction, *-kake* is the adverbial nominal form of *kakeru*. This nominal form denotes a condition in which something is left done halfway, indicating that only 'do halfway' interpretation is lexicalized in the nominal form. Thus, the situation is different from the verb counterpart *kakeru* because *kakeru* gives rise to two different interpretations according to the aspectual properties of the verb with which it is compounded.

As we saw already, 'do halfway' interpretation is available to just accomplishment and active accomplishment verbs. This indicates that the *-kake* construction is in congruent with the [+telic -punctual] properties. This is plausible, given the semantics of 'do halfway'. If the event denoted by the verb can be said to be 'done halfway', there must be a corresponding entire event that is necessarily bounded as well as durative. This is why activity and achievement verbs are incompatible with the *-kake* construction. Consider an example of an activity verb in (29):

(29) ?*hasiri-kake-no-Kazue (activity)
run -KAKE-GEN-Kazue
'Kazue who is about to run' (intended)

When *kakeru* (the verb) is used instead of the *-kake* construction, the phrase becomes grammatical:

(30) hasiri-kake-te-iru-Kazue
run -KAKERU-TE-exist-Kazue
'Kazue who is about to run'

Similarly, a phrase like (31) with an achievement verb is ungrammatical, but with *kakeru*, it becomes grammatical as in (32):

(31)?*Tsukue kara ochi-kake-no-pen
desk from fall-KAKE-GEN-pen
'the pen which is about to fall off from the desk' (intended)

(32) Tsukue kara ochi-kake-te-iru-pen
desk from fall-KAKERU-TE-exist-pen
'the pen which is almost fallen off from the desk'

In brief, the grammaticality of the *-kake* construction is determined by the compatibility of lexical aspect between *-kake* and the verb; namely, the *-kake* construction is compatible with accomplishments and active accomplishments which are [+telic -punctual]. A summary table of the compatibility is given in Table 4.

	State	Achieve-ment	Accom-plishment	Active Accomplish ment	Activity
telicity	inherently -	inherently +	inherently +	non-inherently +	inherently -
punctuality	-	+	-	-	-
Can it occur in the -kake construction?	No	No	Yes	Yes	No

Table 4: Grammaticality of the *-kake* construction by *Aktionsart* classification

Bearing this background in mind, we are now in a position to discuss the cases which are treated as idiosyncratic and irregular in

Kishimoto. In order to present the rule of (20)(i.e., only the lowest ranking nonagent macrorole argument can occur in the *-kake* construction), Kishimoto examines both intransitive and transitive verbs and finds some verbs are idiosyncratic in that they do not enter the *-kake* construction despite the fact that they conform to the rule of (20). They are: (a) stative, (b) instantaneous and (c) one-mora-long verbs. The following examples are taken from Kishimoto (p.260-261):

(33) State: ?*sinzi -kake-no uwasa
believe -KAKE-GEN rumor
'a rumor, almost believed'

(34a)Instantaneous: ?*tsuki -kake-no densha
arrive -KAKE-GEN train
'trains, almost arrived'

(34b) ?*mitsuke -kake-no takaramono
find -KAKE-GEN treasure
'the treasure, almost found'

(35a) One-mora-long: ?*ne -kake-no inu
sleep -KAKE-GEN dog
'a dog, almost sleeping'

(35b) ?*ki -kake-no doresu
wear -KAKE-GEN dress
'a dress, almost wearing'

Here, I demonstrate that ungrammaticality of (33)-(35) naturally follows from the lexical aspect of the verb at stake. To achieve this goal, we first identify the *Aktionsart* class of these verbs. Table 5 summarizes the results of applying the diagnostic tests developed in the previous section:

	sinzi- 'believe'	*tsuk-* 'arrive'	*mitsuke-* 'find'	*ne-* 'fall asleep'	*ki-* 'wear'
1. for-test with *ichijikan* 'one hour'	no	no	no	no	no
2. in-test with *issyun-de*'in one second'	yes	yes	yes	yes	yes
3. occurs with *owar-* 'finish'	no	no	no	no	no
4. occurs with *yukkuri* 'slowly'	no	no	no	no	no
5. occurs with *jyojyo-ni* 'gradually'	no	no	no	no	no
5. occurs with *TE-IRU*	yes	yes	yes	yes	yes
Logical Structures	INGR **believed'** (x, y)	INGR **be-at'** ((y), x)	INGR **known'** (x, [**be-at'** (y), z)])	INGR **fall asleep'** (x)	INGR **worn'** (x,y)
Aktionsart	Achieve-ment	Achieve-ment	Achieve-ment	Achieve-ment	Achieve-ment

Table 5: *Aktionsart* of the verbs judged to be idiosyncratic in Kishimoto (1996)

Table 5 shows that all the verbs in question are achievements. Though *sinzi-* 'believe' is identified as *state* in Kishimoto, it is an achievement verb given the intended reading of 'a rumor, almost believed'. In this context the verb denotes that someone is going to *become a believer of* the rumor; therefore, it involves changes of state.[9] *Tsuk-* 'arrive' in (34a) is also an achievement verb. *Mitsuke-* 'find' is the transitive counterpart of an achievement verb *mitsukar-* 'be found'. *Ne-* appears to have two interpretations. One is 'fall asleep' and the other is 'sleep'. The intended interpretation of (35a)

[9] *Sinzi-* appears to have the state counterpart **believe'** (x, y). It occurs in a sentence like:
Watashi-wa kami-o sinzimasu.
I-NOM God-ACC believe
'I believe in God.'
which does not involve changes of state.

is the former, in which case the verb is judged to be an achievement verb.[10] *Ki-* also appears to have two interpretations. One is 'wear/be worn' (it involves instantaneous changes of state from the non-worn state to the worn state) and the other is 'dress/put on'. The intended interpretation of (35b) can be judged to be the former, and hence it is achievement.[11] Recall that achievement verbs can occur with the full-fledged verb counterpart *kakeru* with the interpretation of 'be about to'. In fact, all these verbs can occur with *kakeru* as in (36)-(40).[12]

(36) Taro-ga sinzi-kake-TE-iru uwasa
Taro-NOM believe-KAKERU-TE-exist rumor
'a rumor which Taro is about to believe'

(37) Eki-ni tsuki-kake-TE-iru densha
station-at arrive-KAKERU-TE-exist train
'the train which is almost arrived at the station.'

(38) ?Taro-ga mitsuke-kake-TE-iru takaramono
Taro-NOM find-KAKERU-TE-exist treasure
'the treasure which Taro is about to find'

(39) Ne-kake-TE-iru inu
sleep-KAKERU-TE-exist dog
'the dog who is almost fallen asleep.'

(40) Hanako-ga ki-kake-TE-IRU doresu
Hanako-NOM wear-KAKE-TE-exist dress
'the dress which Hanako is about to wear.'

This shows that the ungrammaticality of (33)-(35) is ascribed to their [+telic +punctual] properties. It is not the case that *stative*, *instantaneous*, or *one-mora-long* verbs behave idiosyncratically. Rather, their ungrammaticality straightforwardly follows from the

---

[10] If it is the latter case 'sleep', it is judged to be an activity verb whose LS will be: **do'** (x, [**sleep'** (x)]).

[11] If it is the latter case 'dress', it is judged to be an activity verb whose LS will be: **do'** (x, [**dress'** (x, y)]). Note that the preferred reading of (40) is that of an activity verb, though I take that what is intended in (35b) is an achievement verb based on the gloss.

[12] Though the acceptability of (38) is not perfect, it is acceptable in a special context such as everyone except for Taro knows where the treasure is, and they think that Taro is about to locate where it is.

incompatibility of lexical aspectual properties between the verb and *-kake*. Hence Kishimoto's explanation in terms of idiosyncrasy appears to be incorrect.

The next case we examine is one of the weather verbs, which Kishimoto treats having an "irregular pattern". Here again, it will be demonstrated that the impossibility of combining *-kake* with the weather verb follows from its lexical aspectual properties.

The verb *fur-* '(rain) fall' is at variance with the *-kake* construction, despite the fact that its argument is nonagentive. Under Kishimoto's analysis, nonagentive argument should be allowed modification by *-kake* if it is a macrorole argument. Then, he seems to reason that the impossibility of combining *-kake* with the weather verb must be due to the fact that the argument is not a macrorole.

In order for an argument to qualify as a macrorole, it must have macrorole-transitivity, which correlates with the number of semantic valence. Kishimoto analyzes Japanese verbs such as *fur-* '(rain) fall' as macrorole-atransitive ([-MR]). In the case of English 'rain', it takes one syntactic argument (i.e., "it" as in *It rains*.) but takes no semantic argument. *Rain*, therefore, can be said to have zero macrorole and hence it is macrorole-atransitive. Japanese *fur-* '(rain) fall', on the contrary, does possess a semantic valence. This can be readily shown by the fact that *fur-* takes various semantic arguments such as *ame* 'rain', *yuki* 'snow', *hai* 'ash', *yari* 'spear' and so on. Hence, macrorole-atransitivity cannot be the reason why the *-kake* construction is incompatible with *fur-*. What, then, gives rise to this incompatibility? I argue that this naturally follows from the mismatch

between the properties of *fur-* and the [+telic -punctual] properties required by the *-kake* construction.

The application of the diagnostic tests reveals that *fur-* is an activity verb. It occurs with *N-zikan* 'for N-hour' but not with N-zikan-de 'in N-hour' as in (41).

(41) Kinou-wa yesterday-TOP ame-ga rain-NOM ichi-zikan/*-de one-hour(for/*in) fut-ta. fall-Past
'Yesterday, it rained for/*in an hour.'

It does not form a compound with *owar-* 'finish' as in (42),

(42)*Ame-ga rain-NOM furi-owat-ta. fall-finish-Past
'It finished raining.'

and it occurs with the TE-IRU construction, giving a progressive interpretation as in (43).

(43) Ame-ga rain-NOM fut-te-iru. fall-TE-exist
'It is raining.'

If *fur-* 'fall' is an activity verb, it should not occur in the *-kake* construction, since it would contain incompatible information on telicity, and hence (44) becomes ungrammatical.

(44)*furi-kake-no ame. fall-KAKE-GEN rain
'rain which is about to fall'

Thus, the fact that *fur-* 'fall' cannot occur in the *-kake* construction again follows from its lexical aspect, and hence the notion of macrorole-transitivity is irrelevant.

To sum up this section, the *-kake* construction which was claimed to diagnose unaccusativity turns out to diagnose particular aspectual properties of the verb at stake; namely its [+telic -punctual] properties. Hence, the grammaticality of the *-kake* construction can be accounted for straightforwardly from the lexical aspects of verbs it

combines with, without resorting to the notion of agency, idiosyncrasy or macrorole-atransitivity.

3.2. The Resultative Construction

The second construction we examine is the resultative construction. In GB, Tsujimura (1990b) claims that the resultatives can be used as diagnostics for unaccusativity in Japanese.[13] She follows Simpson's (1983) generalization on English resultatives that "the controller of a resultative attribute must be an OBJECT, whether that object is a surface OBJECT, as in transitive verbs, or an underlying OBJECT, as in passive and intransitive verbs of the Unaccusative class" (p.146). First consider the following examples from Tsujimura (1990b)(bracketing is added.):

(45) [$_{VP}$Kuruma-o *akaku* nutta].
car-ACC red painted
"(I) painted the car red."

(46) [$_{VP}$Pan-o *makkuro-ni* yaita.]
bread-ACC really black-to toasted
"(I) burned the bread black."

(47) [$_{VP}$Syatsu-o *kirei-ni* aratta.]
shirt-ACC clean-to washed
"(I) washed the shirt clean."

Sentences (45)-(47) are examples of transitive verbs. The resultative expressions in italics denote the resultative attributes of the *object* (i.e., *kuruma* 'car', *pan* 'bread', and *syatsu* 'shirt', respectively) but not of the *subject* (the phonetically unexpressed 'I'). This construal is argued to be possible because the resultative and the *object* are

---

[13] See Miyagawa (1989b) for another syntactic test of unaccusativity based on numeral quantifiers (NQ). The reliability of this test, however, has been questioned independently in Katagiri (1991) and Fukushima (1991).

housed under the same VP node, mutually c-commanding each other. Now, consider the case of intransitive verbs.

(48) Hune-ga *suityuu hukaku* sizunda.
(48)'Hune$_i$-ga [$_{VP}$ t$_i$ suityuu hukaku sizunda]
ship-NOM in water deep sank
"The ship sank deep in water."

(49) Huusen-ga *sora takaku* agatta.
(49)'Huusen$_i$-ga [$_{VP}$ t$_i$ sora takaku agatta]
balloon-NOM sky-high went up
"The balloon went up high in the sky."

(50) Pan-ga *makkuro-ni* yaketa.
(50)'pan$_i$-ga [$_{VP}$ t$_i$ *makkuro-ni* yaketa]
bread-NOM really black-to toasted
"The bread burned black."

(51)*Taroo-ga *kutakuta-ni* hasit-ta/arui-ta/odot-ta.
(51)'Taroo-ga [$_{VP}$*kutakuta-ni* hasit-ta/arui-ta/odot-ta.]
Taro-Nom dead tired ran/walked/danced
"Taro ran/walked/danced dead tired."

According to Tsujimura, with one class of the intransitive verbs, the resultative expressions (such as those in italics in (48)-(50)) can be construed as the attributes of the *subjects*, whereas with the other class, such an interpretation is impossible (as in (51)). This contrast in grammaticality is claimed to demonstrate the difference in underlying representations; namely, in the former (i.e., unaccusative), the argument NP occurs originally in the internal argument position within the VP as shown in (48')-(50'), and the trace left behind satisfies the mutual c-command condition with the resultative, whereas in the latter case (i.e., unergative), the argument in (51) occurs in the external argument position at both D- and S-structures, and hence it is disqualified for being predicated by the resultative. Accordingly, resultatives can be argued to be a diagnostic for unaccusativity in Japanese.

Note that (50) describes changes of state of the argument (i.e., the color of the bread changes to *black* by being toasted) but (48) and (49) describe locational change of the argument. In (48), for instance, the location of the ship is changed from *the water surface* to *deep under the water*, but there is no actual change in the condition of the ship *per se*. In either case, whether the change pertains to the state of the argument or to its location, these examples suggest that the verb must inherently encode changes of some sort in its meaning in order to be compatible with the resultative phrases.

In RRG, changes of state are reinterpreted in terms of telicity. In (48)-(50), we observed that the verb must encode changes of some sort to occur with a resultative phrase. This can be paraphrased that the verb must be [+telic] to be compatible with the resultative phrases. Consequently, achievements and accomplishments are predicted to be eligible to take resultatives but states and activities are not because they lack telicity. This prediction is consistent with the earlier examples. The verbs in (48)-(50) that take resultatives are accomplishments, and the verbs in (51) that cannot take resultatives are activities. The following examples lend further support to this observation:

(52) coppu-ga konagona ni ware-ta (achievement)
cup-Nom pieces into crack
"The cup broke into pieces."

(53)*Omocha-ga *gochagocha-ni* at-ta. (state)
toy-Nom mixed-up exist-PAST
"There were toys lying randomly."

In (52), the verb *ware-* 'crack' is an achievement, and it can take the resultative. In contrast, in (53), the verb *aru-* 'exist' is a state and it cannot take the resultative expression. Thus, the telicity makes

correct prediction as to whether the verb may or may not take the resultatives.

Note, further, that telicity is not the only requirement for the resultatives to occur. Goldberg (1991a, 1991b) examines constraints on the English resultative constructions. Similarly, Levin and Rappaport Hovav (1996) discuss that a resultative interpretation is not available in a sentence like *Willa arrived breathless* (which means *Willa became breathless as a result of arriving* (p.58)), by referring to the notion of "delimiting" (Tenny, 1987, p. 190). It is a condition which restricts the number of delimiters to at most one within an event denoted by the verb. In the example of *arrive*, the verb inherently has one delimiter, namely a location at which *Willa* arrives. Hence, the slot for the delimiter is already filled and consequently, the second delimiter *breathless* cannot occur to mean *breathless as a result of arriving*.

Such an observation can be interpreted in another way that one event always yields one result. Let us see how this would account for the case in Japanese. Consider (54), in which the resultative phrase cannot be the attribute of the argument.

(54)*Taro-ga *kutakuta-ni* tsui-ta.
Taro-Nom dead tired arrive-PAST
"Taro arrived dead tired."

The event of (54) *tsuk-* 'arrive' is inherently coded with a locational goal which corresponds to one result. The sentence (54) includes an additional resulting state expressed by *kutakuta* 'dead tired', which corresponds to another result. (54) is ungrammatical because it fails to follow the one-to-one correspondence between the event and the result. In contrast, in the case of a verb like *ware-* 'crack' which

does not have an inherent locational goal, it can accommodate a resultative phrase *konagona-ni* 'into pieces'. Note that a sentence with an active accomplishment like (55) cannot take a resultative phrase, either.

(55)*Taro-ga eki-made *kutakuta-ni* hasit-ta.
Taro-Nom station-to dead tired run
"Taro ran to the station dead tired."

(55')***do'** (x, [**run'** (x)]) ^
BECOME **be-at'**(eki, Taro) ^ BECOME **be'** (Taro, **kutakuta'**)

First of all, the main predicate *hasir-* 'run' is [-telic]; hence it is incompatible with a resultative phrase to begin with. Secondly, a goal obligatorily accompany active accomplishments (e.g., *eki made* 'to the station' in the case of (55)), and the goal corresponds to one result. With an extra resultative phrase, it ends up having two results, which is incompatible with the one-to-one correspondence between events and results. This means that together with the one-to-one relation between events and results, the inherent [+telic] property determines the well-formedness of the resultative construction.

Sentences such as (53) and (54) are not discussed in Tsujimura (1990b). They would be problematic to account for on purely syntactic grounds. The reason why state verbs behave like activities but not like other unaccusative verbs is due to their inherent [-telic] property. The reason why motion verbs such as *tsuk-* 'arrive' do not occur with resultatives is due to the clash of two results, namely, the locational goal and the resultative. Thus, if we were to separate intransitive verbs into two classes according to their compatibility with the resultative phrase, it is the inherent telic property of verbs that determines the demarcation but not unaccusativity as Tsujimura argues.

Furthermore, the resultative phrases occur with a subset of telic verbs. They do not occur with atelic verbs; i.e., state verbs (unaccusative) and activity verbs (unergative). Therefore, compatibility with resultatives does not necessarily guarantee unaccusativity of the verb. Hence, a syntactic account based on hierarchical configuration fails to predict the grammaticality of resultative construction correctly.

3.3. The deverbal noun *suru* construction

The third construction we examine is *the deverbal noun suru*, *light verbs* in Grimshaw and Mester's (1988) term.

Japanese has a verbal suffix "-s(u)-" that attaches to a noun productively to form a noun-verb compound. When it occurs as an independent verb, it functions as a full-fledged activity verb (whose citation form is *suru*) to mean "do (perform/ conduct)." When it attaches to *Sino*-Japanese deverbal nominals, the compound demonstrates a peculiar characteristic; i.e., some compounds readily allow the accusative case particle "o" to occur between the nominal and *-(s)u-*, leaving *-s(u)-* as an independent verb, whereas other compounds do not readily take "o." This contrast is exhibited in (56) and (57).

(56)a. John-ga BENKYOO-suru
John-Nom study-*suru*

b. John-ga BENKYOO-o suru
John-Nom study-ACC *suru*
'John studies.' (from Uchida and Nakayama, 1993)

(57)a. John-wa butyoo-ni SHOOSIN-sita.
John-Top section chief-to promotion-*suru*-Past

?? b. John-wa butyoo-ni SHOOSIN-o sita.
John-Top section chief-to promotion-ACC *suru*-Past
'John obtained a promotion to section chief.' (from Tsujimura, 1990b)

Both (56) and (57) contain *Sino*-Japanese *deverbal noun-s(u)-* compounds. In (56b), the accusative particle "o" can separate the compound, but this is not the case in (57b).

Working within a GB approach, Grimshaw and Mester (1988) labels *suru* as a *light verb* due to its incompleteness of argument structure. *Suru* is claimed to possess an ACC case-marking ability but lack a theta-marking ability. The latter ability, however, can be obtained via what Grimshaw and Mester call *Argument Transfer* from the deverbal noun when it is compounded with *-s(u)-* . Following this argument, Miyagawa (1989a) and Tsujimura (1990a, 1990b) claim that the alternation from *noun-suru* to *noun o suru* is a piece of evidence supporting the syntactic Unaccusative Hypothesis (UH). They separately argue that the behavior of *-s(u)-* supports Burzio's generalization that if a verb can assign a *subject* theta-role, then it can assign the accusative case. When *-s(u)-* attaches to an unergative deverbal nominal, it inherits the *subject* theta-marking ability (since the sole argument of unergative verb is underlyingly a *subject*), which makes it possible to assign accusative case to the deverbal noun. On the contrary, if it attaches to an unaccusative deverbal nominal, it ends up not being able to assign accusative case since it inherits the *object* theta-marking ability. This is argued to explain the grammatical contrast of (56) and (57)(repeated here as (58) and (59)).

(58) John-ga BENKYOO-o suru
John-Nom study-ACC *suru*
'John studies.'

(59)??John-wa butyoo-ni SHOOSIN-o sita.
John-Top section chief-to promotion-ACC *suru*-Past
'John obtained a promotion to section chief.'

Sentence (58) allows "o" to occur because the deverbal nominal (*benkyou* 'study') is unergative, whereas (59) does not allow occurrence of "o" since the deverbal nominal (*shoosin* 'promotion') is unaccusative.

In RRG, the impossibility of the alternation *deverbal noun suru/deverbal noun o suru* can be accounted for on the basis of the deverbal noun's *Aktionsart*. First note that the *Aktionsart* class of *deverbal noun suru* compounds is as follows based on the results of application of the diagnostic tests:[14]

Deverbal nominal/gloss	LS	1. for-test	2. in-test	3. owar-	4. yukkuri	5. jyojyo-ni	6. TE-IRU
kenkyuu-s(u) 'research'	**do'** (x, [**research'** (x)])	Y	N	N	Y	N	Y
hatsugen-s(u) 'utter'	**do'** (x, [**utter'** (x)])	Y?	N	N	Y	N	Y
shigoto-s(u) 'work'	**do'** (x, [**work'** (x,)])	Y	N	N	Y	N	Y
engi-s(u) 'act'	**do'** (x, [**act'** (x)])	Y	N	N	Y	N	Y
ryokou-s(u) 'travel'	**do'** (x, [**travel'** (x)])	Y	N	N	Y	N	Y
sampo-s(u) 'take a walk'	**do'** (x, [**walk'** (x)])	Y	N	N	Y	N	Y
setsumei-s(u) 'explain'	**do'** (x, [**explain'** (x)])	Y	N	N	Y	N	Y
husoku-s(u) 'shortage'	INGR **be.short'** (x)	N	Y	N	N	N	Y
enryo-s(u) 'modesty'	INGR **be.modest'** (x)	N	Y?	N	N	N	Y
anshin -s(u)'relief'	INGR **relieved'** (x)	N	Y	N	N	N	Y
touchaku-s(u) 'arrival'	INGR **arrive'** (x)	N	Y	N	N	N	Y
kansei-s(u) 'completion'	INGR **complete'** (x)	N	Y	N	N	N?	Y

[14] The majority of the examples are taken from Uchida and Nakayama (1993). Granting that they use Dowty's classification, their judgment on *Aktionsart* classification does not necessarily coincide with the one presented here. For example, in their judgment, *anshin-suru* 'become relieve' is a state, but it is an achievement verb in Van Valin and LaPolla's system because it involves changes of state.

shoushin-s(u) 'promotion'	INGR **promoted'** (x)	N	Y	N	N	N?	Y
tanjou-s(u) 'birth'	INGR **born'** (x)	N	Y	N	N?	N	Y
jyouhatsu-s(u) 'evaporate'	BECOME **evaporate'** (x)	N	Y	N	Y	Y	Y
chinbotsu-s(u) 'being sunk'	BECOME **be.at.bottom'** (x)	N	Y	N	Y	Y	Y
zenshou-s(u) 'burn to ashes'	BECOME **be.ashes'** (x)	N	Y	N	Y?	Y?	Y
gyouko-s(u) 'being solid'	BECOME **be.solid'** (x)	N	Y	N	Y	Y	Y
sonzai-s(u) 'exist'	**be-at'** ((y), x)	N	N	N	N	N	N?

Table 6: *Aktionsart* of deverbal noun *suru*

Despite the fact that the compounds in this list share the same morphological ending -s(u)-, it is not the case that they are all activity verbs. This suggests that *Aktionsart* is determined by the deverbal nominal and that *-s(u)-* is simply a verbalizer.

Now, consider the contrast of the compounds between those that allow "o" to occur and those that do not.

compounds with 'o'	gloss	class
SHIGOTO o suru	'work'	activity
ENGI o suru	'act'	activity
RYOKOU o suru	'travel'	activity
SAMPO o suru	'take a walk'	activity
SETSUMEI o suru	'explain'	activity
KOUSHOU o suru	'negotiate'	activity
HATSUGEN o suru	'utter'	activity
KENKYUU o suru	'research'	activity

??SONZAI o suru	'existence'	state
??TANJOU o suru	'birth'	achievement
??ANSHIN o suru	'relive'	achievement[15]
??TOUCHAKU o suru	'arrival'	achievement
??CHIMBOTSU o suru	'being sunk'	accomplishment
??JYOUHATSU o suru	'evaporation'	accomplishment
??ZENSHOU o suru	'burn to ashes'	accomplishment

Uchida and Nakayama (1993) observe that only activity and accomplishment verbs (based on Dowty' classification) can take "o," and application of the diagnostic tests confirms their observation. All the verbs that allow "o" fall under activities, whereas those that do not allow "o" are accomplishments, achievements or states. As for active accomplishments, they behave like activities, taking "o" as illustrated in (60).

(60) Taro-ga eki-made sampo-sita/sampo o sita.
Taro-NOM station to take a walk-s(u)
'Taro took a walk to the station.'

If the boundednes in the active accomplishment is marked by "o" as in (61), this marking changes to "no" (genitive) as in (62) in order to avoid double occurrence of "o"

(61) Hanako-ga sono sakana o ryouri-sita.
Hanako-NOM that fish ACC cooking-s(u)
'Hanako cooked that fish.'

(62)Hanako-ga sono sakana no ryouri o sita.
Hanako-NOM that fish GEN cooking ACC s(u)
'Hanako cooked that fish.'

Thus, *Aktionsart* class alone can predict the possibility of alternation from *deverbal noun-suru* to *deverbal noun o suru*. The accusative case

---

[15] *Anshin* 'relief' denotes a state. However, *anshin-suru* involves change of states, i.e., to *become relieved*; therefore, it is an achievement verb.

particle "o" may occur if the deverbal noun is an activity or active accomplishment verb, whereas the alternation is not possible if the compounds are achievements, accomplishments or states.[16]

Having characterized the distributional pattern of *deverbal noun o suru* sequence, let us now consider why the alternation is impossible with achievements, accomplishments and states. To answer this problem, we begin by observing the logical structure (LS) of an activity predicate *suru*. First observe the LS for a sentence like *Carl ate fish* in which the second argument *fish* is non-referent/unspecified as in (63).

(63) **do'** (Carl, [**eat'** (Carl, fish)

A sentence like (64a), then, should have the LS representation of (64b).

(64a) Carl-ga nawatobi-o si-ta.
Carl-NOM jump rope-ACC *suru*-Past
'Carl did a jump rope.'

(64b) **do'** (Carl, [**do'** (Carl, nawatobi)

Similarly, A sentence like (65a) should have the LS representation of (65b).

(65a) Carl-ga benkyou-o si-ta.
Carl-NOM studying-ACC *suru*-Past
'Carl did studying.'

(65b) **do'** (Carl, [**do'** (Carl, benkyou)

In (65b), *benkyou* 'studying' is a non-referential argument. Though *benkyou* is a deverbal noun, it does not function as a predicate in

---

[16] The compounds exemplified in the text are all represented by two logographs in orthography where each logograph represents the concept of one word. The generalization made above does not seem to hold for *Sino*-Japanese deverbal nominal compounds which are represented by one logograph (in Martin's (1975) term, *one-morpheme verbal nouns*). Martin discusses that the majority of *one-morpheme verbal nouns* are bound to *suru*. Consequently, even activity verbs cannot be separated by "o" for *one-morpheme verbal nouns* as in (a)*shoku-suru* 'eat'(a') **shoku-o suru* 'eat', whereas *two-morpheme verbal nouns* can be separated by "o" as in (b) *shokuji-suru* 'have a meal' (b') *shokuji-o suru* 'have a meal'.

(65a). In contrast, observe the LS of *deverbal noun-suru* counterpart as in (66):

(66a) Carl-ga benkyou-si-ta.
Carl-NOM studying-*suru*-Past
'Carl studied.'

(66b) **do'** (Carl, [**study'** (Carl)

In (66), the deverbal noun *benkyou*, compounded with a verbalizer *suru*, functions as a predicate. Note that *Carl* in (63)-(66) are the actor, being the first argument of the activity predicate.

Now let us examine the case of achievement verbs. Observe (67) and (68).

(67a) Densha-ga (eki-ni) touchaku-si-ta.
train-NOM (station-at) arrive-*suru*-Past
'The train arrived (at the station).'

(67b) INGR **be-at'** ((eki), densha)

(68a) ??Densha-ga (eki-ni) touchaku-o si-ta.
train-NOM (station-at) arrival-ACC *suru*-Past
'The train arrived (at the station).'

In (67a), the deverbal noun *touchaku* 'arrival', functions as a predicate being compounded with a verbalizer *suru*. As the LS (67b) shows, *touchaku-suru* is an achievement verb, and its argument *densha* 'train' is the undergoer. (67a) cannot occur with *o* as the ungrammaticality of (68a) shows.

In order to make the representations between an activity verb and achievement verb comparable, we hypothetically suppose that an achievement verb allows *deverbal noun suru/deverbal noun o suru* alternation; therefore we assume that (68a) is a possible sentence.

If (68a) is possible, then its LS would be represented as in (68b):

(68b) **do'** (densha, [**do'** (densha, touchaku)

Evidently, (68b) is incompatible with (67b), the intended representation of (67a). The *Aktionsart* class of (68b) is that of activity, whereas it is an achievement in (67b). What (68b) shows is that when *suru* occurs with *o*, it gains a full-fledged activity verb status, regardless of what deverbal noun it was compounded with originally. This is as if insertion of *o* sets up a template of 2-place activity predicate. If the *Aktionsart* class of deverbal noun is activity, the first argument, *Carl* in (65b), can appear as the actor, and this is compatible with the macrorole of *Carl* in (66b). On the other hand, in the case of non-activity as in (68b), the first argument of **do'** *densha* 'train' will be interpreted as the actor, which is incompatible with the macrorole in (67a), the undergoer.

In sum, non-activity predicates (i.e., achievement, accomplishment and state) cannot occur in the *deverbal noun o suru* construction, because insertion of "o" would change *Aktionsart* class of the deverbal nouns. Thus, the *deverbal noun suru/deverbal noun o suru* alternation can be explained based on *Aktionsart*, without positing distinct syntactic configurations between unergative and unaccusative verbs.

In terms of the lexical aspect properties, the alternation appears to be determined by [+dynamic], since both activity and active accomplishment verbs are allowed to have "o".

3.4. *Nagara* construction

The fourth construction I examine is structures with *nagara*, which has not yet been claimed to manifest unaccusativity. I discuss this construction here because the verbs which do not occur in this

construction appear to match what syntactic accounts would regard as unaccusative.

Nagara means 'while' or *concurrent* in Martin's (1975) term.[17] This construction, *V1-nagara V2*, describes two concurrently happening events. The first verb (V1) marked by *nagara* denotes the background event in progress which takes place simultaneously as the event of the verb in the matrix core (V2) occurs. Observe the sentence (69).

(69) aruki-nagara ringo o tabe-ta.
walk-while apple ACC eat-PAST
"(I) ate an apple while (I) walked."

(69) means that eating took place while walking took place; i.e., *tabe-* 'eat' is the matrix verb (V2), and *aruk-* 'walk' is the embedded one (V1). Furthermore, the two verbs can appear reversed as in (70),

---

[17] Martin (1975) divides the *nagara* construction into two types: 'while' (concurrent) and 'although' (concessive). They are different not only semantically but also syntactically. Concurrent, the former, is a Core Cosubordination Construction in RRG term, whereas Concessive, the latter, is a Clausal Cosubordination construction. In the former, the construction shares the controller, and an operator at core level. In contrast, in the latter, the clause marked by *-nagara* is an adjunct to the matrix clause and both tense and the illocutionary force (IF) have the scope over not only the matrix but also over the adjunct clause. Further, each clause may have an independent controller as in (a)(the example is from Sugioka (1986)), unlike the case of the concurrent *nagara* construction.

(a) [sensei ga soba ni i]-nagara seito ga obore-ta.
teacher NOM near LOC exist though student NOM drown-PAST
'A student got drowned, although a teacher was nearby.'

Moreover, the latter is often followed by a focus particle *mo* as in (b).
(b) semai-nagara mo tanosii waga-ya.
narrow-CONCESSIVE-mo happy my home
'home sweet home.' (lit. happy home though it is small)

Lastly, the *nagara* construction involves prosodic difference as in *íi-nagara* (concurrent) and *ii-nágara-mo* (concessive) 'say-NAGARA'.

I focus on the former in this paper due to its relevance to lexical aspect.

depending on which verb to be foregrounded or backgrounded in the sense of Talmy (1978).

(70) ringo o tabe-nagara arui-ta.
apple ACC eat-while walk-PAST
"(I) walked while (I) ate an apple."

Note that the arguments of the two verbs must be identical and shared in (70). If there are two separate arguments, the sentence becomes ungrammatical as in (69').

(69')*John-ga aruki-nagara Mary-ga ringo o tabe-ta.
John-NOM walk-while Mary-Nom apple ACC eat-PAST
"Mary ate an apple while John walked."

If a modal like -(rar)e- 'be able to' attaches to the matrix verb *tabe-* 'eat', *aruki-* 'walk' enters into the scope of modal, not just *tabe-* 'eat' as in (71).

(71) [aruki-nagara ringo ga tabe]-rare-ru.
walk-while apple NOM eat -can -NON-PAST
"(I) can eat an apple at the same time as I walk."

In contrast, the verb marked by *-nagara* cannot have a modal on its own, and this is illustrated in (72).

(72)*aruk-e-nagara ringo ga tabe-rare-ru.
walk-CAN-while apple NOM eat-CAN-NON-PAST
"I can eat an apple while I can walk."

Interestingly, there are verbs that are incongruous with *nagara* as (73) shows.

(73)??coppu ga ware-nagara tsukue-kara ochi-ta
cup NOM crack-while desk-from fall-PAST
"The cup fell off from the desk while cracking."

One might argue that ungrammaticality of (73) is associated with agentivity, since the arguments in the grammatical sentences ((69) and (70)) are agentive, while the argument in the ungrammatical sentence (73) is not. Since non-agentive arguments like *happa* 'leaves' or

erebeta 'elevator' can occur with *nagara* as in (74) and (75), it can be readily seen that agentivity does not play a role.

(74)happa ga kaze ni mai-nagara, ki kara ochi-te it-ta.
leaves NOM wind to dance-while tree-from fall-TE go-PAST
"The leaves fell off from the trees, while dancing to the wind."

(75)erebeta ga gatagata yure-nagara, sita-ni ori-te it-ta.
elevator NOM rattling shake-while, down to go down-TE go-PAST
"The elevator went down, while shaking."

By observing such split behaviors of intransitive verbs, proponents of the syntactic account would be likely to put forward that they are due to the configurational differences in the underlying forms. However, it seems straightforward that the grammaticality of the *nagara* construction is ascribed to lexical aspect.

Nagara denotes a sense of duration. Hence, a lexical semantic account would predict that it occurs only with verbs that inherently possess compatible lexical aspectual properties. I take that they are the unbounded non-static properties (i.e., [+dynamic]). An *Aktionsart* classification would allow us to examine the congruity of verbs with *nagara*. Below, we examine the *nagara* construction in this light.

First of all, this construction, in essence, expresses "happening". Therefore, the verb that occurs with *nagara* cannot be static. So, a stative verb like *ir-* 'exist' should not be able to occur with *nagara*. This is borne out in the ungrammaticality of (76).

(76)*heya-ni i-nagara tabako o sut-ta.
room at exist-while cigarette ACC smoke-PAST
"(I) smoked a cigarette while I was in the room."

Consequently, stative verbs are ruled out from this construction.

Secondly, it requires that verbs have the property of duration. Therefore, achievements, which are non-durative ([+punctual]), are naturally ruled out as shown in (77) and (78).[18]

(77)??ringo-ga ki kara ochi-nagara kusat-ta.
apple NOM tree from fall-while rotten-PAST
"The apple got rotten while falling off from the tree."

(78)??heya-ni hairi-nagara aisukurimu o tabe-ta.
room to enter-while ice-cream ACC eat-PAST
"(I) ate an ice-cream while entering the room"

We must note that (78) may be acceptable in a slow motion interpretation, i.e., the particular moment of "entering" is focused, and "entering" is viewed as slow motion. However, this is not the intended interpretation.

Though accomplishments are durative, due to the fact that they are telic, they usually do not occur with *nagara*. Observe the following:

(79)??hune-ga sizumi-nagara yure-ta.
ship NOM sink-while shake-PAST
"The ship shook while it sank."

(80)??yuki-no boru wa ookiku-nari-nagara korogat-ta
snow-GEN ball TOP big become-while roll-PAST.
"The ball made of snow rolled while becoming big."

In (79), it is possible to take that only a segmented portion of the entire event (i.e., *sinking*) is focused and that the sentence depicts the event within that temporal span. Or in (80), we may take that the

---

[18] The grammaticality of sentences with accomplishments or achievements do not improve even if we use TE-IKU (TE-go 'away from the reference point') which adds the progressive sense to telic verbs as in (c) and (d). This is because *iku* 'go' itself is an achievement verb and is incompatible with *nagara*.

(c) *hune-ga sizun-de-iki-nagara yure-ta.
ship NOM sink-TE-go-while shake-PAST
"The ship shook while it sank."

(d) *ringo-ga ki kara ochi-te-iki-nagara kusat-ta.
apple NOM tree from fall-TE-go-while rotten-PAST
"The apple fell off from the tree while getting rotten."

process of *becoming big* is repeated as the ball rolls. However, these are marked interpretations.

In contrast, when *nagara* marks activity verbs, it yields grammatical sentences. The verbs in the matrix core in (79) and (80) are both activity verbs. If they were exchanged with the verbs in the embedded core, the sentences become grammatical.

(79') hune-ga yure-nagara sizun-da.
ship NOM shake-while sink-PAST
"The ship sank while shaking."

(80') yuki-no boru ga korogari-nagara ookiku-nat-ta
snow-GEN ball NOM roll-while big-become-PAST
"The ball made of snow became big while rolling."

As for active accomplishments, sentences containing them are grammatical as in (81) and (82).

(81) Eki made aruki-nagara tabako o ippon sut-ta.
station to walk-while cigarette ACC one-CL smoke-PAST
"(I) smoked one cigarette while I walked to the station."

(82) saigo-no ippon o sui-nagara eki made arui-ta.
last-GEN one-CL smoke-while station to walk-PAST
"(I) walked to the station, while smoking the last cigarette."

Thus, the crucial property that allows verbs to occur with *nagara* must be the inherent [+dynamic] property. That is, having **do'** inherently in the LS enables the verb to be marked by *nagara*.

In terms of distributional pattern, the *nagara* construction appears to mirror the dichotomous pattern of unaccusative and unergative verbs. The grammaticality of this structure, however, is evidently motivated by lexical aspect. Hence, there is no reason to apply the syntactically motivated distinction to this construction however analogously they may mirror the unergative-unaccusative pattern superficially.

4. Split intransitivity and the semantic parameter

Thus far, we have looked at four constructions that may be taken to be pertinent to unaccusativiy in Japanese; namely, *-kake* 'do halfway', resultatives, *deverbal nominal suru* (*light verbs*), and *nagara* 'while'. Up to this point, we have offered an account in RRG for each construction and argued that the grammaticality of these constructions is predicted from the lexical aspect of the words involved. The next question we may ask is what the precise relation is between unaccusativity and *Aktionsart* classification. We begin by reviewing Perlmutter's (1978) original semantic analysis on unaccusative and unergative verbs in terms of *Aktionsart* classification.

Perlmutter states that unergativity and unaccusativity are "predictable from the semantics of the clause" (p.161). Further, he notes that unergative verbs appear to "correspond closely to the traditional notion of active or activity" (p.162), and provides the following description of these two classes:

Unergative verbs

a. Predicates describing willed or volitional acts (e.g., work, speak, frown, shout, meow, knock, study, laugh, dance, bark)
b. Certain involuntary bodily processes (e.g., cough, sneeze, belch, sleep)

Unaccusative verbs

a. Predicates expressed by adjectives in English
b. Predicates whose initial nuclear term is semantically a Patient (e.g., fall, sink, melt, redden, burn down, *shake, *roll, *burn)
c. Predicates of existing and happening (e.g., exist, happen, turn up)
d. Non-voluntary emission of stimuli that impinge on the senses

(e.g., *shine, pop, smell, *clink)

e. Aspectual predicates (e.g., begin, start, stop, *continue)

f. Duratives (e.g., last, remain)

Application of diagnostics tests reveals that Perlmutter's unergative-unaccusative distinction and RRG's activity and non-activity distinction are analogous enough to conclude that they are comparable, granting that there exist exceptions as marked by * above. In other words, Perlmutter's unergative verbs correspond to RRG's activities, whereas his unaccusative verbs correspond to a coalescence of RRG's achievements, accomplishments and states.

If this is the correct observation, it supports the idea that it is, in effect, lexical aspect that determines the split between unergative and unaccusative classes. This further shows that the dichotomy of unergative and unaccusative classes happen to correspond to one of the various combinations that can be obtained by dividing the *Aktionsart* classes into two. Therefore, unergative-unaccusative split is secondary to *Aktionsart* classification. This leads to a further question; what is the significance of distinguishing this particular combination from the rest? The answer seems to be straightforward given the LS of each *Aktionsart* class (repeated below):

Class	LOGICAL STRUCTURE
ACTIVITY:	**do'** (x, [**predicate'** (x)])
STATE:	**predicate'** (x)
ACHIEVEMENT:	INGR **predicate'** (x)
ACCOMPLISHMENT:	BECOME **predicate'** (x)

It is clear that only activity verbs contain the operator **do'** in their LS, while non-activity verbs contain state predicates. Since an intransitive verb contains only a single argument, the argument of **do'** would be linked to the actor and the argument of the state predicate

would be linked to the undergoer following the Actor-Undergoer Hierarchy. Thus, the significance of this particular combination is that it represents the actor-undergoer distinction as far as the above four basic classes are concerned. That is, verbs which take undergoers correspond to unaccusative verbs. In syntactic accounts, it is claimed that the commonality between the arguments of unacccusative verbs and *objects* of transitive verbs can be accounted for only on syntactic grounds. However, it is worth noting that such commonality can be explained on the basis of the semantic notion of *undergoerhood*.[19] Moreover, since undergoer status is assigned to an argument based on *Aktionsart*, the primary building blocks to account for unaccusativity can be argued to be lexical aspect.

Given the correspondence between Perlmutter's unaccusative verbs and RRG's non-activity verbs, we are now in a position to examine the constructions that are claimed to manifest unaccusativity in terms of *Aktionsart*. Comparison of unaccusativity across constructions is provided in Table 7 with reference to the possibility of forming the construction:

---

[19] It is not always the case that *objects* of transitive verbs are *undergoer* (e.g., the second argument of activity verbs).

Japanese Construction type	(A) Class that follows the unaccusative pattern	(B) Class that does not follow the unaccusative pattern
-kake 'do halfway'	They occur with -kake. accomplishment active accomplishment ([-punctual, +telic])	They do not occur with -kake. state activity achievement
resultatives	They occur with resultatives. achievement accomplishment ([-dynamic, +telic])	They do not occur with them. state activity active accomplishment
deverbal noun suru (light verbs)	*O* ACC cannot occur before *suru*. state achievement accomplishment (verbs other than [+dynamic], [+agent][20])	*O* ACC can occur before *suru*. activity active accomplishment
-nagara 'while'	They do not occur with -nagara. state achievement accomplishment (verbs other than [+dynamic])	They occur with -nagara. activity active accomplishment

Table 7: Unaccusativity of Japanese in light of *Aktionsart*

In Table 7, column (A) shows the verbs that follow the unaccusative pattern, whereas column (B) shows the verbs which do not follow the unaccusative pattern; therefore, column (B) may include unergative verbs as well as the verbs which do not behave like unaccusative verbs but may not necessarily be unergative verbs. Insofar as this table shows, the *-kake* and the resultative constructions test for only a subset of Perlmutter's intended unaccusative classes (i.e., achievements,

[20] Agency will be discussed later in the section.

accomplishments and states), while *deverbal noun suru* and *-nagara* correspond to Perlmutter's unaccusative verbs. In terms of the distributional patterns, it is worth noting that accomplishments always occur in column (A), whereas activities always occur in column (B). This suggests that a prototype of unaccusative verbs may be accomplishments, whereas a prototype of unergative verbs may be activities. For a fuller discussion, let us examine the cases of unaccusativity in other languages.

First, we take Italian as an example. One of the phenomena in Italian that is argued to demonstrate unaccusativity is selection of an auxiliary *avere* 'to have' and *essere* 'to be'. In syntactic analyses (Burzio 1986 among others), unaccusative verbs are claimed to select *essere* as in (83), and unergative verbs select *avere* as in (84). There exists, however, a hybrid class that takes either *essere* or *avere* as in (85) and (86)(The examples are shown from Centineo, 1986).

(83) Maria è caduta dal letto.
PN-F be-PRES-3SG fall-PSTPART-FSG from.the-MSG bed-MSG
'Maria fell off the bed.'

(84) Maria ha dormito molto ieri.
PN-F have-PRES-3SG sleep-PSTPART much yesterday
'Maria slept a lot yesterday.'

(85a) Luisa ha corso nel parco per/*in un'ora.
PN-F have-PRES-3SG run-PSTPART in.the-MSG park-MSG for/in a hour-FSG
'Luisa ran in the park for/*in an hour.'

(85b) Luisa è corsa a casa in/per un'ora.
PN-F be-PRES-3SG run-PSTPART-FSG to house-FSG in/for a hour-FSG
'Luisa ran home in/for hour.'
(with per = 'at home for an hour', not 'running for an hour')

(86a) L' uccello ha volato solo per qualche minuto.
the-MSG bird-MSG have-PRES-3SG fly-PSTPART only for some minute-MSG
'The bird flew just for a few minutes.'

(86b) L' uccello è volato via.
the-MSG bird-MSG be-PRES-3SG fly-PSTPART-MSG away
'The bird flew away.'

The third class turns out to be comprised of RRG's activities and active accomplishments (Centineo, 1986; Van Valin, 1987, 1990). Activity verbs such as (85a) and (86a) follow the pattern of unergative verb, taking *avere*, while active accomplishments such as (85b) and (86b) follow the pattern of unaccusative verbs, taking *essere*. Van Valin (1987, 1990) argues that the crucial factor on Italian auxiliary selection is whether the verb contains a state predicate in its LS. In the case of (85b), its LS (87) contains the state predicate **be-at'** (casa, Luisa).

(87) [**do'** (Luisa, **run'** (Luisa)] ^ [BECOME **be-at'** (casa, Luisa)]

Thus, in Italian auxiliary selection, active accomplishments do not behave like activities. This is analogous to the *kake*-construction in Japanese, but not to the other three (resultatives, *deverbal-noun suru*, and *nagara*). The *Aktionsart* classes that follow the unaccusative pattern in Italian do not coincide with those in Japanese.

Dutch seems to present another variant pattern. According to Zaenen (1993), Dutch demonstrates intransitive split patterns in auxiliary selection. Unlike Italian auxiliary selection, atelic verbs take *hebben* 'to have', while telic verbs (including active accomplishments) take *zijn* 'to be'.[21]

Georgian is another often cited case to defend the UH. In Georgian, the case marking is determined based on the four verb classes (class 1-4) and the tense trichotomy (present, aorist and perfect). Among the three, Harris (1981, 1982) claims that the aorist set

---

[21] Zaenen (1993) notes that there are exceptions to this generalization. *Blijven* 'remain', though atelic, takes *zijn*, and so does *gaan* 'go'.

manifests unaccusativity. In the aorist set, the *subject* of an intransitive verb in class 2 is marked by NOM which equals the marking for the *object* of transitive verbs in class 1 and class 3. On the other hand, the *subject* of an intransitive verb in class 3 is marked by ERG which equals the marking for the *subject* of the transitive verb in class 1. Harris argues that class 2 has an initial 2 (i.e., it lacks initial 1) in RelG, while class 3 has an initial 1. As Holiskey (1979) notes, the four verb classes are compatible with the *Aktionsart* classification by Dowty (1979). Class 2 which Harris argues to lack initial 1 turns out to consist of RRG's achievements and accomplishments (as well as a few states), and class 3 which has initial 1 turns out to correspond to RRG's activities. In Georgian as well, the class claimed to manifest unaccusativity turns out to be a subset of Perlmutter's unaccusative verbs. Further, as Van Valin (1986, 1990) points out, one of the reasons why Harris's argument should not be accepted is that the present set does not demonstrate the same pattern as the aorist set. That is, in the present set, the marking for *subject* of class 2 is not any different from that for class 3; namely, they are both marked by NOM. This implies that all the verbs in class 2 must have two lexical entries for the present set and the aorist set. On the other hand, a lexical semantic account handles this case without such an *ad hoc* treatment. See Van Valin (1986, 1990) for convincing arguments in favor of a lexical semantic account against Harris's claim. To sum up our cross-linguistic observations, we present the following table:

Construction type	(A) Class that follows the unaccusative pattern	(B) Class that does not follow the unaccusative pattern
Japanese	They occur with -kake.	They do not occur with -kake.
-kake 'halfway done'	accomplishment active accomplishment ([-punctual, +telic])	state activity achievement
resultatives	They occur with resultatives.	They do not occur with them.
	achievement accomplishment ([-dynamic, +telic])	state activity active accomplishment
deverbal noun suru (light verbs)	*O* ACC cannot occur before *suru*.	*O* ACC can occur before *suru*.
	state achievement accomplishment (verbs other than [+dynamic], [+agent])	activity active accomplishment
-nagara	They do not occur with -nagara.	They occur with -nagara.
	state achievement accomplishment (verbs other than [+dynamic])	activity active accomplishment
Italian	They select *essere.*	They select *avere*.
auxiliary selection	state achievement accomplishment active accomplishment (verbs other than [+dynamic, -telic])	activity
Dutch	They select *zijn.*	They select *hebben.*
auxiliary selection	achievement accomplishment active accomplishment ([+telic])	state activity
Georgian	They are marked by NOM.	They are marked by ERG.
Case marking of the sole argument	achievement accomplishment state (not all) ([-dynamic])	activity active accomplishment

Table 8: Cross-linguistic comparison of unaccusativity

Table 8 illustrates a few points. The observation made earlier for Japanese holds cross-linguistically that the prototype of unaccusativity is accomplishment verbs and the prototype of unergativity is activity verbs. Secondly, the grammaticality of all the constructions can be predicted from *Aktionsart* but not necessarily from unaccusativity. This is because some of the constructions (namely, Japanese *-kake*, resultatives, Dutch auxiliary selection, and Georgian case marking) diagnose only for a subset of unaccusative verbs. In other words, such constructions are incomplete as diagnostic tests for unaccusativity. Thirdly, we note the inconsistent behavior of active accomplishments between Japanese *deverbal noun suru* and Italian auxiliary selection. In Japanese, active accomplishments pattern like activities, while in Italian, they pattern like non-activities. This inconsistency across languages would be problematic for maintaining the UH as a universal principle.

According to Van Valin (1990), lexical aspect is not the only semantic parameter that predicts the phenomenon of intransitive-split. Languages such as Tsova-Tush and Acehnese demonstrate split patterns based solely on agentivity.[22] When we consider the case of Japanese, the constructions we examined turned out to correlate with lexical aspect. Hence, in terms of split-intransitive pattern, Japanese can be judged to be an Italian type language, rather than an Acehnese type, contrary to Kishimoto's (1996) claim that the parameter of Japanese is

---

[22] According to Holisky (1987) and Van Valin and Wilkins (1996), agency is a "derived notion" mapped onto an *effector* (an instigator of the event); i.e., agency could be lexicalized in the verb or in the argument NP itself, or it could be pragmatically determined. Agentivity of the argument is measured in view of hierarchies that extends to two dimensions; one, of true animacy and the other, of empathy and topicality. See Van Valin and Wilkins (1996) for detailed discussions on this topic.

agentivity. However, we cannot deny the fact that agency plays an important role in Japanese, and this point is attested in the research from first language acquisition (see Rispoli, 1987 among others). Then, it is possible that agentivity would interact with *Aktionsart* in determining the grammaticality of certain constructions. Take the *deverbal nominal o suru* construction, for example. In this construction, we saw that activity verbs allow *o* to occur but non-activity verbs do not. Let us now see whether agentivity affects the grammaticality of this construction.

The contrast of (88) and (88') shows that the alternation is possible if the *Aktionsart* of the deverbal noun is activity when it has an [+agent] argument.

(88) John-ga wazato hatsugen-si-ta.
John-NOM deliberately utter-do-PAST
'John spoke deliberately.'

(88') John-ga wazato hatsugen-o-si-ta.
John-NOM deliberately utter-ACC-do-PAST
'John spoke deliberately.'

(89) and (90) contain activity verbs (*sindou-suru* 'swing/oscillate' and *kaiten-suru* 'rotate/roll') but the arguments (*huriko* 'pendulum' and *bouru* 'ball') are [-agent].

(89) huriko-ga sindou-si-te-iru.
pendulum swing-do-TE-IRU
'The pendulum is swinging.'

(90) bouru-ga kaiten-si-te-iru.
ball NOM roll-do-TE-IRU
'The ball is rotating/rolling.'

As (89') and (90') show, when these non-agentive arguments occur in the *deverbal nominal o suru* construction, the acceptability becomes marginal at best:

(89')??huriko-ga sindou o si-te-iru.
pendulum swing ACC do-TE-IRU
'The pendulum is swinging.'

(90')??bouru-ga kaiten o si-te-iru.
ball NOM roll-do-TE-IRU
'The ball is rotating/rolling.'

According to Hasegawa (1996), the agency-canceling adverbs such as *ukkari-to* 'unintentionally' or *guuzen-ni* 'accidentally' cannot occur with agentive arguments, unless they are used in a special construction with *simaw-* 'put' as in (91).

(91) John-ga ukkari-to hatsugen-o-si-te-simat-ta.
John-NOM unintentionally utter-ACC-do-TE-put-PAST
'John unintentionally made an utterance.'

If we want to express *John did a certain thing*, we can say a sentence like (92) but it cannot occur with the agency-canceling adverbs unless they occur in the *simaw-* construction as in (93).

(92) John-ga (?ukkari-to/?guuzen-ni) aru-koto o si-ta.
John-NOM (unintentionally/accidentally) certain-event ACC do-PAST
'John did a certain thing (unintentionally/accidentally).'

(93) John-ga ukkari-to/guuzen-ni aru-koto o si-te-simat-ta.
John-NOM unintentionally/accidentally certain-event ACC do-TE-put-PAST
'John did a certain thing unintentionally/accidentally.'

This shows that the two-place activity verb *suru* is lexicalized with agency and this explains why a non-agentive argument cannot occur in the *deverbal noun o suru* construction.

It is important to note that agentivity alone cannot be the determining factor for "o" to occur in the *deverbal noun-suru* construction, because non-activity verbs cannot take "o" even if they occur with agentive arguments.

(94) John-ga wazato rakuba-si-ta.
John-NOM deliberately fell off from a horse-do-PAST
'John deliberately fell off from a horse.'

(94')John-ga ukkari-to/guuzen-ni rakuba-si-te-simat-ta.
John-NOM unintentionally/accidentally fell off from a horse-do-TE-put-PAST
'John unintentionally/accidentally fell off from a horse.'

(94) contains an achievement verb *rakuba-suru* 'fall off from a horse' with an [+agent] argument. If agency determines the grammaticality of alternation, (94) should be able to take "o"; however, this is not the case as in (94')

(94')??John-ga wazato raku-ba o si-ta.
John-NOM deliberately fell off from a horse ACC do-PAST
'John deliberately fell off from a horse.'

This shows that being an activity verb is not sufficient to occur in the *deverbal noun o suru* construction. That is, the argument must necessarily be [+agent].

5. Conclusion

This paper examined unaccusativity in Japanese. I argued for a lexical semantic account within the framework of Role and Reference Grammar (RRG). After sketching out the theoretical framework , I presented diagnostic tests to identify Japanese *Aktionsart* classes, which are comparable to the classification developed in Van Valin and LaPolla (1997). These tests were essential to identify the lexical aspectual properties of the various constructions in question.

In the third section, I reviewed four constructions which are taken to be of relevance to unaccusativity. First of all, I examined the *-kake* 'do halfway' construction, on the basis of which Kishimoto (1996) claimed that the semantic parameter of split intransitivity for Japanese is agentivity. I have demonstrated that it is the lexical aspectual properties of [-punctual, +telic] that in fact determines the

grammaticality of this construction. Secondly, I examined the constructions with resultative phrases, which Tsujimura (1990b) argues supports a GB account. I have shown that it is again lexical aspect that determines the well-formedness of the construction. I further argued that a purely syntactic approach would not account for the ungrammaticality of this construction with state verbs and motion verbs such as *tsuk-* 'arrive'; hence the lexical semantic analysis should be preferred. Thirdly, I examined the deverbal noun *suru* construction. I have illustrated that the accusative case particle "o" occurs with [+dynamic] verbs, and insertion of "o" causes a verbalizer *suru* to become a full-fledged activity verb. The ungrammaticality of occurrence of "o" with non-activity verbs is related to the fact that their *Aktionsart* class would be virtually changed to activity. I also discussed that agency plays a role to determine the grammaticality of this construction. The fourth construction we saw was *-nagara* 'while'. Superficially, this construction appears to have exemplified unaccusativity. However, it was shown that the ungrammaticality of this construction follows from lexical aspect; hence, it would be inappropriate to associate it with a syntactically motivated terminology of unaccusativity.

In the last section I examined the relation between unaccusativity and lexical aspect. I have argued that unaccusativity is reducible to lexical aspect. First of all, I have demonstrated that Perlmutter's unergative-unaccusative distinction is almost a mirror image of RRG's activity and non-activity distinction. Given the fact that Perlmutter himself notes the correspondence between unergative verbs and "activity" verbs, the division between the two classes can be argued to follow from

Aktionsart. Secondly, the unergative-unaccusative dichotomy is simply one of the possible divisions of *Aktionsart* classes. This shows that this particular classification is secondary to the general *Aktionsart* classification of verbs. Thirdly, all the constructions claimed to manifest unaccusativity have shown to correlate with lexical aspect. With a lexical aspect account, we did not have to make an *ad hoc* treatment for those that do not behave like unaccusative verbs. Hence, I argue that unaccusativity is reducible to lexical aspect. The last section also saw some cross-linguistic patterns on unaccusativity. Japanese was demonstrated to be an Italian type language in terms of the semantic parameter of split-intransitivity.

Lexical semantics allowed us to investigate the typology of split-intransitivity, and it was shown that a variety of morphosyntactic phenomena across languages can be accounted for by lexical aspect, which would otherwise require independent accounts. Verbs can be divided into two groups depending on whether they possess certain inherent lexical properties. This suggests that the inherent lexical properties basically motivate the dichotomous morphosyntactic realizations of intransitive verbs. Needless to say, however, non-inherent properties, given the context, may play a role as we saw in the case of active accomplishment verbs. This paper focused on only a limited number of constructions. Future cross-linguistic studies across constructions shall offer further insights and generalizations on the phenomenon of split-intransitivity.

References

Burzio, L. *Italian syntax*. Dordrecht: Reidel, 1986.

Centineo, G. A lexical theory of auxiliary selection in Italian. *DWPIL*. 1:1-35. 1986.

Dowty, D. *Word meaning and Montague grammar*. Dordrecht: Reidel, 1979.

Fukushima, K. Phrase structure grammar, Montague semantics, and floating quantifiers in Japanese. *Linguistics & Philosophy*. 14: 581-628. 1991.

Goldberg, A. A semantic account of resultatives. *Linguistic Analysis*. 21: 66-96. 1991a.

_____. It can't go down the chimney up: Paths and the English resultatives. *BLS*. 17: 368-378. 1991b.

Grimshaw, J. and Mester, A.. Light verbs and (theta)-marking. *Linguistic Inquiry*. 19: 205-232. 1988.

Harris, A. *Georgian syntax*. Cambridge: Cambridge University Press. 1981.

_____. Georgian and the unaccusative hypothesis. *Language*. 58: 290-306. 1982.

Hasegawa, Y. *A study of Japanese clause linkage; the connective TE in Japanese*. Stanford: CSLI. 1996.

Himeno, M. *Hukugoudousi 'kakaru' to 'kakeru'* 'Compound verbs 'kakaru' and 'kakeru''. Nihongo gakkouronshu 6. Tokyo: Tokyo Gaikokugo Daigaku Huzoku Nihongo Gakkou. 1979.

Holisky, D. On lexical aspect and verb classes in Georgian. *CLS Parasession on the elements/non-Slavic languages of the USSR*. 390-401. CLS. 1979.

_____. The case of the intransitive *subject* in Tsova-Tush (Batsbi). *Lingua.* 71:1-3-32. 1987.

Kageyama, T. *Dousi imiron* 'Semantics of verbs'. Tokyo: Kurosio Shuppan. 1996.

Katagiri, M. Review article. *Studies in Language*. 15:2 399-414. 1991.

Kindaichi, N. *Nihongo dousi no asupekuto* 'Aspect of Japanese verbs' . Tokyo: Mugishobou. 1979.

Kishimoto, H. Split intransitivity in Japanese and the unaccusative hypothesis. *Language*. 72:248-286. 1996.

Levin, B., and Rappaport Hovav, M. *Unaccusativity: At the syntax-lexical semantics interface*. Cambridge, MA: The MIT Press. 1995.

Martin, S. *A reference grammar of Japanese*. New Haven: Yale University. 1975.

Miyagawa, S. Light Verbs and the Ergative Hypothesis. *Linguistic Inquiry*. 20: 659-668., 1989a.

_____. *Structure and case marking in Japanese*. San Diego: Academic Press, 1989b.

Perlmutter, D. *Impersonal passives and the unaccusative hypothesis*. Berkeley Linguistics Society 4. 157-89. 1978.

Rispoli, M. The acquisition of transitive and intransitive action verb categories in Japanese. *First Language*. 7: 183-200. 1987.

Sugioka, Y. *Interaction of derivational morphology and syntax in Japanese and English*. New York: Gerland Publishing, Inc. 1986

Simpson, J. Resultatives. *Papers in Lexical-Functional Grammar.* In Levin, Rappaport & Zaenen, eds. Bloomington: Indiana University Linguistics Club. 1983.

Tenny, C. *Grammaticalizing aspect and affectedness.* Doctoral dissertation, MIT. 1987.

Terada, M. Unaccusativity in Japanese. *NELS*. 17:619-640. 1987.

Tsujimura, N. Ergativity of nouns and case assignment. *Linguistic Inquiry*. 21: 277-287. 1990a.

_____. Unaccusative hypothesis and noun classification. *Linguistics*. 28: 929-957. 1990b.

Uchida, Y. & Nakayama, M. Japanese verbal noun constructions. *Linguistics.* 31: 623-666., 1993.

Van Valin, R. The Unaccusative Hypothesis vs. lexical semantics: Syntactic vs. semantic approaches to verb classification. *NELS*. 17:641-661. 1987.

_____. Semantic parameters of split intransitivity. *Language*. 66:2, 221-260. 1990.

Van Valin, R. and LaPolla R. *Syntax: Structure, meaning & function*. MA: Cambridge. 1997.

Van Valin, R. and Wilkins, D. The case for 'effector': case roles, agents, and agency revisited. *Grammatical constructions: Their form and meaning*. In Shibatani & Thompson, eds., 289-322. Oxford: Clarendon press. 1996.

Vendler, Z. *Linguistics in philosophy*. Ithaca: Cornell University Press. 1957[1967].

Zaenen, A. Unaccusativity in Dutch: Integrating syntax and lexical semantics. In Pustejovsky, ed., 129-161. Netherlands: Kluwer Academic Publishers. 1993