Externalization in the Temporal Affix Construction*

Sato Yutaka

1. Introduction

Japanese has a large number of event-denoting nouns called verbal nouns[1], which bear argument structure and can incorporate into a light verb, *su(ru),*[2] or form predicate complexes with it.[3] *Kensetu* "construction" in (1), highlighted in capitals, for example, is a verbal noun (VN) incorporated into the light verb.[4]

(1)	Seihu	ga	atarasii	biru	o	KENSETU	sita.
	government	NOM	new	building	ACC	construction	did
	"The government built new buildings."						

The peculiarity of VNs is that their syntactic behavior varies greatly, depending on where they appear. They sometimes appear as bona fide nouns, and sometimes as if they are verbs. Some VNs behave like intransitive verbs as well as transitive verbs.

The VN *kensetu,* for example, takes its arguments in the genitive in (2), as expected from its category (i.e., noun), but it also co-occurs with its arguments in verbal cases (e.g., accusative and nominative cases) in (3) and (4), just like a verb.

(2)	Seihu	no	atarasii	biru	no	KENSETU			
	gov't	GEN	new	building	GEN	construction			
	"The construction of new buildings by the government."								
(3)	Seihu	ga	atarasii	biru	o	KENSETU	tyuu	da.	
	gov't	NOM	new	building	ACC	construction	mid	COP	
	"The government is constructing new buildings." (Ono's (1997:167) (23a))[5]								
(4)	Atarasii	biru	ga	KENSETU	tyuu	da.			
	new	building	NOM	construction	mid	COP			
	"New buildings are under construction." (Ono's (1997:167) (23b))								

Note that the VN in (3) is transitive, with its Theme argument in the accusative and its agentive argument in the nominative, but that the same VN in (4) is intransitive, with its Theme in the nominative. The VN in question, however, can only derive a transitive verb when compounded with a light verb, as shown in (1). This VN-*suru* compound can never act as an intransitive verb, as shown in (5) .

(5)	*Atarasii	biru	ga	KENSETU	sita.
	new	building	NOM	construction	did
	"New buildings were built."				

Ono (1997) attempted to account for the above phenomenon where VNs alternate

between transitive and intransitive usages. He pointed out that causative VNs (or accomplishment VNs) undergo such transitivity alternation, but that activity VNs do not, in a construction headed by a temporal affix like *-tyuu*. This construction will be hereafter called the Temporal Affix Construction (TAC), following Sells (1990)[6]. Observe that the activity VN *kenkyuu* "research" in (6) does not undergo transitivity alternation. Unlike the causative VN *kensetu* in (3) and (4), *kenkyuu* can only function as a transitive verb, as in (6a), but not as an intransitive verb, as in (6b).

(6) a. Sensei ga Ainugo o KENKYUU tyuu da.
professor NOM Ainu ACC research mid COP
"The professor is doing research on Ainu." (Ono's (1997:161) (27a))
b. *Ainugo ga KENKYUU tyuu da.[7]
Ainu NOM research mid COP
"A research on Ainu language is in progress." (Ono's (1997:161) (27b))

Based on the contrast between causative and activity VNs as shown above, Ono (1997) proposed that the temporal affix *-tyuu* was responsible for externalization of the internal argument of a causative VN.[8] Faced with the fact that causative VNs undergo externalization when compounded with a temporal affix, but not with a light verb, it appears quite reasonable to assume that it is the temporal affix that has brought it about. It is unlikely that causative VNs have the ability to externalize their Theme argument. If they did, *kensetu-sita* in (5) should be able to mean something like "be (was) constructed," just as in (4), because *suru* does not impose any semantic restriction on the subject of VN-*suru*. *Suru* allows a Theme as well as an Agent to appear as subject, if a VN denotes a spontaneous change that comes about naturally, as shown in (7).

(7) Ziko ga HASSEI sita.
accident NOM emerging did
"An accident happened."

The purpose of this paper, however, is to argue against this part of Ono's proposal and claim instead that something other than a temporal affix is responsible for externalization. I argue that neither the temporal affix nor the VN brings about externalization, but that a zero light verb does. The organization of this paper is as follows: section 2 points out a problem with Ono's (1997) analysis, section 3 presents an alternative solution to the problem, section 4 presents a theoretical account of how VNs undergo externalization in the TAC, and section 5 concludes the paper.

2. Ono's (1997) analysis

This section illustrates Ono's analysis of how VNs undergo externalization in the TAC. A problem with Ono's approach will be pointed out at the end. Before illustrating Ono's analysis, however, the classification of VNs in terms of the transitivity of VN-*suru* compounds will be briefly examined.

VNs can be classified into three groups, as noted by Kageyama (1996)[9], depending on the transitivity of the compounds they derive with the light verb *suru*. One group of

VN-*suru* compounds, like those in (8a), act only intransitively, another group, (8b), acts only transitively, and the last group (8c) acts either transitively or intransitively.

(8) Three different classes of VNs (Kageyama 1996:202.)
   a. Intransitive only: *HASSEI-suru* ("happen"), *GERAKU-suru* ("fall"), etc.
   b. Transitive only: *BAKUHA-suru* ("explode"), *SATUGAI-suru* ("kill"), etc.
   c. Intransive/transive: *KAKUDAI-suru* ("enlarge"), *SYUKUSYOO-suru* ("reduce in size"), etc.

The VNs of the intransive-only type in (8a) will be hereafter called the unaccusative VNs, those of the transive-only type in (8b) will be called the causative VNs, and those in (8c) will be called the alternating type. Of these three types, I will only focus on accomplishment and achievement VNs in the rest of this paper.

The data with VNs and a light verb (i.e., VN-*suru* Construction, VN*suru*C) given below in (9) exemplifies the classification in (8). The VN-*suru* compound of the causative type in (9a) is transitive, but never intransitive, the VN-*suru* compound of the alternating type in (9b) can be either transitive or intransitive, and the VN-*suru* compound of the unaccusative type in (9c) is only intransitive, but never transitive.

(9) VN-*suru* Construction:
   a. Causative VN
      (i) vt: Kare ga biru o BAKUHA sita.
      he NOM building ACC explosion did
      "He exploded the building."
      (ii) vi: *Biru ga BAKUHA sita.
      building NOM explosion did
      "The building was exploded."
   b. Alternating VN
      (i) vt: Kare ga sizyoo o KAKUDAI sita.
      he NOM market ACC expansion did
      "He expanded the market."
      (ii) vi: Sizyoo ga KAKUDAI sita.
      market NOM expansion did
      "The market expanded."
   c. Unaccusative VN
      (i) vt: *Kare ga ressya o eki ni TOTYAKU sita.
      he NOM train ACC station at arrival did
      "*He arrived the train at the station."
      (ii) vi: Ressya ga eki ni TOTYAKU sita.
      train NOM station at arrival did
      "The train arrived at the station."

The TAC data in (10) below, in comparison with the above VN*suru*C data in (9), indicate that a VN of the causative type, but not of the other types, exhibits different transitivity. That is, the VN of the causative type can appear as either transitive or

intransitive in the TAC, as shown in (10a), whereas the same VN could only form a transitive verb with *suru*. The transitivity patterns of the alternating and unaccusative VNs in the TAC, on the other hand, are the same as what they are in the VN-*suru* Construction. That is, the alternating type can be transitive or intransitive, as shown in (10b), and the unaccusative type can only be intransitive, as shown in (10c).

(10) TAC with verbal cases

a. Causative VN

i. vt: Karega biru o BAKUHA go ni keisatu ga kita
he NOM building ACC explosion after police NOM came
"After he exploded the building, the police came."

ii. vi: Biru ga BAKUHA go ni keisatu ga kita.
building NOM explosion after police NOM came
"After the building was exploded, the police came."

b. Alternating VN

(i) vt: Kare ga sizyoo o KAKUDAI go ni sore ga okita.
he NOM market ACC expansion after that NOM happened
"After he expanded the market, that happened."

(ii) vi: Sizyoo ga KAKUDAI go ni sore ga okita
market NOM expansion after that NOM happened
"After the market expanded, that happened."

c. Unaccusative VN

(i) vt: *Kare ga ressya o eki ni TOTYAKU go ni ziken ga okita
he NOM train ACC station at arrival after accident NOM happened
"*After he arrived the train at the station, an accident happened."

(ii) vi: Ressya ga eki ni TOTYAKU go ni ziken ga okita
train NOM station at happen after accident NOM happened
"After the train arrived at the station, an accident happened."

The table in (11) summarizes the data in (9) and (10). A causative VN when compounded with *suru* acts transitively, but can be either transitive or intransitive in the TAC. An alternating VN can be either transitive or intransitive in both types of constructions. Finally, an unaccusative VN acts only intransitively in both constructions.

(11) The transitivity patterns in the VN*suru*C and TAC

	VN*suru*C (VN-*suru*)		TAC (VN-*tyuu/go*)	
	vt	vi	vt	vi
Causative VN	ok (9a-i)	* (9a-ii)	ok (10a-i)	ok (10a-ii)
Alternating VN	ok (9b-i)	ok (9b-ii)	ok (10b-i)	ok (10b-ii)
Unaccusative VN	* (9c-i)	ok (9c-ii)	* (10c-i)	ok (10c-ii)

From a viewpoint of semantics, what is unexpected is for causative VNs in the TAC to behave like unaccusative verbs. Other VNs behave as expected from their meanings. Jacobsen (1992:224) [10] characterizes the denotation of each of the three types of VNs as follows.

(12) a. Unaccusative VNs: "spontaneous or self-incurred forms of change."
b. Causative VNs: "verbs of violence, verbs of creation involving intricate planning, and verbs that are in general difficult to disassociate from human intervention"
c. Alternating VNs: "less tied to specific types of change, ranging over situations inclusive of both 'spontaneous' change and change due to outside agency..."

Jacobsen (1992) states that the denotations of VNs are reflected in the transitivity of corresponding VN-*suru* compounds: the unaccusative type manifests as intransitive, the causative type as transitive, and the alternating type as either intransitive or transitive, if no marked morphology is employed. [11] Then it follows that there must be some marked morpheme in the TAC (e.g., (4)) that suppresses Agent involvement in the event denoted by a causative VN and, in turn, externalizes its Theme.

Ono (1997), working in the framework of Pustejovsky (1991) [12], attributes the cause of externalization in the TAC to the ability of the durative affix *-tyuu* to alternatively foreground the process and the state subevent in the Event Structure of causative VNs. Ono states that the temporal affix *-tyuu* forms a complex predicate with a VN, and that, if the Event Structure of the VN is complex, that is, made up of two subevents (i.e., the process subevent and the state subevent), the complex predicate admits of two interpretations. One interpretation is that the activity in question is in progress, and the other that "the process of change is in progress" (p. 163). The former is brought about by evoking the process subevent, and the latter by evoking the state subevent of Event Structure, schematically shown in (13) and (14), respectively.

(13) *kensetu* *-tyuu*
$_{Event}$[Process$_i$ State] $_{Event}$[Durative$_i$]
| |
[x DO-something] CAUSE [y BECOME [y BE AT z]] (Ono's (25))

(14) *kensetu* *-tyuu*
$_{Event}$[Process State$_i$] $_{Event}$[Durative$_i$]
| |
[x DO-something] CAUSE [y BECOME [y BE AT z]] (Ono's (26))

Activity VNs have simple Event Structure, like the one in (15), and, hence, they do not undergo such alternation even if they are compounded with the same temporal affix.

(15) *kenkyuu* *-tyuu*
$_{Event}$[Process$_i$] $_{Event}$[Durative$_i$]
|
[x DO-something] (Ono's (24))

The difference in the Event Structure of causative and activity VNs, namely, the former complex and the latter simple, explains the contrast between (4) and (6b).

Ono's (1997) analysis of the above phenomenon, although insightful, has a problem. The problem has to do with cases where "deverbal nouns" [13] occur with the temporal

affix *-tyuu*. If the temporal affix *-tyuu* were responsible for externalization, as proposed by Ono (1997), it would be expected to bring about the same result with deverbal nouns of the causative type, because presumably they have similar complex Event Structures. The examples below, however, show that this is not the case. The deverbal noun *kumi-tate* "construction," which should be similar in Event Structure to the VN *kensetu* "construction," can only occur in a transitive pattern, as in (16a), but never in an intransitive pattern, as in (16b). Note that replacing the the deverbal noun with the VN improves grammaticality, as shown in (16c).

(16) a. Asiba o kumi-tate tyuu ni ziko ga okita.
scaffolding ACC constructing mid accident NOM happened
"While (they were) constructing the scaffolding, an accident happened."
b. *Asiba ga kumi-tate tyuu ni ziko ga okita.
scaffolding NOM constructing mid accident NOM happened
"While the scaffolding was being constructed, an accident happened."
c. Asiba ga KENSETU tyuu ni ziko ga okita.
scaffolding NOM constructing mid accident NOM happened
"While the scaffolding was being constructed, an accident happened."

Another deverbal noun, *kaki-tome* "recording," with another temporal affix, *-go* "after," exhibits the same contrast. This deverbal noun can occur in a transitive construction, as in (17a), but not in an intransitive construction, as in (17b).

(17) a. Sore o kaki-tome go ni ziko ga okita.
that ACC recording after accident NOM happened
"After (they) wrote that down, an accident happened."
b. *Sore ga kaki-tome go ni ziko ga okita.
that NOM recording after accident NOM happened
"After that was written down, an accident happened."

Replacing the deverbal noun by the semantically equivalent VN *kiroku* "recording" improves the intransitive example in (17b), as shown in (18b).

(18) a. Sore o KIROKU go ni ziko ga okita.
that ACC recording after accident NOM happened
"After (they) wrote that down, an accident happened."
b. Sore ga KIROKU go ni ziko ga okita.
that NOM recording after accident NOM happened
"After that was written down, an accident happened."

The above behavior of "deverbal nouns" would be completely unexpected, if the temporal affixes were responsible for externalization in the TAC with verbal cases. Why is it that a temporal affix cannot foreground the process subevent of a "deverbal noun," which presumably has the same type of Event Structure (i.e, made up of process and state subevents)? An alternative account will be given in the following section.

3. An Alternative Idea

This section proposes an idea alternative to Ono's (1997). It will be claimed in this section that it is not a temporal affix that alternatively foregrounds the process and the state subevent of a causative VN, but that there is some other element in the TAC that is responsible for it. A question may arise as to what it is, if neither the VN nor the temporal affix triggers externalization. There appears to be no other element that can be responsible for alternative foregrounding if neither is. Before pointing out what it is, a slight detour is needed to show briefly how VNs are considered capable of licensing verbal cases in the TAC in the literature.

Ono (1997) assumes, following Iida (1987),[14] that a VN, although a noun, has ability to assign verbal cases when concatenated with an element with a special aspectual feature. Iida (1987), faced with examples of the TAC with verbal cases, raises a question as to the widely accepted theoretical assumption that nouns do not assign verbal cases. She proposes "... that verbal-case assignment behavior with a nominal is realized when the following two conditions are satisfied: (i) the nominal has an argument structure, and (ii) it is combined with a lexical item which bears an aspectual feature" (p. 94). Because a VN has argument structure, it can assign verbal cases in TAC, where it is concatenated with an element with some aspectual feature. Other approaches to accounting for the TAC with verbal cases are those in which (i) VNs are considered verbs (Hasegawa 1991; Takahashi 2000),[15] (ii) VNs are treated as an underspecified category (Dubinsky 1997; Manning 1993),[16] (iii) VNs are taken to be of a special category, [+V, +N, -Adjective], that has ability to assign verbal cases (Kageyama 1993), and (iv) VNs are considered nouns, but a covert verbal element is postulated to assign verbal cases (Sato 1993, 2000; Hoshi 1994).[17] For lack of space, I will not go into the detail of each approach but concentrate on how the last approach (iv) fares with the above data.

I postulate that the examples in (3)-(4) and (2) have the structures in (19)-(21). The examples in (19) and (20), namely, instances of the TAC with verbal cases, contain a phonologically null verbal element which functions like a light verb, while the example in (21), an instance of the TAC with nominal cases, does not contain such a verbal element. The phonologically null light verb in (19) and (20) will be called a zero light verb and is abbreviated as *zlv* (and represented as Ø). A VN is assumed to incorporate into a *zlv*, just like a VN incorporating into an overt light verb.

(19) [Seihu ga atarasii biru o KENSETU Ø] tyuu ni ...
gov't NOM new building ACC construction mid
"While the government was constructing new buildings, ..."

(20) [Atarasii biru ga KENSETU Ø] tyuu ni ...
new building NOM construction mid
"While new buildings were being constructed, ..."

(21) [Seihu no atarasii biru no KENSETU] tyuu ni
gov't GEN new building GEN construction mid
"During the construction of new buildings by the government, ..."

Following Ono's (1997) insight, I assume that a *zlv* has ability to externalize the

Theme of causative VNs by foregrounding their process subevent. If the *zlv* chooses to foreground the process subevent of a causative VN, as its meaning dictates, a transitive construction results, as in (19). If it chooses to foreground the state subevent of a causative VN, contrary to its denotation, an intransitive construction results, as in (20). Just like a VN incorporating into an overt light verb (VN-*suru*), a VN incorporates into a *zlv* (VN-ø) and forms a compound verb, which assigns verbal cases to its arguments. In the example in (21), where there is no *zlv* in the TAC, the VN occurs with its arguments in nominal cases, as expected from the above-mentioned assumption (that a *zlv* is responsible for verbal case marking).

Having illustrated the basic mechanism I assume, I am now in a position to explain the problem raised in section 2, namely, why causative "deverbal nouns" do not undergo externalization in the TAC. I argue that this is because those elements that were taken to be "deverbal nouns" by Iida (1987) and Tsujimura (1992),[18] among others, are in fact verbs in their infinitive form (*ren'yookei*). The examples in (16a, b) and (17a, b), repeated below, fail to undergo externalization because *kumi-tate* in (16) and *kaki-tome* in (17) are indeed verbs in their infinitive form and, hence, do not need the help of a *zlv* to verbally case mark their arguments.

(16) a. Asiba o kumi-tate tyuu ni ziko ga okita.
scaffolding ACC constructing mid accident NOM happened
"While (they were) constructing the scaffolding, an accident happened."

b. *Asiba ga kumi-tate tyuu ni ziko ga okita.
scaffolding NOM constructing mid accident NOM happened
"While the scaffolding was being constructed, an accident happened."

(17) a. Sore o kaki-tome go ni ziko ga okita.
that ACC recording after accident NOM happened
"After (they) wrote that down, an accident happened."

b. *Sore ga kaki-tome go ni ziko ga okita.
that NOM recording after accident NOM happened
"After that was written down, an accident happened."

A *zlv*, I assume, cannot appear in the above because a verb cannot incorporate into it, as can be seen from the fact that there is no instance of an overt light verb compounded with a verb, due to Blocking (Poser 1992; Kageyama 1993). If those elements like *kumi-tate* and *kaki-tome* are verbs, there is nothing peculiar about their assigning verbal cases in the TAC. Put differently, if we assume that there is a *zlv* in the TAC with VNs occurring with verbal cases, and if what were claimed to be "deverbal nouns" are in fact verbs, we do not have to give up the long-accepted theory of case assignment based on categories: that is, verbs assign verbal cases, and nouns nominal cases.

To recapitulate, externalization does not occur in a TAC with verbs in the infinitive, like (16) and (17), because there is no *zlv*. In contrast, externalization does take place in a TAC with a causative VN co-occurring with arguments in verbal cases, because such a construction needs a *zlv* for those verbal cases to be licensed.

The only evidence presented so far in the literature in favor of the position that those elements like *kumi-tate* and *kaki-tome* are "deverbal nouns" in the TAC seems to come

from the failure of a VN followed by an overt light verb to appear in the TAC with verbal cases (Tsujimura 1992:483-484). Iida (1987) presented the following example.

(22) *John ga Ainugo o KENKYUU-si tyuu
John NOM Ainu ACC research-do mid
"while John is doing research on Ainu..." (Iida's (9), p. 99, slightly adapted.)

The ungrammatical status of an example like (22), however, comes from two prosodic constraints. First, Tsujimura (1992) has demonstrated that there is a prosodic condition on a "deverbal noun" in the TAC with verbal cases, that is, they have to be at least four morae long. The following examples in (23)-(25) show that the longer a "deverbal noun" is in the TAC, the better it sounds. (What Tsujimura calls "deverbal nouns" and argued here to be verbs in the infinifive are underlined for ease of reference.)

(23) *John ga unagi o turi tyuu wa ...
John NOM eel ACC fishing mid TOP
"During the time of John's fishing for eels." (Iida's (74).)

(24) *?John ga 3-kiro oyogi tyuu, tunami ga kita.
John NOM 3-kilometers swimming while tsunami NOM came
"While John was simming 3 kilometers, a high wave came." (Tsujimura's (66a))

(25) Uti no mise ga kako 5-nenkan National no seihin o
our GEN store NOM past 5-years National GEN merchanise ACC
atukai tyuu, itidomo kuzyoo wa arimasendesita.
dealing while even-once complaint TOP there-was-not
"For the past five years (while) our store carried National merchandise, there was not a single complaint." (Tsujimura's (1992) (23), p. 490)

Secondly, a VN compounded with an overt light verb resists forming the phonological unit of one word, as noted by Poser (1992), among others. The examples in (26) below show that this is the case. The politeness marker *-mas(u)* deaccents all verbs to which it attaches (save VN-*suru* compounds and some other phrasal predicates), as shown in (26a), where the accented verb *yóm* is deaccented after affixation of the politeness marker. The VN-*suru* compound with the accented VN *káiko*, however, never loses its accent even when the politeness marker is attached, as shown in (26b). *Kaiko simasu* in (26b) retains the accentuation pattern of two words, rather than one.

(26) a. yóm + másu yomimásu
read POL read- POL
b. káiko su + másu káiko simásu
lay-off do POL lay-off do- POL

When deaccentuation is forced on a VN-*suru* compound, it results in ungrammaticality. The nominalizer *-kata*, which attracts the accent of a verb to which it attaches, if the verb has one, as shown in (27a), obligatorily deaccents all that precedes it.

(27) a.	yóm	+	kata	yomi-káta	"how to read"
	read		method	read-method	
b.	káiko	su +	kata	*kaiko sikáta/sikata	"how to lay off"
	lay-off	do	method	lay-off do-method	

The derivation of a VN-*suru* compound with an accented VN, as in (27), results in the ungrammatical form (Kageyama 1993). A temporal affix also forces deaccentuation, like the nominalizer *-kata.* The accented VN, therefore, needs to be deaccented when compounded with *-tyuu* or *-go*, as shown in (28a). It turns ungrammatical if the VN remains accented after affixation, as in (28b).

(28) a.	káiko	+	tyuu	kaiko-tyuu	"while laying off ..."
	lay-off		mid	lay-off-mid	
b.	káiko	+	tyuu	*káiko-tyuu	"while laying off ..."
	lay-off		mid	lay-off-mid	

Because of the two prosodic constraints shown above, a VN-*suru* compounded with a temporal affix turns ungrammatical any way it is derived. The light verb alone cannot form a compound with the temporal affix, as shown in (29a), because it is only one mora long, violating the prosodic constraint pointed out by Tsujimura (1992). Nor is it possible for the whole VN-*suru* compound to compound with a temporal affix, as shown in (29b), because the VN-*suru* compound resists losing its accentuation pattern. Derivation, thus, is blocked any way for the phonological constraints.

(29) a.	káiko	su +	tyuu	*káiko + si-tyuu	"while laying off ..."
	lay-off	do	mid	lay-off do-mid	
b.	káiko	su +	tyuu	*kaiko si-tyuu	"while laying off ..."
	lay-off	do	method	lay-off	do-mid

Crucially, there is evidence of verbs in the infinitive occurring in the TAC. A search on the internet for expressions containing *-mase tyuu* picked 16 tokens of verbs in the infinitive (nine types), of which 11 tokens had a Theme argument in the accusative. The data found was shown in (30). None of these verbs in the infinitive can be considered deverbal nouns.

(30) Data found	number of tokens
hukuram-ase tyuu "while inflating something"	7
naogom-ase tyuu "while familiarizing something (with something)"	2
moguri-kom-ase tyuu "while making something creep in"	1
oboe-kom-ase tyuu "while making someone memorize something"	1
omoi-kom-ase tyuu "while making someone believe something"	1
sibomase tyuu "while shrinking something"	1
simi-kom-ase tyuu "while soaking something (with something)"	1
suberi-kom-ase tyuu "while slipping something in"	1
yomi-kom-ase tyuu "making something reading out of something"	1

Examples are given in (31)-(32).

(31) Flash no anime ni-tuite tadaima koosoo o hukuramse tyuu.
flash GEN animation about now idea ACC inflating mid
"Now (I'm) exploring an idea about the animation in Flash."
(http://www4.plala.or.jp/monkeypress/diary200102.htm)

(32) Honnori mawari o akaruku nagomase tyuu
a-little surrounding ACC brightly familiarizing mid
"(I'm) making people around me a little more friendlier to each other."
(http://www.utamakura.co.jp/shainn.html)

To sum up, I have argued that (i) a *zlv* (zero light verb) exists in the TAC with VNs occurring with arguments in verbal cases, and that (ii) what has been held to be a "derverbal noun" taking verbal cases in the TAC is in fact a verb in the infinitive. The existence of a verbal element in the TAC, if true, accounts for assignment of verbal cases, without increasing the power of grammar by allowing nouns to assign verbal cases in certain environments. The existence of a *zlv* in the TAC with causative VNs with verbal cases also accounts for externalization in such a construction. Without postulating such an element, it would not be possible to explain why such a phenomenon is lacking in the TAC with a verb in the infinitive.

4. Theoretical account

This section gives a formal account of the externalization mechanism in the TAC, drawing upon Ono (1997) and Pustejovsky (1995)[19]. The mechanism proposed below aims at accounting for why a *zlv* can decausativize causative VNs in the TAC, which an overt light verb cannot. As noted above, the only difference between a *zlv* and an overt light verb is that the former can externalize the Theme of a causative VN in the TAC, while the latter cannot in the LVC.

What an overt light verb does is create a verb with the transitivity expected from the denotation of the VN. That is, if a VN denotes a change that is typically brought about by an agent, the resulting VN-*suru* compound is transitive, if a VN denotes a change that typically comes about spontaneously, the resulting compound is intransitive, and if a VN denotes a change in-between the former and the latter, the resulting compound can be either transitive or intransitive, as observed by Jacobsen (1992). Put differently, the overt light verb inherits all lexical properties of a VN including its Event Structure (except for its syntactic category) and passes them onto the resulting compound verb. The transitivity patterns in (11) for *suru*-compounds are the reflexes of the denotations of VNs.

A *zlv*, being a light verb, does the same as an overt light verb, and it also does an extra. It inherits all lexical information of a VN (except for its syntactic category) and passes it onto the resulting compound verb, whose transitivity is predicted from the denotation of the VN. It, however, does one more thing that an overt light verb cannot, that is, it suppresses the external argument of a causative VN and externalize its (direct) internal argument. In other words, the *zlv* is taken to be polysemous in that it can be exactly like an overt light verb (a fully light *zlv*) and also can foreground the state subevent

of a complex Event Structure (a partially light *zlv*). The existence of a zero passive morpheme, which is similar in function to the latter type of *zlv*, has been postulated to account for the externalization effects in TACs by Kageyama (1993:238-239).

The partially light *zlv* is very close to the Korean partially light verb *toy* "become," which can externalize the internal argument of a VN (not necessarily a causative VN). *Toy* derives the passive form when compounded with a causative VN, as in (33a). The Korean light verb *ha* "do" derives only the active form when compounded with the same causative VN, as shown in (33b).

(33) a. Say kenmwul-i KENSEL-toy-ess-ta.
new building-NOM construction-become-PST-DEC
"A new building was constructed."
b. Say kenmwul-ul/*-i KENSEL-ha-yess-ta.
new building-ACC/*-NOM construction-do-PST-DEC
"(They) constructed a new building/*A new building constructed."

Toy can compound with an unaccusative VN, as in (34a). So can *ha* compound with the same unaccusative VN to derive the compound with the same meaning, as in (34b).[20]

(34) a. Namwu-ka SENGCANG-toy-ess-ta.
tree-NOM growth-become-PST-DEC
"The tree has grown."
b. Namwu-ka SENGCANG-ha-yess-ta.
tree-NOM growth-become-PST-DEC
"The tree has grown."

A *zlv* is different from *toy* in that it externalizes the internal argument of a causative VN, while *toy* can externalize the internal argument of a transitive VN. That is, the latter can derive a passive form from an activity VN as well as from a causative VN. In addition, a *zlv* differs from *toy* in that the former can be fully light, while the latter is partially light. *Toy* never admits an external argument to appear as subject. It, thus, forces the externalization of the internal argument when the denotation of a VN is such that it requires the external argument to surface as subject. In contrast, a *zlv* can be fully light as well as partially light. The fully light *zlv* lets an external argument to surface as subject, while the partially light *zlv* behaves like *toy*.

Now if we translate what has been discussed in the above into Pustejovsky's (1995) framework, an overt light verb has the following relation with a VN of the transition type. What is shown in (35a, b) is the lexical information of the causative VN *bakuha* "explosion" and the compound *bakuha-suru* "explode."

(35)

a. *bakuha,* N ⇒ b. *bakuha-suru,* V

$$\begin{bmatrix} \text{EVENTSTR} = & E_1 = e_1\text{: } \textbf{process} \\ & E_2 = e_2\text{: } \textbf{state} \\ & \text{RESTR} = <_\infty \end{bmatrix} \quad \begin{bmatrix} \text{EVENTSTR} = & E_1 = e_1\text{: } \textbf{process} \\ & E_2 = e_2\text{: } \textbf{state} \\ & \text{RESTR} = <_\infty \end{bmatrix}$$

$$\begin{bmatrix} \text{ARGSTR} = & \text{ARG1} = x \\ & \text{ARG2} = y \\ \text{QUALIA} = & \text{FORMATIVE} = \textbf{explode\_result}\ (e_2, y) \\ & \text{AGENTIVE} = \textbf{explode\_act}\ (e_1, x,y) \end{bmatrix} \quad \begin{bmatrix} & \text{HEAD} = e_1 \\ \text{ARGSTR} = & \text{ARG1} = x \\ & \text{ARG2} = y \\ \text{QUALIA} = & \text{FORMATIVE} = \textbf{explode\_result}\ (e_2,y) \\ & \text{AGENTIVE} = \textbf{explode\_act}\ (e_1, x,y) \end{bmatrix}$$

The lexical information of the VN contains its Event Structure (EVENTSTR), Argument Structure (ARGSTR), and Qualia Structure (QUALIA), as shown above. The EVENTSTR is complex, in the case of a transition VN, made up of a process subevent e_1 and a resulting state subevent e_2. The RESTR indicates the temporal relationship between the process subevent and the state subevent, temporal precedence in this case, or more exactly, $<_\infty$ indicates that "... the event e_3 [the Event Structure of the VN – Sato] is a complex event structure constituted of two subevents, e_1 and e_2, where e_1 and e_2 are temporally ordered such that the first precedes the second, each is a logical part of e_3, and there is no other event that is part of e_3" (Pustejovsky 1995:69). The ARGSTR here indicates that it has two arguments. The Formal quale in the Qualia Structure above indicates "that state of affairs [of arugment y – Sato] which exists [as a result of the activity *bakuha* "explosion"– Sato], without reference to how it came about" (Pustejovsky 1995:79). The Agentive quale indicates that how the resulting state of y has come about as a result of the activity on the part of x (Pustejovsky 1995:76).

Suru, being a light verb, has no specification for its EVENTSTR, ARGSTR, and QUALIA structure. What it does is inherit all lexical information of the VN with which it forms a compound, in the spirit of Grimshaw and Mester (1988), who proposed that the light verb inherits the argument structure of a VN in the morphology. The specification of event-headedness (the Event Structure of *bakuha-suru* in (35b) is headed by the process subevent) is not determined by the light verb. What it does is forces the resulting compound to set its headedness at a particular value, based on the Formative and Agentive qualia of the VN. The process is the reverse of the derivation of English deverbal nouns from verbs as describe by Pustejovsky (1998: 16)[21] : "... from the left-headed transition verb *examine*, the nominalization *examination* denotes a dot object with process and state dot elements ..."

Then how is the event-headedness for VN-*suru* compounds specified? I assume that the qualia structure of the VN is reflected in the transitivity of the resulting compound verb. Pustejovsky (1995:101-102) states as follows.

(36) Given the presence of more than one qualia role, individual qualia compete for projection, and mechanisms such as headedness act as a filter to constrain the set of projectable qualia. The headed, event, e* projects the configuration (or template) associated with that event's predicate (i.e., its quale value). (Pustejovsky 1995:102)

Depending on whether Q_i or Q_j (the Agentive or the Formative quale, in the case of an achievement or accomplishment predicate) projects, the transitive template in (37a) or the intransitive template in (38b), will results (ibid.).

(37) a. Q_i: R (e_1*, *x*, *y*) ⇒ *x*: SUBJ, *y*; OBJ
b. Q_j: P (e_2, *y*) ⇒ shadowed
(38) a. Q_i: R (e_1, *x*, *y*) ⇒ shadowed
b. Q_j: P (e_2*, *y*) ⇒ *y*: SUBJ

Pustejovsky (1995) does not state explicitly what kind of quale projects, but here I draw on Jacobsen's (1992:215) characterization of the three types of VNs (i.e., causative, alternating, and unaccusative). A VN of the unaccusative type, which denotes "an event that is normally seen to occur spontaneously – i.e., where the unmarked occurrence is one where there is no outside agency ..." (Jacobsen 1992:224), projects the Formative quale rather than the Agentive and yields a right-headed (or state-oriented) Event Structure, when it is compounded with *suru*. On the other hand, a VN of the causative type, which denotes an event "... where the unmarked occurrence is one where an outside agent is present ..." (ibid.), projects the Agentive quale rather than the Formative and yields a left-headed (i.e. process-oriented) Event Structure, when compounded with *suru*. If a VN is of the alternating type, which denotes an event "less tied to specific types of change, ranging over situations inclusive of both "spontaneous" change and change due to outside agency..." (Jacobsen 1992:215), it projects neither the Formative nor the Agentive quale and results in an headless Event Structure, when compounded with *suru*, which is virtually the same as letting either quale project.

The lexical information of the alternating VN *kakudai* is given in (39a) and that of *kakudai-suru* in (39b).

(39)

a. *kakudai,* N ⇒ b. *kakudai-suru,* V

EVENTSTR =	$E_1 = e_1$: **process**		EVENTSTR =	$E_1 = e_1$: **process**	
	$E_2 = e_2$: **state**			$E_2 = e_2$: **state**	
	RESTR = $<_\infty$			RESTR = $<_\infty$	
ARGSTR =	ARG1 = *x*		ARGSTR =	ARG1 = *x*	
	ARG2 = *y*			ARG2 = *y*	
QUALIA =	FORMATIVE = **enlarge_result** (e_2, *y*)		QUALIA =	FORMATIVE = **enlarge_result** (e_2,*y*)	
	AGENTIVE = **enlarge_act** (e_1, *x*,*y*)			AGENTIVE = **enlarge_act** (e_1, *x*,*y*)	

In this case, the compound does not have a specification for event-headedness, either. That is, it is headless, which in Pustejovsky's framework means that the verb in question can appears as either intransitive or transitive.

The unaccusative VN has the lexical information in (40a) and its compound that in (40b). The event-headedness of the compound, in this case, is specified due to its fomative quale. (The D-ARG is a default argument, referring, in this case, to the Goal argument.)

(40)

a. *totyaku*, N ⇒ b. *totyaku-suru*, V

EVENTSTR =	$E_1 = e_1$: **process**	EVENTSTR =	$E_1 = e_1$: **process**
	$E_2 = e_2$: **state**		$E_2 = e_2$: **state**
	RESTR = $<_\infty$		RESTR = $<_\infty$
			HEAD = e_2
ARGSTR =	ARG1 = *x*	ARGSTR =	ARG1 = *x*
	D-ARG1 = *y*		D-ARG1 = *y*
QUALIA = FORMATIVE = **arrive_result** (e_2, *x*,*y*)		QUALIA = FORMATIVE = **arrive_result** (e_2,*x*,*y*)	
AGENTIVE = **arrive_act** (e_1, *x*)		AGENTIVE = **arrive_act** (e_1, *x*)	

A *zlv* when it acts as fully light does the same as an overt light verb. It has no specification for its Event Structure, Argument Structure, and Qualia structure, and has the same relationships with VNs as shown in (35), (39) and (40). A *zlv* can also choose to maintain its event-headedness, i.e., right-headed Event Structure. The event-headedness of the partially light *zlv* overrides the event-headedness of the VN and it always yields a VN-*suru* compound with right-headed Event Structure: partially light *zlv*(R(e_1,e_2)) = partially light *zlv*(R(e_1,e_2*)), where * indicates headedness. A *zlv* of the latter type applies vacuously to unaccusative and alternating VNs, because they can appear right-headed anyway, but it has impact when the VN is causative. A VN-ø compound with a causative VN can appear as the verb whose state subevent in Event Structure is foregrounded. That is, such a compound appears with its internal argument as subject and its external argument suppressed. The relation between a causative VN and the resulting VN-ø compound is shown in (41).

(41)

a. *bakuha*, N ⇒ b. *bakuha*-ø, V

EVENTSTR =	$E_1 = e_1$: **process**	EVENTSTR =	$E_1 = e_1$: **process**
	$E_2 = e_2$: **state**		$E_2 = e_2$: **state**
	RESTR = $<_\infty$		RESTR = $<_\infty$
			HEAD = e_2
ARGSTR =	ARG1 = *x*	ARGSTR =	ARG1 = *y*
	ARG2 = *y*		S-ARG1 = *x*
QUALIA = FORMATIVE = **explode_result** (e_2, *y*)		QUALIA = FORMATIVE = **explode_result** (e_2, *y*)	
AGENTIVE = **explode_act** (e_1, *x*,*y*)		AGENTIVE = **explode_act** (e_1, *x*,*y*)	

The lexical information in (41b) results in the example in (10a-ii), where the Theme argument surfaces as the subject of the sentence.

In the above, I have shown how the different uses of VNs can be accounted for in the framework proposed by Pustejovsky (1995) by assuming a *zlv* which can foreground the state subevent of Event Strucuture.

5. Conclusion

I have attempted in the above a reinterpretation of Ono's (1997) finding that causative VNs undergo externalization in the TAC. Contrary to Ono's claim that a temporal affix causes alternative foregrounding of complex Event Structure, I argued that a zero light verb is responsible for such alternative foregrounding, drawing upon the fact that, unlike a VN, what has been taken to be a "deverbal noun" does not undergo externalization in the TAC. I have presented unambiguous cases where "deverbal nouns" are in fact verbs in the infinitive. Postulating a zero light verb and taking "deverbal nouns" to be verbs, as I have done above, would account for verbal case assignment in the TAC and the lack of externalization in the TAC when a "deverbal noun," which in fact is a verb in the infinitive, occurs in place of a VN. This approach also preserves the assumption of case assignment based on categories. Finally, I have shown how externalization in the TAC is accounted for in the framework of Pustejovsky (1995).

***Acknowlegements:**

This is a revised version of the paper presented at the workshop on "Event Structure and Constructions," the 19th Workshop on English Linguistics, the English Society of Japan, 2001. I would like express my thanks to Yoko Sugioka, Takane Ito, Tatsuya Isono, Mitomo Kanemoto, members of the Lexicon Study Circle, and Naoyuki Ono for their comments on an earlier version of this paper. All remaining faults, however, are mine.

Notes:

1) Martin, Samuel E. *Reference grammar of Japanese.* New Haven: Yale University Press, 1975.
2) Tsujimura, Natsuko. "The unaccusative hypothesis and noun classification," *Linguistics* 28, 1990, pp. 929-957; Kageyama, Taro. *Bunpoo to Gokeisei* [Grammar and Word Formation]. Kasukabe: Hituzi Syobo, 1993.
3) Grimshaw, Jane, & Mester, Armin. "Light verbs and θ-marking," *Linguistic inquiry,* 19, 2, 1988, pp. 205-232.
4) Poser (1992) and Takahashi (2000) argue that no such incorporation takes place in the VN-*suru* construction. I assume that incorporation takes place, as argued by Kageyama (1993). Poser, William J. "Blocking of phrasal constructions by lexical items." In Ivan A. Sag & Anna Szabolcsi, eds., *Lexical Matters,* CSLI (Center for the Study of Language and Information), Stanford, CA, 1992, pp. 111-130; Takahashi, Mari. *The Syntax and Morphology of Japanese Verbal Nouns,* doctoral dissertation, University of Massachusetts Amherst, 2000.
5) Ono, Naoyuki. "Externalization and Event Structure." In Taro Kageyama, ed., *Verb Semantics and Syntactic Structure.* Tokyo: Kurosio Publishers, 1997, pp. 149-176.
6) Sells, Peter. More on light verbs and θ-marking. Manuscript, Stanford University, 1990.
7) The temporal affix *-tyuu,* unlike the temporal affix *-go* "after," however, appears to allow some activitiy VNs to undergo externalization, particularly when a copula follows it, as shown in (i). I think this is because *VN-tyuu (da)* is interpreted as a nominal predicate. If *-go* is used as in (ii), an acitivity VN clearly turns ungrammatical when it is used as an intransitive verb, as shown in (ii).

   (i) Sono heya wa SIYOO tyuu da.
   that room TOP using mid COP
   "That room is being used."

   (ii) Sono heya o/*ga SIYOO go ni mado o simete kudasai.
   that room ACC/NOM using after window ACC close please
   "Please close the window after using that room."

8) Externalization of a Theme argument is a process whereby the Theme becomes subject and the external argument is suppressed syntactically.

9) Kageyama, Taro. *Dooshi Imiron* [Semantics of Verbs]. Tokyo: Kurosio Publishers, 1996.

10) Jacobsen, Wesley M. *The transitive Strucutre of Events in Japanese.* Tokyo: Kurosio Publishers, 1992.

11) Kageyama (1993, op. cit., pp. 202-204) states a similar observation.

12) Pustejovsky, James. "The syntax of event structure." In Beth Levin & Steven Pinker, eds., *Lexical & Conceptual Semantics.* Cambridge, MA: Blackwell Publishers, 1991, pp. 47-81.

13) I put *dervebal nouns* in quotation marks because I do not think they are deverbal nouns, but they are verbs in the infinitive, as will be explained later in section 3.

14) Iida, Masayo. "Case assignment by Nominals in Japanese." In M. Iida, S. Wechsler, & D. Zec, eds., *Working papers in grammatical theory and discourse structure: Interactions of morphology, syntax, and discourse.* Stanford, CA: CSLI, 1987, pp. 93-138.

15) Hasegawa, Nobuko. "On head movement in Japanese: the case of verbal nouns," *Proceedings of Sophia linguistic society,* 6, 1991, pp. 8-32.

16) Dubinsky, Stanley. "Syntactic underspecification and light-verb phenomena in Japanese," *Linguistics* 35, 1997, pp. 627-672; Manning, Christopher. "Analyzing the verbal noun: Internal and external constraints." In Soonja Choi, ed., *Japanese/Korean Linguistics,* vol. 3. Stanford: CSLI, 1993, pp. 236-253.

17) Sato, Yutaka. *Complex predicate formation with verbal nouns in Japanese and Korean: Argument transfer at LF.* Doctoral dissertation, University of Hawaii at Manoa, 1993; Sato, Yutaka. "Some evidence for a zero light verb in Japanese." In M. Nakayama & C. Quinn, eds., *Japanese/Korean Linguistics,* Volume 9. Stanford, CA: CSLI, 2000, pp. 365-378; Hoshi, Hiroto. *Passive, Causative, and Light Verbs: A Study on Theta Role Assignment.* Doctoral dissertation, University of Connecticut, Storrs, Connecticut, 1994.

18) Tsujimura, Natsuko. "Licensing nominal clauses: The case of deverbal nominals in Japanese," *Natural language and linguistic theory,* 10, 1992, pp. 477-522.

19) Pustejovsky, James. *The Generative Lexicon.* Cambridge, MA: the MIT Press, 1995.

20) Not all unaccusative VNs in Korean can compound with *toy* and *ha.* There are some lexical idiosyncrasies (Ogoshi 2001). Ogoshi, Naoki. "Gendai Choosengo no hata dooshi ni okeru hata-kei to toyta-kei [The *hata*-compound and *toyta*-compound of *hata*-verbs in modern Korean]." In Ryuichi Washio, ed., *"Hata" to "Suru" no Gengogaku, Report of the Special Research Project for the Typological Investigation of Languages and Cultures of the East and West.* University of Tsukuba, Tsukuba City, 2001, pp. 1-26.

21) Pustejovsky, James. "The semantics of lexical underspecification," *Folia Linguistica,* 1998.