AFFIXAL REFLEXIVE ANAPHOR IN JAPANESE[*]

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1 Introduction

This work examines the nature of Japanese affixes *zi-* and *ziko-*, both meaning 'self,' that appear in Sino-Japanese morphologically complex verbs. These are known as '*zi*-verbs,' such as *zi-satsu-suru* 'self-killing do, kill self' in (1), and '*ziko*-verbs,' such as *ziko-hihan-suru* 'self-criticism do, criticize self' in (2).[1] Although there are many researches on the anaphor *zibun* 'self' in Japanese, a detailed study of *zi-* and *ziko-* is yet to be conducted (Aikawa, 1993, Tsujimura and Aikawa, 1996, 1999, Shimada, 2006, Sato and Kishida, 2007, Miura, 2008, Kishida and Sato, 2010).

(1) John-ga   zi-satsu-shi-ta.
     John-Nom self-killing-do-Past

     'John killed self.'

(2) John-ga   ziko-hihan-shi-ta.
     John-Nom self-criticism-do-Past

     'John criticized self.'

In this work, I propose that there are several types of *zi*-verbs and *ziko*-verbs in which the *zi-/ziko-*affixes have different functions and meaning and that the *zi-/ziko-*affixes used in the reflexive type of *zi*-verbs/*ziko*-verbs are 'Pure reflexive anaphors' in Lidz's (2001a,b) sense.

[1]In this paper, I spell the affixes as *zi-/ziko-* in the *kunrei-shiki* (the *kunrei* style) romanization, instead of *ji-/jiko-* in the *hebon-shiki* (the Hepburn style) romanization, following the previous studies mentioned in Section 1. Also, the reflexive anaphor 'self' is spelled as *zibun*, not *jibun*. I keep the *kunrei* style romanization in some cited examples following the original sentences.

2 *Zi*-verbs and *ziko*-verbs

In this section, we see several types of *zi*-verbs and *ziko*-verbs. The *zi-/ziko*-affixes can combine with a wide variety of Sino-Japanese verbal nouns, such as *satu* 'killing' in (1), to create a complex predicate with the support of the light verb *suru* 'do' (Grimshaw and Mester, 1988). Some *zi*-verb and *ziko*-verb examples are listed in (3) and (4), respectively.

(3) *zi-man-suru* 'boast about,' *zi-kyo-suru* 'confess about,' *zi-haku-suru* 'confess about'
     zi-shu-suru 'turn oneself in,' *zi-satsu-suru* 'kill oneself,' *zi-ritsu-suru* 'establish oneself'
     zi-ai-suru 'take care of oneself,' *zi-ten-suru* 'revolve,' *zi-baku-suru* 'explode'
     zi-kai-suru 'collapse,' *zi-sui-suru* 'cook by oneself,' *zi-shuu-suru* 'study by oneself'

(4) *ziko-kanri-suru* 'self-administer,' *ziko-shinkoku-suru* 'report by oneself'
     ziko-shoukai-suru 'introduce oneself,' *ziko-hihan-suru* 'criticize oneself'
     ziko-shuchou-suru 'assert oneself,' *ziko-senden-suru* 'advertise oneself'
     ziko-bengo-suru 'defend oneself,' *ziko-giman-suru* 'deceive oneself'

   Zi-verbs and *ziko*-verbs are divided into two main classes: some verbs can occur with a direct object argument as exemplified in (5) and (6), while some verbs cannot as in (7) and (8). For example, compare the *zi*-verbs in (5) and (7). The *zi*-verb in (5) *zi-man-suru* 'boast about' can occur with the direct object *musuko* 'son.' By contrast, the *zi*-verb in (7) *zi-satsu-suru* 'kill oneself' cannot occur with an object. When the verb occurs with the direct object *musuko* 'son,' the sentence is excluded. Without the object, the sentence is fine.

(5) John-wa musuko-o zi-man-shi-ta.
     John-Top son-Acc   ZI-boast-do-Past

     'John boasted about his son.'

(6) John-wa taijuu-o   ziko-kanri-suru.
     John-Top weight-Acc ZI-control-do

     'John controls his weight.'

(7) John-wa (*musuko-o) zi-satsu-shi-ta.
     John-Top   son-Acc   ZI-killing-do-Past

     'John killed himself.'   (*John killed his son.)

(8) John-wa (*tomodachi-o) ziko-shoukai-suru.
     John-Top   friend-Acc   ZI-introduction-do

     'John introduces himself.'   (*John introduced his friend.)

In this work, I call verbs that can occur with an object 'object-taking verbs' and verbs that cannot occur with an object 'objectless verbs,' following Kishida and Sato (2010). The chart in (9) shows how *zi*-verbs in (3) and *ziko*-verbs in (4) are classified.

(9)

Object-taking type			
zi-verbs	(9a)	*zi-man-suru* 'boast about oneself' (as in (5))	
		zi-kyo-suru 'confess oneself guilty'	
		zi-shu-suru 'turn oneself in'	etc.
ziko-verbs	(9b)	*ziko-kanri-suru* 'self-administer' (as in (6))	
		ziko-shinkoku-suru 'report by oneself'	
		ziko-kanketsu-suru 'complete by oneself'	etc.
Objectless type			
zi-verbs	(9c)	*zi-satsu-suru* 'kill oneself' (as in (7))	
		zi-ai-suru 'take care of oneself'	
		zi-ritsu-suru 'establish oneself'	etc.
	(9d)	*zi-ten-suru* 'revolve' (as in (10))	
		zi-kai-suru 'collapse'	
		zi-baku-suru 'explode'	etc.
ziko-verbs	(9e)	*ziko-shoukai-suru* 'introduce oneself' (as in (8))	
		ziko-hihan-suru 'criticize oneself'	
		ziko-giman-suru 'deceive oneself'	etc.

Notice that there are two classes of objectless *zi*-verbs in (9c,d). Tsujimura and Aikawa (1999) claim that verbs in both classes are uniformly 'reflexive verbs' in which the *zi*-affix functions as a reflexive element, like the anaphor *zibun* 'self.' In this work, however, I claim that objectless *zi*-verbs have to be divided into subclasses and that Tsujimura and Aikawa's analysis is not tenable.

Compare (7) with (10). In the former sentence, the *zi*-verb from the (9c) class is used. By contrast, in the latter sentence, the *zi*-verb from (9d) is used. The *zi*-verbs in (7) and (10) show a similarity: Both verbs do not occur with an object. They, however, show a difference as well: the *zi*-affix used in the verb in (7) functions like *zibun*, while the one in (10) does not.

(10)   Chikyuu-ga (∗shouwakusei-o) zi-ten-suru.
       earth-Nom   asteroid-Acc   ZI-rotation-do

       'The earth rotates.' (∗'The earth rotates an asteroid.')

Here, we see two basic properties of the anaphor *zibun* 'self.' It is well known that *zibun* is subject-oriented. In (11), only the subject *Taroo*, not the direct object *Ziroo*, can be the antecedent of *zibun*.

(11)   Taroo-ga   Ziroo-ni zibun-nituite hanasi-ta
       Taro-Nom Ziro-Dat self-about   told

       'Taro$_i$ told Ziro$_j$ about self$_{i/∗j}$.'   (Tsujimura, 1996:(11))

It is also known that *zibun* has the animacy restriction on its antecedent. In (12), *zibun* can find its antecedent inside the sentence: The possible antecedent, the subject *John*, is animate. The sentence is fine. On the other hand, the sentence (13) is excluded. *Zibun* cannot find its antecedent in the sentence: the subject *rekisi* 'history' is the possible antecedent, but it is not animate.

(12) John-ga   zibun-o seme-ta.
      John-Nom self-Acc blame-Past

      'John blamed himself.'

(13) *Rekisi-ga   zibun-o kurikaesu.
       history-Nom self-Acc repeat

      'History repeats itself.'   (Tsujimura, 1996:(9))

Now, let us go back to (7) and (10) repeated below. Does the *zi*-affix in each case function as a reflexive element like *zibun*, as Tsujimura and Aikawa (1999) claim?

(7)   John-wa   zi-satsu-shi-ta.
      John-Top ZI-killing-do-Past

      'John killed himself.'

(10) Chikyuu-ga zi-ten-suru.
      earth-Nom   ZI-rotation-do

      'The earth rotates.'

The possible antecedent for the *zi*-affix in (7) is the subject *John* and it is animate. The well-formedness of the sentence naturally follows. Here, note that (10) is not excluded, even though the sentence has an inanimate subject *chikyuu* 'the earth.' This subject is the only one possible antecedent for the *zi*-affix in the sentence. If *zi*- in this case were a reflexive element, then the sentence would be excluded like (13). Thus, the *zi*-affix in (7) is a reflexive anaphor, while the *zi*-affix in (10) cannot be a reflexive anaphor. The verb in (7), or more generally, the verbs in (9c), are regarded as reflexive verbs. By contrast, the verb in (10) and the verbs in (9d) are not. So, I claim that objectless *zi*-verbs are classified into subclasses, contrary to Tsujimura and Aikawa's (1999) claim.

In addition to the *zi*-affix used in the verbs in (9c), I assume that the *ziko*-affix in (9e) is also a reflexive anaphor. My assumption is that *zi*-verbs in (9c) and *ziko*-verbs in (9e) are all reflexive verbs and that the *zi*-/*ziko*-affixes used in these verbs are reflexive elements that are generated as direct object arguments of verbal nouns. The reflexive *zi*-/*ziko*-affixes have to be incorporated into verbal nouns and the light verb *suru* 'do,' due to their morphological nature (Kishida and Sato, 2010). For example, in (14), the *zi*-affix cannot be marked with the accusative case marker *-o*.[2]

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[2]Verbal nouns that occur with the *zi*-affix cannot be used as an independent verb when they are supported by the light verb *suru* 'do.' The verbal noun and the light verb complex cannot be used as a verb with or without any object as in (i). By contrast, verbal nouns that occur with the *ziko*-affix can be used as an independent verb when they are supported by the light verb *suru*, as (ii) indicates. Compare (ii) with (6).

  (i) *John-ga   { Ø / zibun-o / mushi-o}   satsu-shi-ta.
      John-Nom {   / self-Acc / bug-Acc} killing-do-Past
      'John killed {Ø /self / a bug}.'

 (ii) John-ga   taijuu-o   kanri-suru.   ↔ (6) John-wa taijuu-o   ziko-kanri-suru.
      John-Nom weight-Acc control-do   John-Top weight-Acc ZI-control-do
      'John controls his weight.'

(14) *John-ga   zi-o   {satsu-shi-ta   / koroshi-ta}.
      John-Nom ZI-Acc {killing-do-Past / kill-Past}

      'John killed self.'

One evidence that supports my proposal that the *zi-*/*ziko-* reflexive affixes are incorporated into verbal nouns is the observation in (15). The sentence indicates that objectless *ziko-*verbs cannot take a direct object but can take an indirect object. If the *ziko-*verb in (15), *ziko-hihan-suru* 'do self-criticism,' already has a direct object, as I assume, then it is natural that this verb does not take another direct object argument.

(15) John-ga   {*tomodachi-o / tomodachi-ni} ziko-shoukai-shi-ta.
      John-Nom { friend-Acc   / friend-Dat }   self-introduction-do-Past

      'John {*introduced his friend to self / introduced self to his friend}.'

Finally, we quickly consider the object-taking *zi-*verbs in (9a) and *ziko-*verbs in (9b). The *zi-*/*ziko-*affixes in these cases could not be generated as direct objects of verbal nouns, because these verbs occur with syntactic direct object arguments, as exemplified in (5) and (6). So, I do not regard these affixes as reflexive anaphors, unlike the *zi-*/*ziko-*affixes in (9c,e).

In this section, we have seen that there are reflexive *zi-*verbs/*ziko-*verbs and non-reflexive ones. In this work, I focus on only reflexive type of verbs, namely, objectless *zi-*verbs in (9c) and objectless *ziko-*verbs in (9e). So far, I have glossed all the *zi-*/*ziko-*affixes as 'ZI.' Hereafter, I gloss the affixes in the reflexive usage, like the ones in (9c,e), as 'self,' distinguishing them from the *zi-*/*ziko-*affixes in other usages.

3   Affixal vs. Non-affixal anaphors

In this section, we compare the *zi-*/*ziko-*affixes with the non-affixal (free morpheme) reflexive anaphor *zibun* 'self.' In some aspects, *zi-*/*ziko-* and *zibun* behave identically. As (16) and (17) show, both *ziko-* and *zibun* allow local (co-argument) binding.

(16) John-ga   ziko-hihan-shi-ta.
      John-Nom self-criticism-do-Past

      'John$_i$ criticized self$_i$.'

(17) John-ga   zibun-o hihan-shi-ta.
      John-Nom self-Acc criticism-do-Past

      'John$_i$ criticized self$_i$.'

They, however, show different behaviors in other aspects. The contrast between (18) and (19) indicates that *ziko-* allows only local binding, while *zibun* allows non-local binding as well.

(18) Mary$_j$-wa [John$_i$-ga   ziko$_{i/*j}$-hihan-shi-ta] to   omot-ta.
      Mary-Top   John-Nom self-criticism-do-Past that think-Past

      'Mary$_j$ thought that John$_i$ criticized self$_{i/*j}$.'

(19) Mary$_j$-wa [John$_i$-ga   zibun$_{i/j}$-o hihan-shi-ta]   to   omot-ta.
      Mary-Top   John-Nom self-Acc   criticism-do-Past that think-Past

      'Mary$_j$ thought that John$_i$ criticized self$_{i/j}$.'

A second aspect in which *ziko-* and *zibun* show different behaviors is the (un)availability of statue interpretations in the Madame Tussaud context, first discussed in Jackendoff (1992). First, let us see what the Madame Tussaud context is. Jackendoff notes that the English anaphors such as *himself* and *herself* can refer to the antecedent but also an extension of the antecedent, such as *statue of Ringo* in (20).

(20)   … Ringo started undressing himself. (*himself* = Ringo, statue of Ringo)

(Jackendoff, 1992:(9))

Imagine a situation in which Ringo was in a wax museum and standing in front of a statue that depicts him. The sentence (20) can describe two situations. One situation is that Ringo started removing the clothes that he was wearing. The other situation is that Ringo started removing the clothes that the statue was wearing. The reading induced in the second situation is called 'a statue interpretation of *himself*.'
Now, we apply the statue reading diagnostic to *ziko-* and *zibun*. As in (21), *ziko-* refers to only the antecedent itself. By contrast, in (22), *zibun* can refer to an extension of the antecedent, namely 'a statue of John,' as well as the antecedent *John* himself. *Zibun* induces the additional reading.

(21)   John-ga   ziko-hihan-shi-ta.   (*ziko-* = John, *statue of John)
       John-Nom self-criticism-do-Past

(22)   John-ga   zibun-o hihan-shi-ta.   (*zibun* = John, statue of John)
       John-Nom self-Acc criticism-do-Past

       'John criticized self.'   (cf. Shimada, 2006, Miura, 2008)

A third aspect is the (un)availability of non-sloppy identity readings in comparative deletion constructions. If *ziko-* is used as in (23), only a sloppy identity reading (the elided structure contains a local reflexive reading) is induced. By contrast, if *zibun* is used as in (24), then a non-sloppy identity reading (the object of the deleted structure is the same one of the matrix clause) as well as a sloppy identity reading are available.

(23)   Mary-ga   John yorimo hageshiku ziko-hihan-shi-ta.
       Mary-Nom John than   severely   self-criticism-do-Past

       'Mary criticized herself more severely than John criticized himself .' (sloppy)
       *'Mary criticized herself more severely than John criticized her.' (*non-sloppy)

(24)   Mary-ga   John yorimo hageshiku zibun-o hihan-shi-ta.
       Mary-Nom John than   severely   self-Acc criticism-do-Past

       'Mary criticized herself more severely than John criticized himself.' (sloppy)
       'Mary criticized herself more severely than John criticized her.' (non-sloppy)

The comparison between *zi-/ziko-* and *zibun* in this section shows that, in addition to the affix/non-affix difference, *zi-/ziko-* and *zibun* have several differences.[3] To account for the different

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[3]In addition to the three aspects of difference seen in Section 3, the *zi-/ziko-*affixes and *zibun* show another difference with respect to 'distributive/collective readings.' The two sentences in (i) and (ii) induce different readings, although the same English translation is given. The sentence (i) with the affixal *ziko-* allows both distributive and collective readings. When the sentence describes the situation in which each John and Mary is engaged in an action of

behaviors between the two types of reflexive, I would like to apply Lidz's (2001a,b) analysis of reflexives to Japanese.

4 Types of Reflexives

Lidz (2001a,b) proposes that anaphors in languages are classified into two types, based on their semantics, as 'Pure reflexive anaphors' and 'Near reflexive anaphors.' He claims that predicates that take a Pure reflexive anaphor and ones that take a Near reflexive anaphor induce different type of reflexivity ('Pure reflexivity' and 'Near reflexivity') and have different semantic structures as schematized in (25) and (26).

(25) $\lambda x [P (x,x)]$ (Pure reflexive predicates)

(26) $\lambda x [P (x,f(x))]$ (Near reflexive predicates)   (Lidz, 2001a:(15))

Pure reflexive anaphors require complete identity with their antecedents. Lidz assumes that these anaphors are variables and they have to be referentially identical with their antecedents. On the other hand, Near reflexive anaphors are referentially dependent on their antecedents but are not necessarily identical with them. A Near reflexive anaphor is a function ($f(x)$ in (26)) that takes its antecedent as input and returns an element that is representationally related to the antecedent. Pure reflexivity is a subcase of Near reflexivity: when the Near reflexive function takes an antecedent as input and returns the input itself, Pure reflexivity is induced.

　　Pure reflexive anaphors and Near reflexive anaphors behave differently in the Madame Tussaud context and comparative deletion constructions. Lidz gives examples from Dutch. The language has two types of anaphor: *zich* 'self' and *zichzelf* 'selfself.' In the Madame Tussaud context, as in (27) and (28), only *zichzelf* 'selfself' allows a statue interpretation.

(27) Ringo scheert zich.   [Dutch]
　　 Ringo shaves self

　　 'Ringo shaves himself' (*zich* = Ringo, *statue of Ringo)

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self-criticism (John criticized himself and Mary criticized herself.), this is the distributive reading. If John and Mary as a pair criticized themselves (John and Mary said 'we were wrong'), this is the collective reading. By contrast, the sentence (ii) with *zibun* allows only the distributive reading. To induce a collective reading using *zibun*, the plural marker *tachi* has to be attached to *zibun* as in (iii).

(i) [John to   Mary]-ga   ziko-hihan-shi-ta.
　　 John and Mary -Nom self-criticism-do-Past

　　 'John and Mary criticized themselves.'   (distributive / collective)

(ii) [John to   Mary]-ga   zibun-o hihan-shi-ta.
　　 John and Mary -Nom self-Acc criticism-do-Past

　　 'John and Mary criticized themselves.'   (distributive / *collective)

(iii) [John to   Mary]-ga   zibun-tachi-o hihan-shi-ta.
　　 John and Mary -Nom self-Pl-Acc   criticism-do-Past

　　 'John and Mary criticized themselves.'   (*distributive / collective)

Interestingly, in Chinese as well, the anaphor *ziji* 'self' that occurs in the structure like (ii) allows only the distributive reading. If *ziji* is marked with plural, then the collective reading becomes available (Huang, 2001). In this paper, I do not discuss the fourth difference between *zi-/ziko-* and *zibun* further for reasons of space. I leave the investigation of what causes (un)availability of the collective reading and what *tachi* attached to *zibun* does for future study. I thank Satoshi Tomioka and Masahiro Yamada for pointing out this difference between the two types of anaphor.

(28) Ringo scheert zichzelf.
      Ringo shaves selfself

      'Ringo shaves himself' (*zichzelf* = Ringo, statue of Ringo)   (Lidz, 2001a:(29))

Lidz explains the different availability of the statue interpretation in (27) and (28) by saying that *zich* is a Pure reflexive anaphor and its reference must be identical with its antecedent, while the Near reflexive anaphor *zichzelf* has the Near reflexive function that takes *Ringo* as input and returns an extension of it, namely, a statue of *Ringo*.

In comparative deletion constructions, if *zich* is used as in (29), only the sloppy identity reading is available. If *zichzelf* is used as in (30), the non-sloppy identity reading is also available.

(29) Zij verdedigde zich beter dan Peter
      she defended   self better than

      'She defended herself better than Peter defended himself.'   (sloppy identity)
     *'She defended herself better than Peter defended her.'   (*non-sloppy)

(30) Zij verdedigde zichzelf beter dan Peter
      she defended   selfself better than

      'She defended herself better than Peter defended himself.'   (sloppy)
      'She defended herself better than Peter defended her.'   (non-sloppy)
                                                                                      (Lidz, 2001a:(30))

The Pure reflexive anaphor *zich* is a variable that should be referentially identical with its antecedent, and the semantic structure of the entire sentence would be like (31). On the other hand, *zichzelf* is not a variable and can have its own index. There are two possible semantic representations for the sentence as in (32) and (33). (32) is the structure for the sloppy identity reading, and (33) is for the non-sloppy identity reading.

(31) `[defend (she,she)] better than [defend (Peter,Peter)]`

(32) λ`x[defend(x,f(x))] (she`$_i$`) better than` λ`x[defend(x,f(x))] (Peter)`

(33) λ`x[defend(x,f`$_i$`(x))] (she`$_i$`) better than` λ`x[defend(x,f`$_i$`(x))] (Peter)`

5 Proposal

5.1 Reflexive anaphors in Japanese

Based on Lidz's (2001a,b) analysis, I propose that, in Japanese, the affixal anaphors (*zi-/ziko-*) are Pure reflexive anaphors and the non-affixal anaphor (*zibun*) is a Near reflexive anaphor.

The properties of *zi-/ziko-* observed in Section 3— the local antecedent requirement in (18), the unavailability of statue readings in (21) and the unavailability of non-sloppy identity readings in (23)— are all attributed to their nature as Pure reflexive anaphors.[4] In (18) repeated below, only

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[4]Predicates that take *zibun* as their object arguments and ones that incorporate the *zi-/ziko-*affixes (*zi*-verbs/*ziko*-verbs) are apparently parallel to 'syntactically reflexive-marked predicates' and 'lexically reflexive-marked predicates' in Reinhart and Reuland (1993): syntactically reflexive-marked predicates (e.g. *haat* 'hates' in (i) in Dutch) are lexically/inherently not reflexive, but they get reflexivity by taking a 'reflexivizer anaphor' (*zichzelf* 'selfself'). On

the local antecedent is allowed. If *ziko-* is a Near reflexive anaphor, it is a variable. Following Liu (2003), who claims that a variable anaphor constitutes an operator-variable relation and is subject to predication or strong binding by an appropriate local subject, I assume that the embedded sentence has the semantic structure like (34). The variable anaphor *ziko-* adjoins to VP and the local subject *John* binds it. This is the only interpretation of *ziko-*.

(18) Mary-wa [John-ga   ziko-hihan-shi-ta]   to   omot-ta.
      Mary-Top   John-Nom self-criticism-do-Past that think-Past

      'Mary$_j$ thought that John$_i$ criticized self$_{i/*j}$.'

(34) [[John] [$_{VP}$ ziko-$_i$ [$_{VP}$ … t_i-hihan-suru …]]]   (Based on Liu (2003:33))

    In the Madame Tussaud context in (21), the statue reading is not available. The reference of the Pure reflexive anaphor *ziko-* has to be exactly identical with its antecedent, so it is natural that a statue reading is not induced.

(21) John-ga   ziko-hihan-shi-ta.
      John-Nom self-criticism-do-Past

      'John criticized self.' (*ziko-* = John, *statue of John)

    In the comparative deletion construction in (23), only the sloppy identity reading is available. The Near reflexive anaphor *ziko-* is a variable, so the semantic structure of the sentence is like (35). The sloppy identity reading is obligatorily induced.

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the other hand, lexically reflexive-marked predicates (*wast* 'washes' in (ii)) are inherently reflexive and they occur with the non-reflexivizer anaphor *zich* 'self' as in (ii). If this non-reflexivizer anaphor is used with the syntactically reflexive-marked predicate in (i), the predicate is not reflexivized and it does not have reflexivity. The sentence is excluded.

  (i) Max haat   {zichzelf /*zich}.
       Max hates {selfself /   self}

       'Max hates himself.'

 (ii) Max wast   zich
       Max washes self

       'Max washes.'

We have two questions here: (a) In Japanese, like in Dutch, can predicates be 'reflexivized' by taking a reflexivizer anaphor *zibun*? and (b) Is it because *zi*-verbs and *ziko*-verbs are lexically reflexive that these verbs do not occur with *zibun* in (7) and (8)? I would say that the answers for these questions are 'no.' In Kishida (2009), I demonstrate that *zibun* does not function like a reflexivizer anaphor in Reinhart and Reuland's sense. Also, unlike lexically reflexive-marked predicates in Dutch, *zi-/ziko-* do not occur with any type of reflexive anaphor. (iii) shows that the verb is not compatible with any of *zibun* 'self,' *zibun-zisin* 'self-self' and *kare-zisin* 'him-self.' The unavailability of object-taking is not due to the reflexivizing function of anaphors in Japanese.

  (iii) *John-wa {zibun-zisin / kare-zisin}-o zi-satsu-shi-ta.
        John-Top {self-self   / him-self}-Acc self-killing-do-Past

        'John killed himself.'

Therefore, I do not think that verbs with *zibun* are syntactically reflexive-marked predicates and *zi-/ziko*-verbs are lexically reflexive-marked predicates in Reinhart and Reuland's (1993) term.

(23) Mary-ga   John yorimo hageshiku ziko-hihan-shi-ta.
      Mary-Nom John than   severely   self-criticism-do-Past

      'Mary criticized herself more severely than John criticized himself .' (sloppy)
      ∗'Mary criticized herself more severely than John criticized her.' (∗non-sloppy)

(35) `[criticize (Mary,Mary)] better than [criticize (John,John)]`

The properties of *zibun* observed in Section 3 also can be accounted for, if the non-affixal anaphor *zibun* is a Near reflexive anaphor in Japanese, as I claim. *Zibun* allows the non-local antecedent as well as the local antecedent in (19): If *zibun* is a Near reflexive anaphor, it is not a variable. It does not need to constitute an Operator-Variable relation, unlike (34). Non-local binding is available.[5]

(19) Mary-wa [John-ga   zibun-o hihan-shi-ta]   to   omot-ta.
      Mary-Top John-Nom self-Acc criticism-do-Past that think-Past

      'Mary$_j$ thought that John$_i$ criticized self$_{i/j}$.'

In the Madame Tussaud context in (22), the statue reading is also available. The Near reflexive function of *zibun* takes the antecedent *John* as input and returns an extension of its antecedent, namely 'the statue of John.' If the function returns the antecedent itself, then the Pure reflexive reading (*zibun* refers to *John*) is induced.

(22) John-ga   zibun-o hihan-shi-ta.
      John-Nom self-Acc criticism-do-Past

      'John criticized self.' (*zibun* = John, statue of John)

In the comparative deletion construction in (24), both the sloppy and the non-sloppy identity reading are allowed. *Zibun* is not a variable and can have its own index, and there are two possible semantic representations for the sentence as in (36) and (37). The sloppy identity reading is induced if the sentence is interpreted with the semantics of (36). The non-sloppy identity reading is induced with the semantics of (37).

(24) Mary-ga   John yorimo hageshiku zibun-o hihan-shi-ta.
      Mary-Nom John than   severely   self-Acc criticism-do-Past

      'Mary criticized herself more severely than John criticized himself.' (sloppy)
      'Mary criticized herself more severely than John criticized her.' (non-sloppy)

(36) λ`x[criticize(x,f(x))](Mary`$_i$`) better than` λ`x[criticize(x,f(x))](John)`

(37) λ`x[criticize(x,f`$_i$`(x))](Mary`$_i$`) better than` λ`x[criticize(x,f`$_i$`(x))](John)`

Thus, if *zi-/ziko-* are Pure reflexive anaphors and *zibun* is a Near reflexive anaphor, then all the propoerties of *zi-/ziko-* and *zibun* observed in Section 3 naturally follow.[6]

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[5]As is well known, there are quite a few studies on non-locally bound *zibun*. In this paper, however, I do not review any of these studies or consider non-locally bound *zibun* for reasons of space.

[6]Japanese has a non-affixal anaphor *ziko*: in (i), *ziko* is marked with the accusative case marker *-o* (cf. (16)). Under my proposal, this anaphor is categorized as a Near reflexive anaphor as it is non-affixal. Actually, *ziko* allows a statue reading, when the sentence (i) is interpreted in the Madame Tussaud context.

5.2   In other languages

In this subsection, I show that my proposal that affixal reflexives are Pure reflexive anaphors and non-affixal ones are Near reflexive anaphors is true not only in Japanese but also in some other languages.[7] Consider (38)-(45). In the Madame Tussaud context, the affixal reflexives *-sja* in Russian ((38)), *zi-* in Chinese ((40)), *caki-* in Korean ((42)), and *si-* in Italian ((44)) do not allow statue interpretations. By contrast, the non-affixal reflexives *sebja* in Russian ((39)), *ziji* in Chinese ((41)), *caki* in Korean ((43)) and *se stesso* in Italian ((45)) do allow statue readings. The contrast between the affixal and non-affixal reflexives in each language looks similar to the contrast observed between *zi-/ziko-* and *zibun* in Japanese.

(38)   Yeltsin zastrelil-**sja**.   [Russian]
          Yeltsin shot-self

          'Yeltsin shot himself.' (*-sja* = Yeltsin, *statue)

(39)   Yeltsin zastrelil **sebja**.
          Yeltsin shot   self

          'Yeltsin shot himself.' (*sebja* = Yeltsin, statue)   (Lidz, 2001a:(26))

   (i)   John-wa   ziko-o   hihan-shi-ta.
           John-Top self-Acc criticism-do-Past

           'John criticized self.' (*ziko* = John, statue)

For me, however, the acceptabily or naturalness under statue reading of *ziko* is lower than the case of the other non-affixal anaphor *zibun* in (22). One reason would be that *ziko*, as a non-affixal anaphor, is less frequently used, especially in colloquial speech. Another reason is that *ziko* is not likely to refer to a concrete object, compared with *zibun*. It is observed that *ziko* does not felicitously occur with predicates that describe action, such as *miru* 'see' and *tataku* 'hit': Compare the acceptability of the sentences (i) and (ii). Though the sentences differ only in the verb, (i) is acceptable and (ii) sounds bad. If *zibun*, instead of *ziko*, is used in (ii), the sentence is fine. This contrast would suggest that *zibun* can occur with verbs that describe actions and can refer to a physical/concrete object (what you can see or what you can hit), while *ziko* occurs with phychological verbs and refers to a more abstract thing (the reference does not need to be visible/touchable). In other words, *ziko* can refer to an object of the verb *hihan-suru* 'criticize' in (i) but not an object of the verb *miru* 'see' in (ii). The statue reading is not perfectly fine in (i), because *ziko* is not compatible with a statue, a concrete object, reading.

   (ii) ??John-wa   (kagami-no nakade) ziko-o   mi-ta.
             John-Top mirror-Gen inside   self-Acc see-Past

             'John saw self (in the mirror).'

The difference between *ziko* and *zibun* looks similar to the difference between the two types of Korean anaphor *caki* and *casin* 'self.' It is more likely that *caki* occurs with psychological predicates, while *casin* occurs with action predicates (Cho, 2008). I would not consider the difference between the two types of non-affixal reflexives *ziko* and *zibun* in this paper, but this should be worked out in future. I thank Sachie Kotani for pointing this issue out.

[7]In the Dutch examples in (27)-(30), the Pure reflexive anapahor *zich* is non-affixal. This apparently contradicts with my proposal. I assume that there are language variation with respect to the Pure/Near reflexive distinction: in some languages like Japanese and Russian, the affixal and non-affixal distinction corresponds to the Pure/Near reflexive distinction, while in languages like Dutch, morphologically simplex anaphors are Pure reflexive and complex ones are Near reflexive. Languages that distinguish Pure and Near reflexive anaphors in the same way with Dutch are Kannada, Norwegian etc. See Kishida (to appear) for the detailed analysis of the parametric variation of the Pure/Near reflexive distinction.

(40) Xiang-Yu zuihou **zi**-jin-le.   [Chinese]
      Xiang-Yu finally self-killing-Asp

      'Xiang-Yu finally killed himself' (*zi-* = Xiang-Yu, *statue)   (Liu, 2003:Footnote 30 (ii))

(41) Jiang Jie-Shi henhen-de da-le   **ziji** yi-xia.
      Jiang Jie-Shi furiously   hit-Asp self one-Cl

      'Jiang Jie-Shi hit himself furiously.' (*ziji* = Jiang Jie-Shi, statue).'   (Liu, 2003:(11a))

(42) Chelswu-ka   **caki-**piphan-ha-yss-ta.   [Korean]
      Chelswu-Nom self-criticism-do-Past-Dec

      'Chelswu criticized himself.' (*caki-* = Chelswu, *statue)

(43) Chelswu-ka   **caki**-lul piphan-ha-yss-ta.
      Chelswu-Nom self-Acc criticism-do-Past-Dec

      'Chelswu criticized himself.' (*caki* = Chelswu, statue)   (Based on Kang (2001:(18)))

(44) Gianni **si**-lava.   [Italian]
      Gianni self-washes

      'Gianni washes himself.' (*si-* = Gianni,*statue)

(45) Gianni lava   **se stesso**.
      Gianni washes self-same

      'Gianni washes himself.' (*se stesso* = Gianni, statue)   (Giorgi, 2007:(15)(18))

In the observation in (9a,b) and (9c,e), we have shown that there are object-taking and objectless types of *zi*-verbs and *ziko*-verbs. Interestingly, other languages also have the same distinction. For instance, Chinese has two types of '*zi*-verb': some *zi*-verbs can occur with objects, while some cannot. *Zi-ren* 'think of oneself as' in (46) takes a clausal object, while *zi-sha* 'kill oneself' in (47) cannot. Only the *zi*-affix in the latter type of verb, namely the one in (47), is categorized as the Pure reflexive anaphor under my proposal.

(46) XiaoLing **zi**-ren   shi yi-ge   hen cong-ming-de ren.
      XiaoLing ZI-identify be one-CL very smart   person.

      'XiaoLing identifies self as a very smart person.'   (Wing Yee Chow, p.c.)

(47) Zhangsan **zi**-sha le.
      Zhangsan ZI-kill Asp

      'Zhangsan committed suicide.'   (Chief, 1998:(1b))

In the comparison between *zi*-verbs in (9c) and (9d), we have seen that the apparently same affix have different functions and meaning: The *zi*- in (9c) is a Pure reflexive anaphor, while *zi*- in (9d) is not a reflexive element. In other languages as well, one morpheme is used in both reflexive and non-reflexive constructions. In Italian, the clitic *si*- occurs in non-reflexive constructions as well as reflexive construction in (45). (48) is an example of a decausative construction and (49) of a middle construction. The Italian *si*-affix in (45) and the Japanese *zi*-affix in (9c) are both reflexive anaphors. On the other hand, the *si*-affix in (48) and the *zi*-affix in (9d) both function as 'decausative markers' (see Kishida and Sato (2010)).

(48) Il   vetro **si**-rompe.
     the glass SI-breaks

     'The glass breaks.'

(49) La   pellice **si**-vendono bene d'autunno
     The furs   SI-sell   well in-autumn

     'The furs sell well in the autumn.'

The data from other languages supports my proposal that affixal reflexives are Pure reflexive anaphors and non-affixal ones are Near reflexive anaphors in Lidz's (2001a,b) sense. Also, the data suggests that the classification of *zi-/ziko*-verbs that I summarized on the chart (9) such as the object-taking vs. objectless distinction and the subdivision of objecless verbs is correct.

6   Conclusion

In this paper, I have shown that there are several types of *zi*-verbs and *ziko*-verbs in Japanese: Some verbs can occur with objects (the object-taking types: (9a,b)) and some verbs cannot occur with objects (the objectless types: (9c-e)). Some *zi-/ziko*-verbs arise in reflexive constructions ((9c,e)) and some arise in non-reflexive constructions ((9d)). I have proposed that the affixal anaphor *zi-/ziko-* in the reflexive usage 'self' function as Pure reflexive anaphors and the non-affixal anaphor *zibun* is a Near reflexive anaphor in Lidz's (2001a,b) term. The nature of the *zi-/ziko*-affixes in other usages ((9a,b,d)) have to be considered in future research.

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