On the argument structure of Zi-verbs in Japanese: reply to Tsujimura and Aikawa (1999)

Maki Kishida & Yosuke Sato
Your article is protected by copyright and all rights are held exclusively by Springer Science+Business Media B.V.. This e-offprint is for personal use only and shall not be self-archived in electronic repositories. If you wish to self-archive your work, please use the accepted author’s version for posting to your own website or your institution’s repository. You may further deposit the accepted author’s version on a funder’s repository at a funder’s request, provided it is not made publicly available until 12 months after publication.
On the argument structure of Zi-verbs in Japanese: reply to Tsujimura and Aikawa (1999)

Maki Kishida · Yosuke Sato

Received: 28 April 2009 / Accepted: 29 September 2011 / Published online: 4 January 2012
© Springer Science+Business Media B.V. 2012

Abstract Tsujimura and Aikawa (J Assoc Teach Jpn 33: 26–43, 1999) argue that objectless zi-verbs in Japanese uniformly have the unaccusative argument structure based on two tests for unaccusativity (resultative predication and quantifier floating). In this paper, we provide new evidence against their uniform unaccusative analysis. Applying several other diagnostics for external/internal argumenthood in Japanese, we demonstrate that objectless zi-verbs instantiate a full range of argument structure configurations: (a) transitive (e.g., zi-satu-suru ‘kill oneself’), (b) unaccusative (e.g., zi-kai-suru ‘collapse by itself’), and (c) unergative (e.g., zi-sui-suru ‘cook for oneself’). We further show that our new analysis framed in terms of the Lexical Conceptual Structure not only derives the various properties of the three types of objectless zi-verbs but also derives the different argument structural functions and meanings that the zi-morpheme is associated with in each type.

Keywords Objectless zi-verbs · Japanese · Argument structure · Agentivity · Resultative · Numeral quantifier floating · Light verb · V-V compound · kake-Modification

M. Kishida (✉)
Department of Linguistics, University of Maryland,
1401 Marie Mount Hall, College Park, MD 20742, USA
e-mail: mkishida@umd.edu

Y. Sato
Department of English Language and Literature, National University of Singapore,
AS Block 5, 7 Arts Link, Singapore 117570, Singapore
e-mail: ellys@nus.edu.sg
1 Introduction

This paper is a reply to Tsujimura and Aikawa’s (1999) (hereafter, T&A) analysis of \( zi \)-verbs in Japanese. \( Zi \)-verbs consist of the \( zi \)-morpheme ‘self,’ a Sino-Japanese verbal noun, and the light verb \( suru \) ‘do,’ as in \( zi\)-\( satu\)-\( suru \) ‘kill oneself,’ \( zi\)-\( kai\)-\( suru \) ‘collapse by itself’ and \( zi\)-\( man\)-\( suru \) ‘boast about oneself.’\(^1\) It is well-known that \( zi \)-verbs come in two types: those that cannot occur with object arguments (this paper calls these verbs ‘objectless \( zi \)-verbs’) and those that can (‘object-taking \( zi \)-verbs’). In the first comprehensive study of this verbal class, T&A argue that all objectless \( zi \)-verbs have unaccusative argument structure based on facts from resultative predication and numeral quantifier floating.

The goal of this paper is to provide new evidence against T&A’s uniform unaccusative analysis of objectless \( zi \)-verbs. T&A use just two tests to diagnose the internal argument of objectless \( zi \)-verbs stated above, but this is obviously limited in scope. The literature in Japanese has amassed several diagnostics for external arguments based on (a) the accusative case marking in light verb constructions (Dubinsky 1985; Miyagawa 1989b; Tsujimura 1990), (b) passivized causativization (Inoue 1976), and (c) Verb-Verb compounds headed by a subject control verb (Kageyama 1993; Nishigauchi 1993; Koizumi 1999) and diagnostics for internal arguments based on (a) the resultative interpretation of the \( -teiru \) morpheme (Takezawa 1991) and (b) the \( kake \)-modification (Kishimoto 1996, 2005). Indeed, applying these tests to objectless \( zi \)-verbs, we show, contrary to T&A, that objectless \( zi \)-verbs instantiate a full range of argument structure configurations: (a) transitive (e.g., \( zi\)-\( satu\)-\( suru \) ‘kill oneself’), (b) unaccusative (e.g., \( zi\)-\( kai\)-\( suru \) ‘collapse by itself’), and (c) unergative (e.g., \( zi\)-\( sui\)-\( suru \) ‘cook for oneself’). The results of this endeavor are summarized in Table 1.

Table 1 Three-types of objectless \( zi \)-verbs in Japanese

<table>
<thead>
<tr>
<th>Transitive type</th>
<th>Unaccusive type</th>
<th>Unergative type</th>
</tr>
</thead>
<tbody>
<tr>
<td>w/ ext.&amp; int. arguments</td>
<td>w/ only int. argument</td>
<td>w/ only ext. argument</td>
</tr>
<tr>
<td>( zi)-( satu ) (自殺)-( suru )</td>
<td>( zi)-( kai ) (自壊)-( suru )</td>
<td>( zi)-( sui ) (自炊)-( suru )</td>
</tr>
<tr>
<td>‘kill oneself’</td>
<td>‘collapse’</td>
<td>‘cook for oneself’</td>
</tr>
<tr>
<td>( zi)-( ritu ) (自立)-( suru )</td>
<td>( zi)-( baku ) (自爆)-( suru )</td>
<td>( zi)-( doku ) (自読)-( suru )</td>
</tr>
<tr>
<td>‘establish oneself’</td>
<td>‘explode’</td>
<td>‘read for oneself’</td>
</tr>
<tr>
<td>( zi)-( gai ) (自害)-( suru )</td>
<td>( zi)-( ten ) (自転)-( suru )</td>
<td>( zi)-( kyuu ) (自給)-( suru )</td>
</tr>
<tr>
<td>‘kill oneself’</td>
<td>‘roll’</td>
<td>‘supply for oneself’</td>
</tr>
<tr>
<td>( zi)-( sou ) (自惚)-( suru )</td>
<td>( zi)-( mei ) (自鳴)-( suru )</td>
<td>( zi)-( katu ) (自活)-( suru )</td>
</tr>
<tr>
<td>‘admire oneself’</td>
<td>‘sound’</td>
<td>‘maintain for oneself’</td>
</tr>
<tr>
<td>( zi)-( sui ) (自水)-( suru )</td>
<td>( zi)-( sei ) (自生)-( suru )</td>
<td>( zi)-( syuu ) (自習)-( suru )</td>
</tr>
<tr>
<td>‘drown oneself’</td>
<td>‘grow’</td>
<td>‘study for oneself’</td>
</tr>
</tbody>
</table>

\(^1\) We gloss the \( zi \)-morpheme as ‘self’ following T&A (1999) in this paper, although the morpheme does not occur only in a reflexive construction meaning ‘self,’ as we will discuss shortly.
We also consider why our proposed classification in Table 1 is different from T&A’s. In addition to the fact that they just apply two internal argumenthood tests to show that zi-verbs exhibit unaccusative behavior, we suggest that the primary reason lies in our view on what (some of) the tests for external arguments are actually diagnosing. While T&A take it that the accusative case marking in light verb constructions diagnoses the agentivity of a particular argument, as we will see in Sect. 5, we assume that agentivity is the determinant of the external argument, in line with Kishimoto (1996, 2005). We claim that our position is superior to T&A’s: our analysis correctly predicts an otherwise unaccusative verb to show consistently unergative behavior within the syntax with respect to the diagnostics discussed in this paper when its sole argument is interpreted as a volitional agent, thereby allowing for a maximally simple view on the determinant of an external argument in Japanese grammar.

The present paper is organized in the following way. In Sect. 2, we introduce zi-verbs. In Sect. 3, we review the seminal work on zi-verbs by T&A (1999) that uniformly categorizes objectless zi-verbs as unaccusative verbs. In Sect. 4, we apply three diagnostics for external argumenthood to a certain type of objectless zi-verb such as zi-satu-suru ‘kill oneself’ and show this class of zi-verb has an external argument, contrary to T&A’s uniform unaccusative analysis. In Sect. 5, by applying these as well as internal argumenthood diagnostics, we demonstrate that objectless zi-verbs are further categorized into three subtypes in terms of their argument structure as transitive, unaccusative, and unergative. In Sect. 6, we provide an analysis of objectless zi-verbs in terms of Lexical Conceptual Structure and its mapping to Argument Structure (Jackendoff 1972, 1990; Carter 1976; Hale and Keyser 1986; Pinker 1989; Levin and Rappaport Hovav 1995). Sect. 7 presents our conclusion.

2 What are zi-verbs?

The list in (1) contains some examples of zi-verbs. The zi-morpheme (自 in Chinese character) ‘self’ combines with a wide variety of Sino-Japanese verbal nouns that are supported by the light verb suru ‘do’ (Grimshaw and Mester 1988).

(1)  

- a. zi-satu-suru ‘kill oneself’  
- zi-ritu-suru ‘establish oneself’  
- zi-kai-suru ‘collapse by itself’  
- zi-ten-suru ‘revolve by itself’
- b. zi-man-suru ‘boast about oneself’  
- zi-kyoo-suru ‘confess oneself’  
- zi-san-suru ‘praise oneself’  
- zi-nin-suru ‘admit oneself’

A zi-verb consists of three parts: the zi-morpheme, a verbal noun, and the light verb as shown in bold in (2a). If the three parts are not together, the expressions are ill-formed, as (2b–d) indicate. The zi-morpheme cannot be used independently by

2 The following abbreviations are used in the data in this paper: Nom = nominative, Acc = accusative, Gen = genitive, Dat = dative, Top = topic, Past = past tense, Tr = transitive, Intr = intransitive, Cl = classifier, Caus = causative, Pass = passive.
taking the accusative case marker -o as in (2b), even with a native Japanese verb korosu ‘kill.’ As (2c) shows, a Sino-Japanese verbal noun used in zi-verbs cannot stand by itself even if it is supported by the light verb. The morphological incorporation of the zi-morpheme is required. Also, the zi-morpheme and verbal noun complex cannot be inflected for tense by itself as in (2d).

   John-Nom self-killing-do-Past  
   ‘John killed himself.’

      John-Nom self-Acc killing-do-Past  
      John-Nom self-Acc kill-Past  
      ‘John killed himself.’

      John-Nom self-Acc killing-do-Past  
      John-Nom self-Acc kill-Past  
      ‘John killed himself (lit.).’

      John-Nom self-killing-Past  
      ‘John killed himself.’

T&A (1999) observe that there are two types of zi-verbs in Japanese: ‘unaccusative zi-verbs’ and ‘inalienable zi-verbs.’ Unaccusative zi-verbs cannot occur with object arguments, as illustrated in (3a). This paper calls this type of zi-verb ‘objectless zi-verbs.’ The verbs listed in (1a) belong to this class. By contrast, as (3b) illustrates, inalienable zi-verbs can occur with object arguments that stand in the inalienable relation with the subject argument. We call these ‘object-taking zi-verbs.’ The verbs in (1b) belong to this class.

(3) a. *John-ga musuko-o zi-satu-si-ta. (Objectless zi-verb)  
      John-Nom son-Acc self-killing-do-Past  
      ‘John killed his son.’

      John-Nom son-Acc self-boast-do-Past  
      ‘John boasted about his own son.’

In this paper, we focus only on the objectless type of zi-verb and leave the object-taking type for future studies.

3 Tsujimura and Aikawa’s (1999) uniform unaccusative reflexive verb analysis

T&A (1999) propose that all objectless zi-verbs have unaccusative argument structure in the sense of Perlmutter (1978) and Burzio (1986). Specifically, this verb

3 The phrase zibun-o korosu ‘kill oneself’ is most likely interpreted with the idiomatic meaning ‘sacrifice oneself’ and seldom with the literal meaning ‘commit suicide’ if zibun has a local binder. Here, however, we regard the phrase as the paraphrase of the zi-verb zi-satu-suru ‘kill oneself.’
lacks an external argument in the subject position. The derivation for the sentence (2a) is analyzed as in (4).

(4) $\{_{TP} \text{Johni-ga} \ [_{VP} t_i \ zi-satu \ si ] \ \text{ta } \}$

The surface subject John is generated in the complement of the verbal noun zi-satu ‘self-killing’ and undergoes syntactic movement into [Spec, TP] for nominative case.

This analysis explains the observation noted above: zi-verbs such as zi-satu-suru ‘kill oneself’ cannot occur with direct objects, as in (3a), because unaccusative verbs in general cannot do so due to Burzio’s Generalization, given in (5).

(5) Burzio’s Generalization  
$–\theta_s \rightarrow –A$: All and only the verbs that can assign $\theta$-role to the subject can assign (accusative) Case to an object.  
(Burzio 1986, pp. 178–179)

T&A provide two pieces of evidence from the literature on unaccusativity in Japanese to show that objectless zi -verbs are unaccusative verbs. The first piece of evidence comes from the Direct Object Restriction. This restriction, first noted by Simpson (1983) and so named by Levin and Rappaport Hovav (1995), states that secondary resultative predicates can be predicated of only (underlying) direct objects. Consider (6a–d). The secondary predicate and the object it is predicated of are in bold and underlined, respectively.

(6) a. John-ga $[_{VP} \text{pan-o makkuroni yai-ta}. ]$  
   John-Nom bread-Acc black toast(Tr)-Past  
   ‘John toasted the bread black.’

b. $^{*}$John-ga $[_{VP} \text{kutakutani hasi-tta}. ]$  
   John-Nom exhausted run-Past  
   ‘John ran exhausted.’

c. Pan-ga $[_{VP} \text{makkuroni t}_i \ yake-ta].$  
   bread-Nom black toast(Intr)-Past  
   ‘The bread burned black.’

d. Johni-ga $[_{VP} \text{rippani t}_i \ zi-ritu-si-ta}. ]$  
   John-Nom finely self-establishing-do-Past  
   ‘John established himself well.’

In (6a) with the transitive verb yaku ‘toast,’ the secondary predicate makkuroni ‘black’ can be predicated of the NP pan ‘bread’ in compliance with the Direct Object Restriction because the NP is in direct object position. (6b) with the unergative verb hasiru ‘run’ is ill-formed because John is the external argument, and the secondary predicate kutakutani ‘exhausted’ cannot be predicated of the NP. The well-formedness of (6c) falls out under the unaccusative hypothesis if

---

4 The examples in (6a, c, d) are based on (13b), (14a), and (15a) from T&A (1999), respectively. The traces $t$ of surface subjects and the indices in the examples used in this section are added by the present authors.
intransitive verbs such as yakeru ‘toast’ are unaccusative and hence have underlying direct objects as indicated by the VP-internal trace. T&A apply this restriction to zi-ritu-suru ‘establish one self’ in (6d). Their claim is that the well-formedness of the example indicates that this zi-verb is an unaccusative verb.

The second argument concerns numeral quantifier floating. Miyagawa (1989a) observes that the floating numeral quantifier must stand in the mutual c-command relation with its host. Consider (7)–(10). A floating numeral quantifier and its host are in bold.

(7) a. **Gakusei**-ga yo-nin [VP ie-o ka-tta]. (Transitive Verb)
   student-Nom four-Cl house-Acc buy-Past
   ‘Four students bought a house.’
   b. *Gakusei**-ga [VP ie-o yo-nin ka-tta].
   student-Nom house-Acc four-Cl buy-Past
   ‘Four students bought a house.’

(8) a. **Gakusei**-ga yo-nin [VP ofisu-ni hasi-tta]. (Unergative Verb)
   student-Nom four-Cl office-to run-Past
   ‘Four students ran toward the office.’
   b. *Gakusei**-ga [VP ofisu-ni yo-nin hasi-tta].
   student-Nom office-to four-Cl run-Past
   ‘Four students ran toward the office.’

(9) a. **Gakusei**-ga yo-nin [VP ofisu-ni t̄i ki-ta]. (Unaccusative Verb)
   student-Nom four-Cl office-to come-Past
   ‘Four students came to the office.’
   b. **Gakusei**-ga [VP ofisu-ni t̄i yo-nin ki-ta].
   student-Nom office-to four-Cl come-Past
   ‘Four students came to the office.’

(10) a. **Gakusei**-ga yo-nin [VP kappuru-de t̄i zi-satu-si-ta]. (Zi-Verb)
    student-Nom four-Cl in couple self-killing-do-Past
    ‘Four students killed themselves in couples.’
    b. **Gakusei**-ga [VP kappuru-de t̄i yo-nin zi-satu-si-ta].
    student-Nom in couple four-Cl self-killing-do-Past
    ‘Four students killed themselves in couples.’

The (a) examples of (7)–(10) are all acceptable. The quantifier yo-nin ‘4-classifier (for person)’ is in a mutual c-command relation with its host gakusei ‘student’ in each example. On the other hand, the (b) examples differ in their acceptability. (7b) with the transitive verb kau ‘buy’ is unacceptable since the floating numeral quantifier and its host gakusei ‘student’ are separated by the VP boundary, and the mutual c-command relation does not obtain. (8b) with the unergative verb hasiru ‘run’ is unacceptable for the same reason. By contrast, (9b) with the unaccusative

---

5 The examples in (7), (9b), and (10b) are based on (17), (18), and (19) from T&A (1999), respectively.
verb *kuru* ‘come’ is acceptable because the relevant requirement is met between the floating numeral quantifier and the VP-internal trace of the surface subject. With this in mind, T&A (1999) note, (10b) with *zi-satu-suru* ‘kill oneself’ patterns with the unaccusative example (9b). This pattern thus shows that this *zi*-verb is also unaccusative.

### 4 Against the uniform unaccusative verb analysis

Although T&A (1999) claim that all objectless *zi*-verbs have unaccusative argument structure, we demonstrate that their analysis is untenable because some objectless *zi*-verbs have an external argument, and these cannot be unaccusative verbs. We show that *zi*-verbs instantiate a full range of argument structure: transitive, unaccusative, and unergative.

#### 4.1 Objectless *zi*-verb with an external argument

We introduce three diagnostics for external argumenthood from the Japanese literature, listed in (11a–c). Application of these tests to certain *zi*-verbs shows that some objectless *zi*-verbs have an external argument, contrary to T&A’s uniform unaccusative analysis.

(11)  a. accusative case marking in light verb constructions  
    b. passivized causativization  
    c. Verb-Verb compounds headed by a subject control verb

These tests distinguish verbs with an external argument from ones without it. We assume that this distinction is correlated with the *agentivity* of the surface subject, following the commonly held assumption in the literature (Perlmutter 1978; Burzio 1986; Levin and Rappaport Hovav 1995) that unergative verbs are more likely associated with agentive subjects whereas unaccusative ones are with non-agentive subjects. Our assumption receives language-internal support from Kishimoto (1996, 2005) who claims that in Japanese, it is the *volitionality* of subjects that distinguishes unergative verbs (=verbs with an external argument) from unaccusative verbs (=verbs without it). So, we regard external arguments as agentive subjects and internal arguments as non-agentive objects (see also below for relevant discussion).

In this section, for reasons of space, we apply the diagnostics only to the *zi*-verb *zi-satu-suru* ‘kill oneself’ that T&A (1999) also use in their discussion. However, other verbs such as *zi-ritu-suru* ‘establish oneself’ and *zi-gai-suru* ‘kill oneself’ pattern with this *zi*-verb. We argue that these verbs have an external argument in their argument structure.

---

6 We thank an anonymous reviewer for pointing out the correlation between the external argumenthood diagnostics and the notion of *agentivity*.
First, Dubinsky (1985), Miyagawa (1989b), and Tsujimura (1990) observe that the accusative case marker \(-o\) can be attached to transitive and unergative verbal nouns, not to unaccusative verbal nouns. This is illustrated by the contrast between (12a, b) and (12c).

(12) a. Daigaku-de kenkyu \((-o)\) suru hito-ga hue-ta. (Transitive Verbal Noun)
   university-in research \(-\) do person-Nom increase-Past
   ‘The number of people who study in universities increased.’

   b. Roo huuhu-ga rikon \((-o)\) si-ta. (Unergative Verbal Noun)
   old couple-Nom divorce(-Acc) do-Past
   ‘The old couple got divorced.’

   c. Kaityoo-ga kinoo sikyo (*-\(-o\)) si-ta. (Unaccusative Verbal Noun)
   CEO-Nom yesterday death(-Acc) do-Past
   ‘The CEO died yesterday.’ (Based on Kageyama 1993, pp. 52–53)

Grimshaw and Mester (1988) argue that the argument-taking property of the verbal noun is transferred into the empty $\theta$-grid of the light verb \textit{suru} ‘do.’ Under this analysis, the verbal nouns can be marked with \(-o\) by the light verbs in (12 a,b), which become transitive and unergative verbs, respectively, as the result of Argument Transfer. The impossibility of the accusative case marking on the verbal noun in (12c) falls out because the light verb does not get an external argument via Argument Transfer and hence lacks the ability to assign accusative case to the verbal noun. Now, when this diagnostic is applied to the zi-verbal noun zi-satu ‘self-killing’ in (13), the verbal noun can be marked with the accusative case. This suggests that the light verb has an external argument.

(13) John-wa tuini zi-satu \((-o)\) si-ta. (Zi-Verbal Noun)
   John-Top finally self-killing(-Acc) do-Past
   ‘John finally killed himself.’

Second, Inoue (1976) points out that the embedded external argument, not the embedded internal argument, of a causative construction can be promoted to the grammatical subject of its passive counterpart. This observation is illustrated in (14)–(16).

(14) a. Kantoku-ga \textit{kooti-ni} sensyu-o kitaesase-ta. (Transitive Verb)
   manager-Nom coach-Dat players-Acc train-Caus-Past
   ‘The manager made the coach train the players.’

   b. \textit{Kooti-ga} kantoku-niyotte sensyu-o kitaesase-rare-ta.
   coach-Nom manager-Dat players-Acc train-Caus-Pass-Past
   ‘The coach was made to train the players by the manager.’

   players-Nom manager-by coach-Dat train-Caus-Pass-Past
   ‘The players were made to be trained by the coach by the manager.’
(15) a. Hahaoya-ga *kodomo-o* suwar-ase-ta. (Unergative Verb)
mother -Nom child-Acc sit-Caus-Past
‘The mother made her child sit.’

child-Nom mother-by sit-Caus-Pass-Past
‘The child was made to sit by his mother.’

(16) a. Hahaoya-ga *{kodomo/daruma}-o* korob-ase-ta. (Unaccusative Verb)
mother-Nom {child/doll}-Acc tumble-Caus-Past
‘The mother made her {child/doll} tumble.’

b. (*Kodomo-ga* hahaoya-niyotte korob-ase-rare-ta.
child-Nom mother-by tumble-Caus-Pass-Past
‘The child was made to tumble by his mother.’

In (14a) with the transitive verb *kitaeru* ‘train,’ *kooti* ‘coach’ is the external argument of the embedded transitive verb . As shown in (14b), this argument can be promoted to the matrix subject. By contrast, *sensyu* ‘players,’ the internal argument of the embedded verb, cannot be so promoted in (14c). Inoue’s observation is further illustrated by (15a,b ) with the unergative verb *suwaru* ‘sit.’ The subject of the embedded clause in (15a), *kodomo* ‘child,’ is promoted to the matrix subject in its passive counterpart in (15b). The ill-formedness of (16c ) with the unaccusative verb *korobu* ‘tumble’ shows that this promotion is not possible because this verb lacks an external argument.

A note is in order. (16b) can be acceptable whereas (16c) is totally unacceptable. This contrast depends on whether the subject is interpreted as a volitional agent (cf. Dowty 1991). We assume that this verb is ambiguously categorized as unergative and unaccusative. We have been assuming that unergative verbs occur with agentive subjects while unaccusative verbs occur with non-agentive subjects. According to our analysis, the example in (16b) is grammatical when the verb *korobu* is used as an unergative verb with the agent. The example in (16c), on the other hand, is ungrammatical because the same verb is used as an unaccusative verb with the theme. The contrast between (17a) and (17b) further illustrates the correlation between agentivity and unergativity: in (17a), the subject is agentive and the verb is unergative while the subject is non-agentive, and the verb is unaccusative in (17b).

(17) a. Kodomo-ga hahaoya-niyotte muriyari annahuu-ni
child-Nom mother-by forcefully that-way
korob-ase-rare-ta.
tumble-Caus-Pass-Past
‘The child was forced to tumble that way by his/her mother.’

child-Nom mother-by unintentionally tumble-Caus-Pass-Past
‘The child was made to tumble unintentionally by his/her mother.’
Now, consider (18a,b). The subject of the embedded zi-verb in (18a), John, is promoted to the matrix subject in (18b). Thus, this example shows that John is the external argument of the verb.

(18)  
friends-Nom John-Acc self-killing-do-Caus-Past  
‘His friends made John kill himself.’
John-Nom friends-by self-killing-do-Caus-Pass-Past  
‘John was made to kill himself by his friends.’

The third test for external argumenthood concerns Verb-Verb (V-V) compounds headed by a control verb such as oeru ‘finish,’ wasureru ‘forget,’ and sokoneru ‘fail.’ Two verbs of a V-V compound of this type share one subject argument as a consequence of subject control. Control verbs require agentive subjects that can be licit controllers, typically humans or higher animals (Kageyama 1993; Nishigauchi 1993; Koizumi 1999). Then, it is predicted that only a verb with an agentive subject can be a first member (V1) of a V-V compound headed by a subject control verb (V2). Now, consider (19a–c): the head here is a subject control verb sokoneru ‘fail.’ We assume that the verbs korobu ‘tumble’ and taoreru ‘fall’ in (19c) are ambiguously categorized as unergative and unaccusative and that they are used as unaccusative in the example (recall the discussion on the verb korobu ‘tumble’ in (16)).

(19)  
a. kitate-sokoneru ‘fail to train,’ tukuri-sokoneru ‘fail to make’  
(V1 = Transitive)
b. suwari-sokoneru ‘fail to sit,’ odori-sokoneru ‘fail to dance’  
(V1 = Unergative)
c.(*) korobi-sokoneru ‘fail to tumble,’(*)taore-sokoneru ‘fail to fall’  
(V1 = Unaccusative)

In (19), transitive and unergative verbs, which have an agentive subject, can be the first member of the V-V compound while unaccusative verbs, which lack this type of subject, cannot. Now, in (20), the zi-verb zi-satu-suru ‘kill oneself’ can be the first member of the compound headed by the subject control verb. That this zi-verb behaves similarly with transitive and unergative verbs in (19a,b) suggests that this verb has an external argument.

(20) John-wa zi-satu-si-sokone-ta.  
John-Top self-killing-do-fail-Past  
‘John failed to kill himself.’

Summarizing thus far, the three diagnostics strongly indicate that certain zi-verbs, such as zi-satu-suru ‘kill oneself,’ have an external argument in their argument structure. Thus, T&A’s (1999) uniform unaccusative analysis of objectless zi-verbs is not tenable.

7 We are grateful to an anonymous reviewer for suggesting that subject control is a diagnostic for external argument.
4.2 Objectless zi-verb with an internal argument

In this subsection, we introduce two diagnostics for internal argumenthood that concern the resultative interpretation of the -teiru morpheme (Takezawa 1991) and the -kake modification (Kishimoto 1996, 2005). We apply these tests to the same zi-verb zi-satu-suru ‘kill oneself’ used in the last subsection. These diagnostics show that this verb has an internal argument as well.

The first diagnostic comes from the availability of the resultative interpretation of the -teiru morpheme in Japanese: this morpheme has a wide variety of meanings such as continuation of an action (progressive), experience, repetition, and simple resultative state. We concentrate on the availability of the resultative interpretation, and hence we do not consider how other interpretations are induced because this is beyond the focus of this paper. Takezawa (1991) proposes the generalization given in (21).

(21) The resultative interpretation of -teiru obtains when there is a binding relation between the (grammatical) subject and internal argument of an affective verb, where the ‘internal argument’ is an element subcategorized by the verb.8

The generalization in (21) says that the resultative interpretation is available only if the binding relation between the subject and the object holds. Other interpretations like progressive are available without such a relation. We compare the availabilities of the resultative interpretations in each verb type in (22a–c).

(22) a. Yamada-san-ga omotya-o kowasi-teiru. (Transitive Verb)
   Yamada-Mr.-Nom toy-Acc break-TEIRU
   ‘Mr. Yamada is breaking the toy. [progressive interpretation]’
   *‘The toy is broken. [*resultative]’

b. Omotya-ga kowas-are-teiru. (Passive Verb)
   toy-Nom break(Tr.)-Pass-TEIRU
   ‘The toy is broken. [resultative]’

c. Omotya-ga koware-teiru. (Unaccusative Verb)
   toy-Nom break(Intr.)-TEIRU
   ‘The toy is broken. [resultative]’ (Based on Takezawa 1991, (3)(5))

In (22a) with the transitive verb kowasu ‘break,’ the resultative reading is not available because the subject Yamada-san ‘Mr. Yamada’ does not bind the object omotya ‘toy.’ In contrast, the resultative interpretation is available in the passive example (22b) and the unaccusative example (22c). The surface subject of each

8 ‘Affective verbs’ in Takezawa (1991) are used in the sense of change of state verbs (Jaeggli 1986, Rizzi 1986). If a non-affective verb, such as homeru ‘praise’ in (i), occurs with the -teiru morpheme, the resultative interpretation of the morpheme is not available. Compare this example with the passive example of the affective verb in (22b).

(i) Yamada-san-ga home-rare-teiru.
    Yamada-Mr.-Nom praise-Pass-TEIRU
    ‘Mr. Yamada is being praised. [progressive]’/*Mr. Yamada is praised.[resultative]’
sentence omotya ‘toy’ binds its trace in the underlying position, as shown in (23). Thus, the generalization in (21) holds in (22b) and (22c).

(23) \[ S \{ \text{omotya}_1 \text{-ga} \{ \text{VP} \{ t_1 \text{kowa-sare-teiru} / t_1 \text{koware-teiru} \} \} \} \]

(Takezawa 1991, p. (7))

Now, in (24), -teiru follows the zi-verb zi-satu-suru ‘kill oneself.’ The availability of the resultative interpretation here suggests that this zi-verb has an internal argument.

(24) (Ano katei-wa) musuko-ga zi-satu-si-teiru.
That family-Top son-Nom self-killing-do-TEIRU
‘That family lost their son by his suicide [resultative]’

The second diagnostic is the deverbal nominal construction headed by the aspectual affix -kake ‘be about to, do halfway’ discussed by Kishimoto (1996, 2005). In this construction, the morpheme -kake is suffixed productively to a variety of verbal stems, followed by the genitive marker no -, to create the prenominal modification pattern. Kishimoto establishes the generalization that the target of the modification by this affix is restricted to the (underlying) internal argument. This is illustrated in examples (25)–(27).

(25) a. Masao-ga zassi-o yon-da. (Transitive Verb)
Masao-Nom magazine-Acc read-Past
‘Masao read a magazine.’

b. yomi-kake-no zassi
read-KAKE-Gen magazine
‘the magazine, read halfway’

c. *yomi-kake-no Masao
read-KAKE-Gen Masao
‘Masao, read halfway’ ((25b, c) from Kishimoto 1996, p. 254)

(26) a. Rannaa-ga hasi-tta. (Unergative Verb)
runner-Nom run-Past
‘the runner ran.’

b. *hasiri-kake-no rannaa.
run-KAKE-Gen runner
‘the runner, almost running’ ((26b) from Kishimoto 1996, p. 255)

(27) a. Doa-ga ai-ta. (Unaccusative Verb)
door-Nom open(Intr)-Past
‘the door opened.

b. aki-kake-no doa
open(Intr)-KAKE-Gen door
‘the door, slightly ajar’ ((27a) from Kishimoto 1996, p. 256)

The contrast between (25b) and (25c) shows that only the internal argument of the transitive verb yomu ‘read’ can be felicitously predicated of by the corresponding preverbal noun derived by kake-suffixation. In (26b), the -kake suffixation with the
unergative verb  *hasiru* `run’ is not acceptable: the surface subject *rannaa* `runner’ is the external argument of the verb. In (27b), in contrast, the surface subject of the unaccusative verb *aku* `open (Intr)’ can be the target of the *kake* -modification: this NP is the underlying internal argument of the verb. Now we apply this diagnostic to the *zi* -verb *zi-satu-suru* `kill oneself ’ in (28).

(28)  **Zi-satu-si-kake-no musuko-o nantoka tasuke-rare-ta.**
    self-killing-do-KAKE-Gen son-Acc somehow rescue-can-Past
   ‘We could somehow rescue our son, half kills himself.’

The availability of the *kake*-modification in (28) indicates that this *zi*-verb has an internal argument.

Recall that, as reviewed in Sect. 3, T&A (1999) show that objectless *zi*-verbs like *zi-satu-suru* `kill oneself’ have an internal argument giving two arguments based on resultative predication in (6d) and quantifier floating in (10b). Their results and our results in (24) and (28) indicate that *zi-satu-suru* `kill oneself’ has an internal argument. Also, we have already seen in Sect. 4.1 that this verb has an external argument as well. Therefore, this *zi*-verb does not have unaccusative argument structure, contrary to T&A (1999)’s claim. It has transitive argument structure.

5 Subtypes of objectless *zi*-verb

In this section, we apply the two sets of diagnostics for external and internal arguments to some other objectless *zi*-verbs. The results of our inquiry show that objectless *zi*-verbs instantiate a full range of argument structures: (a) transitive (e.g., *zi-satu-suru* `kill oneself), (b) unaccusative (e.g., *zi-kai-suru* `collapse by itself’) and (c) unergative (e.g., *zi-sui-suru* `cook for oneself). We also speculate why our proposed classification is different from T&A’s and seek an answer to this question from our mutually different viewpoints on what (some of) the tests discussed thus far are actually diagnosing.

We consider the two *zi*-verbs *zi-kai-suru* `collapse’ in (29) and *zi-sui-suru* `cook for oneself’ in (30).

(29)  **Tatemono-ga (*kabe-o) zi-kai-si-ta.**
    building-Nom wall-Acc self-collapse-do-Past
   ‘The building collapsed.’ / *‘The building collapsed its wall.’

(30)  **John-ga (*yuusyoku-o) zi-sui-si-ta.**
    John-Nom supper-Acc self-cooking-do-Past
   ‘John cooked for himself.’ / *‘John cooked supper for himself.’

Like the *zi*-verb *zi-satu-suru* `kill oneself,’ these verbs do not occur with an object argument. The two verbs, however, have to be categorized into different classes because the two sets of argumenthood diagnostics reveal different argument structure patterns.
We first study verbs such as *zi-kai-suru* ‘collapse’ in (29), *zi-baku-suru* ‘explode’ and *zi-ten-suru* ‘rotate.’ Here, we apply the diagnostics to *zi-kai-suru*. The external argumenthood diagnostics are applied in (31) and the internal argumenthood ones in (32).

(31) a. (Tuyoi zisin-notame) tatemono-ga zi-kai (*-o*) si-ta.  
   strong earthquake-for building-Nom self-collapse-Acc do-Past  
   ‘The building got collapsed due to a strong earthquake.’

   house-Nom John-by self-collapse-do-Caus-Pass-Past  
   ‘The house was made to get collapsed by John.’

   building-Nom self-collapse-do-fail-Past  
   ‘The building failed to get collapsed.’

(32) a. Tatemono-ga [VP konagonani zi-kai-si-ta ].  
   building-Nom into-pieces self-collapse-do-Past  
   ‘The building collapsed into pieces.’

b. Tatemono-ga [VP sono sikitinai-de san-mune zi-kai-si-ta ].  
   building-Nom that on.premise three-Cl self-collapse-do-Past  
   ‘Three buildings collapsed on that premise.’

c. Tatemono-ga [VP zi-kai-si-teiru ].  
   building-Nom self-collapse-do-TEIRU  
   ‘That building has collapsed. [resultative]’

d. zi-kai-si-kake-no tatemono  
   self-collapse-do-KAKE-Gen building  
   ‘the building, half collapsed’

The ill-formedness of (31a–c) suggests that the verb *zi-kai-suru* ‘collapse’ lacks an external argument in its argument structure. The well-formed examples in (32a–d) show that this verb has an internal argument.

Now, we consider verbs such as *zi-sui-suru* ‘cook for oneself’ in (30), *zi-doku-suru* ‘read for oneself’ and *zi-kyuu-suru* ‘supply for oneself.’ We apply the diagnostics to *zi-sui-suru* ‘cook for oneself’ here. The diagnostics for external argumenthood are applied in (33) and the ones for internal argumenthood in (34).

(33) a. John-ga zi-sui (-o) suru.  
   John-Nom self-cooking-Acc do  
   ‘John cooks for himself.’

   son-Nom John-by self-cooking-do-Caus-Pass-Past  
   ‘His son was made to cook for himself by John.’

   John-Top busyness.for recently self-cooking-do-fail-TEIRU  
   ‘John has been failing to cook for himself recently because of his busyness.’
The results in (33) and (34) show that the zi-verb zi-sui-suru ‘cook for oneself’ has only an external argument and lacks an internal argument.

To recapitulate, the zi-verb zi-kai-suru ‘collapse’ has only an internal argument while the zi-verb zi-sui-suru ‘cook for oneself’ has only an external argument. Thus, in terms of argument structure, these verbs have to be categorized into different types. As we have already seen in Sect. 4, the zi-verb zi-satu-suru ‘kill oneself’ has both external and internal arguments. Our results thus reveal three subtypes of objectless zi-verbs with respect to argument structure: objectless zi-verbs such as zi-satu-suru ‘kill oneself’ have transitive argument structure, zi-verbs like zi-kai-suru ‘collapse’ have unaccusative argument structure, and zi-verbs like zi-sui-suru ‘cook for oneself’ have unergative argument structure. This is contrary to T&A (1999), who uniformly classify these verbs as unaccusative. Some examples of each type of objectless zi-verb are given in Table 2.

It is an important question why our classification is different from T&A’s. Obviously, one can mention the limited scope of their work: they apply just two diagnostics for internal arguments of verbs in Japanese (namely resultative

Table 2 Three types of objectless zi-verbs in Japanese

<table>
<thead>
<tr>
<th>Objectless Zi-verbs</th>
<th>Unaccusative type</th>
<th>Unergative type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transitive type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>zi-satu (自殺)-suru</td>
<td>zi-kai (自壊)-suru</td>
<td>zi-sui (自炊)-suru</td>
</tr>
<tr>
<td>‘kill oneself’</td>
<td>‘collapse’</td>
<td>‘cook for oneself’</td>
</tr>
<tr>
<td>zi-ritu (自立)-suru</td>
<td>zi-baku (自爆)-suru</td>
<td>zi-doku (自読)-suru</td>
</tr>
<tr>
<td>‘establish oneself’</td>
<td>‘explode’</td>
<td>‘read for oneself’</td>
</tr>
<tr>
<td>zi-gai (自害)-suru</td>
<td>zi-ten (自転)-suru</td>
<td>zi-kyuu (自給)-suru</td>
</tr>
<tr>
<td>‘kill oneself’</td>
<td>‘roll’</td>
<td>‘supply for oneself’</td>
</tr>
<tr>
<td>zi-sou (自惚)-suru</td>
<td>zi-mei (自鳴)-suru</td>
<td>zi-katu (自活)-suru</td>
</tr>
<tr>
<td>‘admire oneself’</td>
<td>‘sound’</td>
<td>‘maintain for oneself’</td>
</tr>
<tr>
<td>zi-sui (自水)-suru</td>
<td>zi-sei (自生)-suru</td>
<td>zi-syuu (自習)-suru</td>
</tr>
<tr>
<td>‘drown oneself’</td>
<td>‘grow’</td>
<td>‘study for oneself’</td>
</tr>
</tbody>
</table>
predication and quantifier floating) presumably because they concentrate on showing that objectless  zi-verbs have unaccusative behavior. This argument, however, is quite inconclusive because it does not show that objectless  zi-verbs lack an external argument. The two tests merely show that such verbs have an internal argument. We thus naturally expect their classification to be different from our three-way classification, which is backed up by a wide range of diagnostics for external arguments in Japanese.

We speculate, however, that the primary reason for the discrepancy in classification between the current work and T&A (1999) is our different viewpoint on what (some of) the tests we have discussed above are actually diagnosing in Japanese grammar. T&A (1999, p. 42) maintain that the (un)availability of the accusative case on verbal nouns, as in (35)–(37), is controlled by agentivity/volitionality: the accusative case marking is admissible in (35) because the subject is a volitional entity whereas this option is not acceptable in (36) and (37) because the subject lacks volition.

(35) Sono kodomo-wa izime-o ku-ni zi-satu-o si-ta.
that child-Top bullying-Acc suffer-due.to self-killing-Acc do-Past
‘That child killed himself, suffering from bullying.’

(36) ??Tatemono-ga zi-kai-o si-ta.
Building-Nom self-demolish-Acc did
‘The building self-demolished.’

(37) ??Wakusei-ga zi-ten-o site-iru.
Planet-Nom self-rotate-Acc is doing
‘Planets are self-rotating.’

They conclude that the different acceptability of the accusative case marking in (35)–(37) does not undermine their uniform unaccusative analysis: unaccusative verbs can have agentive/volitional internal arguments. In our approach, on the other hand, the contrast of the acceptability between (35) and (36)/(37) obtains because the verb in the former has an external argument whereas the verbs in the latter lack one, the underlying assumption being that agentivity/volitionality is the determinant of an external argument in the argument structure of a verb. Accordingly, our classification may well be different because we take two different stands on what the accusative case marking diagnoses.

We still believe that our position is superior to T&A’s. Our analysis has the obvious advantage of predicting an otherwise unaccusative (zi-)verb to exhibit a consistently unergative behavior with respect to three tests: (a) the accusative case marking in light verb constructions (as in (13) and (35)–(37)), (b) passivized causativization ((16b), (17a, b), and (18b)) and (c) V-V compounds ((19c) and (20)). Agentivity constrains several syntactic phenomena: for example, consider the availability of floating numeral quantifiers in (38a,b).
Recall that, as discussed on Sect. 4.1, we assume that the verb *korobu* ‘tumble’ in (38) is ambiguously categorized as unergative and unaccusative. In our analysis, the different acceptability between (38a) and (38b) is accounted for as follows. The subject is agentive in (38a) because it occurs with the volitional adverb *wazato* ‘intentionally’: this subject is an external argument, and the verb is unergative. On the other hand, in (38b), the subject is non-agentive: this subject is underlyingly an internal argument, and the verb is unaccusative. Numeral quantifier floating is allowed only in (38b) because the numeral quantifier can be in a mutual c-command relation with its host, namely the trace of the surface subject of the unaccusative verb, in this example. In contrast, under T&A (1999), unaccusative verbs can have an agentive subject. Then, both verbs in (38a) and (38b) could in principle be categorized as unaccusative verbs. In other words, they need to give separate accounts for the unacceptability of quantifier floating in (38a) and for the contrast between (35) and (36)/(37).

Thus, our approach allows for a maximally simple view on the determinant of an external argument in Japanese grammar. T&A, in contrast, would be forced to a rather mixed and complicated result that the accusative marking test diagnoses agentivity whereas the V-V compound, passivized causativization, and floating quantifier tests diagnose the external argument. Given independent evidence from Kishimoto (1996, 2005) that it is the volitionality of an argument that distinguishes unergative from unaccusative verbs, we believe that our approach, which yields uniform results across different tests for external arguments, is to be preferred. Which viewpoint should be adopted is an extremely important issue, but what is clear from here is that the different classifications between ours and T&A’s arise from two different takes on what the tests discussed in this paper actually diagnose and that our view represents the conceptually simplest possible approach.

6 Alternative analysis of objectless *zi*-verb

In this section, we propose an analysis of the three types of objectless *zi*-verbs that draws on a fine-grained mapping between Lexical Conceptual Structure (LCS) and Argument Structure (AS).
First, we consider the first type of objectless *zi*-verbs such as *zi-satu-suru* ‘kill oneself’ in (39). We have observed in Sect. 4 that these verbs are associated with transitive argument structure with both the external and internal arguments, which are mapped onto the subject and direct object in the syntactic representation, respectively.

(39)  
\[
\text{John-ga } \text{zi-satu-suru.}  \\
\text{John-Nom self-killing-do.}  \\
\text{‘Johni kills himselfi.’}
\]

Following this observation and the standard analysis of accomplishment verbs like *kill* in English and *korosu* ‘kill’ in Japanese (Jackendoff 1972, 1990; Dowty 1991; Levin and Rappaport Hovav 1995; Kageyama 1996), we postulate that the AS and the LCS for this type of verb are as shown in (40a,b).

(40)  
\[
\begin{align*}
\text{a. AS:} & \quad (x, (y)) \\
\text{b. LCS:} & \quad [X \text{ CAUSE } [Y \text{ BECOME DEAD}]
\end{align*}
\]

In the literature on the lexical semantics-syntax interface mentioned above, it is commonly assumed that the Causer variable of the embedding (causing) sub-event in the LCS is mapped to the external argument in the AS whereas the variable of the embedded (caused) sub-event in the LCS is mapped to the internal argument in the AS. For the *zi-satu-suru* type of *zi*-verb, there is a straightforward one-to-one mapping between the variable positions of the LCS and the argument slots of the AS, as shown in (40a,b). Once the AS is mapped to the syntactic representation, the internal argument is obligatorily incorporated into the verbal complex due to its affixal nature.

The obligatory reflexive nature of this class of verb also falls out from our analysis. Suppose that the *zi*-morpheme used in verbs like *zi-satu-suru* has exactly the same AS function and meaning as the anaphor *zibun* in regular transitive verbs. For example, consider (41) in which *zibun* occurs with the accomplishment verb *korosu* ‘kill.’ This sentence is the paraphrase of (39). In both sentences, the reflexive (co-referential) interpretation is induced.

(41)  
\[
\text{John-ga } \text{zibun-o korosi-ta.}  \\
\text{John-Nom self-Acc kill-Past}  \\
\text{‘Johni killed himselfi.’}
\]

The *zi*-morpheme and *zibun* share many properties except for the one substantial difference that *zi* - is a bound morpheme whereas *zibun* is not: both occupy the y position in the AS and the Y position in the LCS. Both contain *zi*- (自): the morpheme itself and the first part of *zibun* (自分). We suppose that the unspecified part of the meaning of the *zi*-morpheme that is originated from Chinese is ‘self.’ One conceivable way to reflect these properties is co-indexing the *zi*-morpheme or *zibun* with the external argument (x/X in the AS and LCS structures).
Then, this operation induces the obligatory co-referential reading between the external and internal arguments in cases like (39).

Our analysis can account for how kake-modification, numeral quantifier floating, and the resultative interpretation of the -teiru morpheme are allowed when zi-verbs like zi-satu-suru ‘kill oneself’ are used. We know independently that these phenomena are possible only when verbs have internal arguments. This class of verb, however, superficially has only the external argument. We assume that the zi-morpheme is actually the internal argument and that the external argument is linked to the morpheme, which appears in the object position, through co-indexing. Also, our analysis explains why the verbal noun in this class of zi-verb can receive accusative marking, while accusative-marked verbal nouns are often analyzed as occupying direct object position. We advocate Grimshaw and Mester’s (1988) analysis and claim that the availability of accusative case marking depends on Argument Transfer in their mechanism but not on whether an object position is occupied or not.

Next, we consider the second type of objectless zi-verbs such as zi-kai-suru ‘collapse’ in (42), zi-baku-suru ‘explode’, and zi-ten-suru ‘rotate.’ We have already seen that this class of verb is associated with unaccusative AS. These verbs are obviously categorized as unaccusative verbs under T&A’s (1999) uniform unaccusative analysis.

(42) Tatemono-ga zi-kai-si-ta.
    building-Nom self-collapsing-do-Past
    ‘The building collapsed.’

The AS and the LCS for this intransitive verb then would be as in (43).

(43) a. AS: (y) (y=Theme/Causee)
    b. LCS: [ X CAUSE [Y BECOME BROKEN ]] (where X=Y)

We follow Kageyama (1996) and assume that intransitive verbs of change of state such as break in English and kowareru ‘break (Intr)’ in Japanese are derived from their transitive variants break and kowasu ‘break (Tr),’ respectively, by anti-causativization through the co-identification of the Causer and Causee/Theme participants (X = Y). As a result of this process, the participant of the embedding (causing) sub-event (namely X) becomes inaccessible for linking to a position in the AS (though it remains in the LCS). This process thus links the only visible element in the LCS (namely Y) to the sole argument position (y) in the AS. This mapping thus gives the unaccusative syntactic profile to the zi-kai-suru type of zi verbs. It should also be noticed that there is no variable position for the zi-morpheme to occupy in (43a). This mapping thus correctly predicts that the morpheme has an adjunct status in the zi-kai-suru type of verbs. Since the co-identification of the Causer and Causee means that a single non-animate entity behaves as if it broke due to its own internal properties (see Smith 1970; Levin and Rappaport Hovav 1995 and Kageyama 1996) and the LCS involves the non-agentive causative structure for inanimate objects, the only possible
reading for the zi-morpheme in question that meets these two conditions is ‘by itself,’ as in change of state verbs in English such as *break* and *rotate* in (44).

(44) a. The vase broke *by itself*.
   b. Can the screen rotate *by itself*?

In fact, as (45) indicates, the verb *zi-kai-suru* in (42) can be paraphrased using the anti- causative verb *kowareru* ‘break’ and the adjunct *sizen-to* or *hitoride-ni*, both meaning ‘by itself.’ The paraphrasability here is a natural consequence of our proposal because the zi-morpheme attaches to intransitive verbs and functions as an adjunct that marks internal causation is on the right track.

(45) Tatemono-ga {sizen-to/ hitoride-ni} koware-ta.
building-Nom by itself collapse-Past
‘That building collapsed by itself.’

Note that *zi*-verbs like *zi-kai-suru* are not reflexive verbs in which subject and internal arguments are co-referential.

Finally, let us consider the AS and LCS of the third type of objectless *zi*-verbs such as *zi-sui-suru* ‘cook for oneself’ in (46), *zi-doku-suru* ‘read for oneself’, and *zi-kyuu-suru* ‘supply for oneself.’

(46) John-ga *zi-sui-suru*.
John-Nom self-cooking-do
‘John cooked for himself.’

This type of *zi*-verb is associated with unergative AS, which does not project its direct object for the purposes of syntax. For example, the sentence (46) implies that John cooked something, but the object denoted by the verb remains as an implicit argument. These properties are captured by the AS and LCS shown in (47a,b).

(47) a. AS: (x) (x=Agent)
   b. LCS: [X DO Y]

In this mapping, the initiating participant of the activity event in the LCS (namely X) is mapped to the sole agent slot in the AS. This mapping accounts for our observation that the *zi-sui-suru* type of verbs has only the external argument mapped to the subject position in the syntax. The other argument involved in the activity (namely Y) in the LCS remains unlinked to any argument slot since there is no other slot available. We adopt an anonymous reviewer’s suggestion that a variable in LCS is existentially bound by an existential operator and hence invisible to the mapping to AS and syntax: the existentially bound argument, which is not represented in AS, can never be realized in the syntax even though LCS indicates the existence of such an argument (cf. Levin and Rappaport Hovav 1995).
Now, since the sole argument slot in the AS is taken by the Agent of the DO component, there is no place for the zi-morpheme to occupy as an argument. We propose that the zi-morpheme in question serves as an adjunct in the zi-sui-suru type of verbs. T&A (1999: footnote 2) also say that the zi-morpheme plays a role as an adjunct in verbs like zi-sui-suru. Note, however, that the function of the zi-morpheme in this class of verb cannot be analyzed on a par with that of the zi-morpheme used in the zi-kai-suru type. Though the morpheme in both cases serves as an adjunct due to the lack of any argument slot in the AS, its meanings are different. As seen above, the meaning of the zi-morpheme in the latter case (‘by itself’) arises from the co-indexation of the Causer and the Causee/Theme participants in the LCS together with the non-agentive LCS. The former, however, lacks such co-indexation. Thus, the zi-morpheme in the zi-sui-suru type cannot have the ‘by itself’ reading, by definition. However, notice that the LCS in (47b) involves the agentive operator DO, which was absent in the LCS in (43b). Thus, the only possible interpretation for the morpheme in the zi-sui-suru type of verbs is one that is compatible with the agentive orientation of the action. Thus, for the zi-sui-suru type, the morpheme ends up having the agentive ‘for oneself, by oneself’ reading (see Takezawa 1991 for the same observations).

7 Concluding remarks

This paper is a reply to Tsujimura and Aikawa’s (1999) analysis of objectless zi-verbs in Japanese. Although they claim that all objectless zi-verbs have unaccusative argument structure, applying two tests for unaccusativity based on resultative predication and quantifier floating, we have provided new evidence against their uniform unaccusative analysis. Applying several diagnostics for external and internal argumenthood, we have shown that objectless zi-verbs instantiate a full range of argument structure configuration: (a) transitive (e.g., zi-satu-suru ‘kill oneself), (b) unaccusative (e.g., zi-kai-suru ‘collapse by itself’), and (c) unergative (e.g., zi-sui-suru ‘cook for oneself’).

We have also considered why our proposed classification is different from T&A’s. A first reason is the limited scope of their work: they apply just two internal argumenthood tests to show that some zi-verbs exhibit unaccusative behavior. In contrast, we apply a wide range of diagnostics for external as well as internal arguments. A second, and the primary, reason is that we assume that agentivity is the determinant of an external argument, in line with Kishimoto (1996, 2005). Our approach correctly predicts an otherwise unaccusative verb to show consistently unergative behavior within the syntax with respect to the diagnostics discussed in this paper when its sole argument is interpreted as a volitional agent, thereby allowing for a maximally simple view on the determinant of an external argument in Japanese grammar. This result is hard to achieve under T&A’s approach.

Our proposed analysis of objectless zi-verbs in terms of the interface between Argument Structure (AS) and Lexical Conceptual Structure (LCS) not only derives the various properties of the three types of objectless zi-verbs but also derives the different argument-structural function and meaning that the zi-morpheme is associated with in each type.
Acknowledgments  This paper has been presented in various forms at the University of Arizona, at University of Maryland, College Park, at the 9th Seoul International Conference on Generative Grammar, and at the 82nd Annual Meeting of the Linguistic Society of America. We are grateful to the JEAL editors and anonymous reviewers for invaluable comments and criticisms on earlier versions of this paper. Thanks also go to Jun Abe, Andy Barss, Andrew Carnie, Heidi Harley, Norbert Hornstein, Chonghyuck Kim, Simin Karimi, David Medeiros, and the audience members at the afore-mentioned venues for helpful feedback. All remaining errors are entirely our own.

References


