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# Pseudo-reflexive constructions with deadjectival and inherently-directed motion verbs in Japanese

Yoko Sugioka

**Abstract.** This study investigates the semantics of deadjectival and inherently-directed motion verbs with the interpretation of degree achievement in Japanese, which can project not only intransitive constructions but in certain cases transitive constructions as well with basically the same semantics. The transitive constructions formed with those types of verbs exhibit some peculiarities as well as semantic restrictions on the verbs and the arguments, which can be accounted for by an underlying pseudo-reflexive semantic structure.

## 1. Introduction

This study will investigate the semantics of change-of-state (COS) verbs with the interpretation of degree achievement in contrast with result entailment, and their morphosyntactic realizations. Special attention will be paid to deadjectival and inherently-directed motion verbs, which take part in so-called ‘anticausativization’, and the status of Causer in the semantic structure of the verbs denoting internal causation (Levin & Rappaport-Hovav 1995, Grimshaw 1990, Koontz-Garboden 2009).

Among many different analyses on inchoatives, this study is based on the two types of inchoativization pattern in Japanese from Kageyama (1996). (1) is an example of anticausativization, which derives an internally-caused inchoative, where Causer and Theme are identified ( $x=y$ ) in LCS and can thus be modified by an adverb *hitoride ni* ‘by itself’, e.g. *Kabin ga hitoride ni ware-ta* ‘A vase broke by itself.’<sup>1</sup>

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1 The following abbreviations will be used in the gloss for examples. Case markers: NOM = nominative, ACC = accusative, DAT = dative, GEN = genitive. Affixes: PRES = present tense, CAUS = causative, PASS = passive, INTR = intransitive, TR = transitive, ADV = adverbial.

(1) Anticausativization

- a. *kabin o war -u* ‘break a vase’      b. *kabin ga war -e -ru*. ‘a vase breaks’  
vase ACC break-PRES                                  vase NOM break-INTR -PRES
- [ x CAUSE [ BECOME [ y BE AT-z ] ] ]  
→ [ x = y CAUSE [ BECOME [ y BE AT-z ] ] ]

(2) is an example of decausativization, where the Causer is deleted but implied, so (2b) can be felicitously modified by *nan-naku* ‘without effort’.

(2) Decausativization

- a. *syasin o kake -ru* ‘hang a photo’  
photo ACC hang-PRES
- b. *syasin ga kak-ar -u* ‘a photo is hung’  
photo NOM hang-INTR -PRES
- [ x CAUSE [ BECOME [ y BE AT-z ] ] ]  
→ [ ( $\emptyset$ -CAUSE) [ BECOME [ y BE AT-z ] ] ]

Although the intransitive ending *-e* is commonly found in anticausativization, and *-ar* in decausativization, these endings can mark other types of inchoativization in some verbs.

## 2. Transitive alternation in deadjectival verbs in Japanese

### 2.1. Formation of COS verbs from adjectives

In this subsection we will take a brief look at the formations of deadjectival verbs. First, the verbal affixes *-me* and *-mar* form transitive (Vt) and intransitive verbs (Vi), respectively (3).

- (3) *yowa-i* ‘weak-PRES’ → *yowa-me-ru* ‘weaken (Vt) -PRES’  
*yowa-mar-u* ‘weaken (Vi) -PRES’

*-Me* and *-mar* can attach to some 30 adjective roots. The affixes *-ge* and *-gar* are found on a handful of adjectives, and one pertinent example will be mentioned in 3.2.1.

Second, the default verbal affix *-r* forms mostly denominal verbs of various aspectual classes (*kumo-r-u* ‘to get cloudy’, *guti-r-u* ‘to complain’), and is especially productive in coinages from foreign borrowings (*kopi-r-u* ‘to copy’, *gugu-r-u* ‘to Google’). It also attaches to a few adjectives and derives inchoative verbs.

- (4) *yowa-r-u* ‘weaken’, *huto-r-u* ‘get fat’, *hoso-r-u* ‘get thin’

Finally, COS expressions can be formed periphrastically with the verbs *su* ‘do’ and *nar* ‘become’ following the adverbial form of adjectives (5).

- (5) causative: yowa-ku su-ru ‘to make weak’  
 inchoative: yowa-ku nar-u ‘to become weak’

## 2.2. Externally-caused COS deadjectival verbs formed with *-mar*

Let us first take a look at the inchoativization of externally-caused COS deadjectival verbs with the affixes *-me* and *-mar* for the sake of comparison with the internally-caused ones to follow. Sentences below with the intransitive verbs formed with *-mar* show the property of decausativization (2), allowing modification by *nan-naku* ‘without effort’ (6,7) rather than *hitoride ni* ‘by itself’ (8).

- (6) a. Ken ga suupu o atata -me -ru. ‘Ken warms up the soup.’  
 Ken NOM soup ACC warm -*me* -PRES  
 b. Suupu ga nan.naku atata -mar -u. ‘The soup warms up without effort.’  
 soup NOM effort.not warm-*mar*-PRES
- (7) a. Ken ga oobun no karyoku o tuyo-me-ru.  
 Ken NOM oven GEN heat ACC strong-*me*-PRES  
 ‘Ken strengthens the heat of the oven.’  
 b. Oobun no karyoku ga nan.naku tuyo-mar-u.  
 oven GEN heat NOM effort.not strong-*mar*-PRES  
 ‘The heat of the oven got strong without effort.’
- (8) a. Sensei ga siken o haya-me-ru.  
 teacher NOM exam ACC early-*me*-PRES  
 ‘The teacher makes the exam hour earlier.’  
 b. Siken ga (\*hitoride.ni) haya-mar-u.  
 exam NOM by.itself early-*mar*-PRES  
 ‘The exam hour gets earlier (by itself).’

As expected, these decausativization cases show telicity effects, as shown in (9), of taking the time adverbial ‘in 5 minutes’ but not ‘for 5 minutes’.

- (9) {5 hun de / \*5 hun-kan} suupu ga atata-mat-ta.  
 5 min. in / 5 min.-long soup NOM warm-*mar*-PAST  
 ‘The soup warmed up {in 5 minutes / for 5 minutes}.’

Similarly, applying the classic telicity test of Kindaichi (1950), the verb ending *te.i-* ‘be’ yields a result state interpretation (10a), not a progressive interpretation (10b).

- (10) a. Suupu ga atata-mat-te.i-ru. ‘The soup is warm. (result state)’  
 soup NOM warm-*mar*-be-PRES

- b. Suupu o atata-me-te.i-ru. ‘(I am) heating the soup. (progressive)’  
 soup ACC warm-me-be-PRES

On the other hand, *saityuu ni* ‘in the middle of’ cannot follow decausativized *-mar* verbs (11a) in contrast with *-me* verbs (11b), as the expression requires atelicity on the preceding verb.

- (11) a. \*suupu ga atata-mar-u saityuu ni  
 soup NOM warm-mar-PRES middle in  
 ‘in the middle of the soup warming’  
 b. suupu o atata-me-ru saityuu ni  
 soup ACC warm-me-PRES middle in  
 ‘in the middle of warming up the soup’

Thus, the data examined in this subsection show that the sentences with deadjectival verbs formed with *-mar* imply the presence of Causer (6-8) and are telic (9-11), in accordance with the LCS for decausativization (2b) [ (-θ-CAUSE) [ BECOME [ y BE AT-z ] ] ] .

### 2.3. Internally-caused COS deadjectival verbs formed with *-mar*

In addition to the decausativization *-mar* verbs shown above, there exist internally-caused COS verbs formed with the affix *-mar* as exemplified below (Sugioka 2001, 2002b).

- (12) a. Syarin no kaiten ga haya-mar-u. ‘The spin of the wheel quickens.’  
 wheel GEN spin NOM quick-mar-PRES  
 b. Kaze no ikioi ga yowa-mar-u. ‘The force of the wind drops.’  
 wind GEN force NOM weak-mar-PRES

(12ab) differ from the sentences with the *-mar* verbs in 2.2. in that they exhibit mixed telicity, allowing atelic as well as telic time adverbials (13ab). They can also precede *saityuu ni* ‘in the middle of’ (13c).

- (13) a. Kaiten ga {1 zikan / 1 zikan de} haya-mat-ta.  
 spin NOM 1 hour-long 1 hour in quick-mar-PAST  
 ‘The (wheel’s) spin quickened {for 1 hour / in 1 hour}.’  
 b. Kaze ga {1 zikan / 1 zikan de} yowa-mat-ta.  
 wind NOM 1 hour-long / 1 hour in weak-mar-PAST  
 ‘The wind dropped for 1 hour / in 1 hour.’

- c. Ame ga tuyo-mar-u saityuu ni dekake-ru.  
rain NOM strong-*mar*-PRES middle in go.out- PRES  
‘(I) go out in the middle of the rain getting stronger.’

The mixed telicity properties indicate that internally-caused COS deadjectival verbs are degree achievement verbs like an English verb *cool* (Dowty 1979). They denote achievement but are atelic, taking durational time adverbs (e.g. *The soup cooled for 5 minutes.*), unlike the achievement verbs that entail the result state (e.g. *\*The vase broke for 5 minutes.*) In other words, these verbs denote not a punctual change as represented by the predicate BECOME but movement in one direction represented by GO TO in LCS, as suggested in Jackendoff (1990).

We can thus postulate the semantic structure (14) to represent degree achievement denoted by the internally-caused COS verbs.

- (14) [ y GO TO [ y BE AT-z\* ] ]

The result state z\* in (14) is not a fixed point but a higher point on the degree scale inherent in the adjective. Hence, *yowa-mar-u* ‘weaken’ in (13b), for example, denotes movement toward a higher point on the scale of ‘weakness’.<sup>2</sup> Since no end point in COS is entailed, the verb shows atelic property. This is in contrast to decausativization *atata-mar-u* ‘warmed up’ in (9) above with the result state fixed by the context. On the other hand, *yowa-mar-u* in (13b) can also take a punctual time adverbial when the end point on the scale is fixed by the context.

In addition, in contrast to the decausativization *-mar* verbs discussed in 2.2., those in (12ab) imply internal control and can occur with *hitoride.ni* ‘by itself’ (15a) rather than *nan.naku* (15b), thus there is no external cause implied here.<sup>3</sup> The change of state is brought about by the Theme argument itself.

- (15) a. Syarin no kaiten ga hitoride.ni haya-mar-u.  
wheel GEN spin NOM by.itself quick-*mar*-PRES  
‘The spin of the wheel quickens by itself.’

2 See Kennedy and Levin (2008) for the formal semantic analysis of the scalar structure of the degree achievement verbs to accommodate their atelic interpretation.

3 Although the wheels in (15a) are most likely controlled by some external cause in reality, the sentence (15a) expresses the rider’s viewpoint, which does not include Causer, that is, the driver of the vehicle. If it is interpreted as externally-caused, (15a) will be acceptable with *nan.naku* ‘without effort’.

- b. \*Kaze no ikioi ga nan.naku yowa-mar-u.  
 wind GEN force NOM effort.not weak-mar-PRES  
 ‘The force of the wind drops without effort.’

To represent this self-controlled COS in (12ab) we can postulate the semantic structure (16), where Causer is identified with Theme by the same variable *y*.

- (16) [ *y* CAUSE [ *y* GO TO [ *y* BE AT-*z*\* ] ] ]

#### 2.4. Transitive constructions with internally-caused COS deadjectival verbs

Note that (16) is similar to the anticausativization structure (1b) in containing the events of causation and COS. The two events can manifest in two different syntactic structures, intransitive and transitive as shown in (17) and (18) (Sugioka 2001, 2002b).

- (17) a. Kaze no ikioi ga yowa-mar-u. (=12b) ‘The wind force weakens.’  
 wind GEN force NOM weak-mar-PRES  
 b. Kaze ga ikioi o yowa-me-ru. ‘The wind weakens its force.’  
 wind NOM force ACC weak-me-PRES  
 (18) a. Syarin no kaiten ga haya-mar-u. (=12a) ‘The spin of the wheel quickens.’  
 wheel GEN spin NOM quick-mar-PRES  
 b. Syarin ga kaiten o haya-me-ru. ‘The wheel quickens its spin.’  
 wheel NOM spin ACC quick-me-PRES

Although they differ in transitivity, the two sentences in (17) and (18) have the same semantic properties. It is claimed by Sugioka (2001, 2002b) that they are semantically different in that the transitive constructions put a focus on the process of ongoing change. This may be so, but what is more important is that they share the two features of internal control and mixed telicity. They both can be modified by *hitoride.ni* ‘by itself’ rather than *nan.naku* ‘without effort’ (17’), and show mixed telicity with time adverbials and *te.iru* form (18’).

- (17’) a. Kaze no ikioi ga {hitoride ni / \*nan.naku} yowa-mar-u.  
 wind GEN force NOM by.itself / effort.not weak-mar-PRES  
 ‘The wind force weakens {by itself / without effort}.’  
 b. Kaze ga {hitoride ni / \*nan.naku} ikioi o yowa-me-ru.  
 wind NOM by.itself / effort.not force ACC weak-me-PRES  
 ‘The wind weakens its force {by itself / without effort}.’  
 (18’) a. Syarin no kaiten ga {1 punkan / 1 pun de} haya-mat-ta.  
 wheel GEN spin NOM 1 minute-long / 1 minute in quick-mar-PAST  
 ‘The spin of the wheel quickened {in 1 minute / for 1 minute}.’

- b. Syarin ga kaiten o haya-me-te.i-ru. (result state or progressive)  
 wheel NOM spin ACC quick-*me*-be-PRES  
 ‘The wheel is quickening / has quickened its spin.’

To accommodate the transitive construction of the pair, the semantic structure (16) above for the internally-caused COS verbs must be modified as the following pseudo-reflexive structure.

- (19) [ x - y CAUSE [ y GO TO [ y BE AT-z\* ] ] ]

The subject of CAUSE is x-y, the entity and its property, as in (17) *kaze no ikioi* ‘force of the wind’ and (18) *syarin no kaiten* ‘spinning of the wheel’, and the subject of GO TO is the property y. (15) can be described as ‘pseudo-reflexive’ because Causer and Theme undergoing the change overlap in reference. (see Section 3.2. for more remarks on their interdependence).

Crucially, there are two possible projections to the argument structure from (19). Since the composite x-y overlaps with y, they can be mapped as one argument (<x-y>) to project the sentences like (17a) and (18a). The construction has intransitive morphology (*-mar*) and syntax (no accusative case). When x-y and y are projected separately as two arguments (x <y>), it results in the sentences like (17b) and (18b) with transitive morphology (*-me*) and syntax (accusative case).

It is predicted that this type of pseudo-reflexive structure requires internal control for the change by the subject NP, so that decausativized inchoative verbs cannot have the same type of transitive construction (see 3.2.2 for more discussion). This prediction is borne out by (20b), as the heat of the oven needs an external Causer to get stronger (cf. 7b).

- (20) a. Oobun no karyoku ga tuyō-mar-u. ‘The heat of the oven strengthens.’  
 oven GEN heat NOM strong-*mar*-PRES  
 b. \*Oobun ga karyoku o tuyō-me-ru. ‘The oven strengthens its heat.’  
 stove NOM heat ACC strong-*me*-PRES

Hence, the internally-caused deadjectival verbs formed with *-mar* in Japanese show the semantic properties of degree achievement verbs and can in some limited cases alternate with the transitive construction with the same semantic properties. These observations can be accounted for by postulating the pseudo-reflexive structure (19).

## 2.5. Self-controlled COS constructions with non-deadjectival verbs

What we saw in 2.3. for deadjectival verbs of the internally-caused COS can also be observed in certain verbs of inherently-directed motion (Sugioka 2001, 2002b).



Levin and Rappaport-Hovav (1995) noted that English verbs *rise* and *fall* are atelic unaccusative verbs. It is no surprise, then, that the corresponding verbs in Japanese show the same type of transitivity alternation.

- (21) a. Kabu no ne ga agar-u. 'The stock price rises.'  
 stock GEN price NOM rise-PRES  
 b. Kabu ga ne o age-ru. 'The stock raises its price.'  
 stock NOM price ACC raise-PRES
- (22) a. Seitoo no hyoo ga nobi-ru. 'The votes for the party increased.'  
 party GEN vote NOM grow-PRES  
 b. Seitoo ga hyoo o nobas-u. 'The party increased its votes.'  
 party NOM vote ACC increase-PRES
- (23) a. Kawa no mizu-kasa ga mas-u. 'The water level of the river rises.'  
 river GEN water-level NOM increase-PRES  
 b. Kawa ga mizu-kasa o mas-u.<sup>4</sup> 'The river raises its water level.'  
 river NOM water-level ACC increase-PRES

They exhibit the semantic properties that motivates pseudo-reflexive structure (19). Namely, both the intransitive and the transitive constructions denote internal control so can be modified by *hitoride ni* 'by itself' (24), and they show mixed telicity (25, 26).

- (24) a. Kabu no ne ga hitoride ni sagar-u. 'The stock price falls by itself.'  
 stock GEN price NOM by.itself drop-PRES  
 b. Seitoo ga hyoo o hitoride ni nobas-u.  
 party NOM vote ACC by.itself grow-PRES  
 'The party increased its votes by itself.'
- (25) a. Kabu ga ne o sage-te.i-ru.  
 stock NOM price ACC drop- be-PRES  
 'The stock {is dropping / has dropped} its price.'  
 b. Kawa no mizu-kasa ga masi-te.i-ru.  
 river GEN water-level NOM increase-be-PRES  
 'The water level of the river {is rising / has risen}.'

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4 The verb *mas-u* is one of the few verbs in Japanese that do not morphologically differentiate transitivity.

- (26) a. Seitoo no hyoo ga {sibaraku / mikka de} nobi-ta.  
 party GEN vote NOM a while 3 day in grow-PAST  
 ‘The party’s votes grew {for a while / in three days}.’
- b. Kawa ga mizu-kasa o {1 zikan / 1 zikan de} masi-ta.  
 river NOM water-level ACC 1 hour / 1 hour in increase-PAST  
 ‘The river raised its water level {for 1 hour / in 1 hour}.’

In the next section we will turn to some peculiarities exhibited by the transitive constructions formed by these internally-controlled COS verbs and discuss the conditions that enable such constructions.

### 3. Peculiarities and conditions for pseudo-reflexive transitive constructions

#### 3.1. Peculiarities of pseudo-reflexive transitive constructions

In the pseudo-reflexive structure for self-controlled COS verbs as postulated in (19) repeated below, Theme is also part of Causer in the composite x-y.

- (19) [ x - y CAUSE [ y GO TO [ y BE AT-z\* ] ] ]

This produces some peculiarities for the transitive construction yielded by the structure (19).

First, passivization of (17ab) is impossible (27ab), in contrast with the transitive construction with an external Causer (27cf) (Sugioka 2001, 2002b).

- (27) a. \*Ikioi ga kaze ni.yotte yowa-me-rare-ta.  
 force NOM wind by weak-me-PASS-PAST  
 ‘The force was weakened by the wind.’
- b. \*Ne ga kabu ni.yotte sage-rare-ta.  
 price NOM stock by drop-PASS-PAST  
 ‘The price was dropped by the stock.’
- cf. Oobun no karyoku ga Ken ni.yotte tuyo-me-rare-ta.  
 oven GEN heat NOM Ken by strong-me-PASS-PAST  
 ‘The heat of the oven was strengthened by Ken.’

Secondly, synthetic compounding consisting of a transitive verb and its internal argument is quite productive in Japanese as in English (Sugioka 2002a).

- (28) a. raise the price > price raising, price raise  
 b. ne o age ‘raise the price’ > ne-age ‘price raising’

However, synthetic compounds cannot be formed from the transitive constructions of internal causation (21b) and (22b) above.

- (29) a. \*kabu no ne-age 'price-raising of the stock'  
 stock GEN price raise  
 b. \*seitoo no hyoo-herasi 'vote-reducing of the party'  
 party GEN vote reduce

(29ab) would be acceptable only with the external causation reading, i.e. the company raised the stock price on purpose, and somebody deliberately reduced the votes for the party. Furthermore, synthetic compounds can in some cases be used as a predicate with the light verb *suru*, but that is not possible with the internal causation reading (30a), in contrast with the compounding of an intransitive verb and its internal argument (30b) or the external causation construction (30c).

- (30) a. \*Kabu ga ne-age si-ta. 'The stock rose in price.'  
 stock NOM price raise do-PAST  
 b. Kabu ga ne-agari si-ta. 'The stock rose in price.'  
 stock NOM price rise do-PAST  
 c. Mise ga syoohin o ne-age si-ta.  
 store NOM goods ACC price raise do-PAST  
 'The store raised the price of the goods.'

The same contrast can be observed in the use of the compound as a prenominal modifier.

- (31) a. \*ne-age kabu 'price-raising stock'  
 b. ne-agari kabu 'price-rising stock'

In sum, the transitive constructions with the internal causation COS verbs behave differently from regular transitive constructions, which can be attributed to its pseudo-reflexive semantic structure.

### 3.2. Two conditions for transitive constructions based on pseudo-reflexive semantic structure

#### 3.2.1. Semantics of the verb : no entailed result state

Now let us elaborate on the semantic conditions required for the sentences based on the pseudo-reflexive structure (19) to be acceptable. First, it is crucial that the result state is not entailed in the semantics of the verb. In contrast to deadjectival verbs formed with *-mar* and inherently-directed motion verbs, those with the default verbal affix *-r*, e.g. *yowa-r-u* 'weaken' in 2.1. (4), and root COS verbs, e.g. *same-ru* 'cool' entail a result state (a certain state of weakness and coldness, respectively). As shown below they have telic interpretation only and cannot felicitously precede *saityuu ni* 'in

the middle of’.

- (32) a. Taihuu no seiryoku ga {1 zikan de / \*1 zikan} yowa-r-u.<sup>5</sup>  
typhoon GEN force NOM 1 hour in / 1 hour weak-*r*-PRES  
‘The force of the typhoon gets weak {in 1 hour / for 1 hour}.’  
b. ??Taihuu no seiryoku ga yowa-r-u saityuu ni . . .  
typhoon GEN force NOM weak-*r*-PRES middle in  
‘in the middle of the force of the typhoon becoming weak’  
(cf. <sup>OK</sup>yowa-mar-u ‘weaken’)
- (33) a. Suupu no ondo ga {1 zikan de / \*1 zikan} same-ru.  
soup GEN temperature NOM 1 hour in 1 hour cool-PRES  
‘The temperature of the soup gets cold {in 1 hour / for 1 hour}.’  
b. ??Suupu no ondo ga same-ru saityuu ni . . .  
soup GEN temperature NOM cool-PRES middle in  
‘in the middle of the temperature of the soup becoming cold’  
(cf. <sup>OK</sup>sagar-u ‘lower’)

It is then plausible to say that the verbs in (32) and (33) have a simple inchoative semantic structure ( [BECOME [ y BE AT-z ]]), and so it is predicted that the transitive construction of internal causation is not possible, which indeed is the case.

- (34) a. \*Taihuu ga seiryoku o yowa-r-as-u.<sup>6</sup> (cf. <sup>OK</sup>yowa-me-ru ‘weaken’)  
typhoon NOM power ACC weak-*r*-TR-PRES  
‘The typhoon weakens its power.’  
b. \*Suupu ga ondo o samas-u.  
soup NOM temperature ACC cool-PRES  
‘The soup cools its temperature.’

The adjective *hiro* ‘broad’ happens to take two verbal affixes *-gar* and *-mar*. As shown below, *hiro-gar-u* does not entail the result state and thus can form a transitive construction (35b) with the interpretation of internal causation (*hitoride.ni* ‘by itself’), while *hiro-mar-u*, which is more lexicalized in meaning (Saito 1990) and entails the result state “well known”, cannot form the same type of transitive construction.<sup>7</sup>

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5 *1 zikan* ‘for 1 hour’ would be acceptable in the non-intended interpretation where it modifies the duration of the result state, not the process of change.

6 The lexical causative (i.e. transitive) ending *-(s)as* should be differentiated from the causative affix *-(s)ase*; in fact, (34a) with the causative affix *-(s)ase* is acceptable. See (37b) and its discussion below.

7 As a result, *hiro-gar-u* ‘broaden’ in (35a) can be paraphrased by the periphrastic *A-ku*

- (35) a. Seisaku no sizi ga hiro-gar-u. ‘The policy’s support broadens.’  
 policy GEN support NOM broad-*gar*-PRES  
 b. Seisaku ga sizi o hiro-ge-ru. ‘The policy broadened its support.’  
 policy NOM support ACC broad-*ge*-PRES
- (36) a. Burando no namae ga hiro-mar-u. ‘The brand name gets well-known.’  
 brand GEN name NOM broad-*mar*-PRES  
 b. \*Burando ga namae o hiro-me-ru. ‘The brand spreads its name.’  
 brand NOM name ACC broad-*me*-PRES

Note that (36b) is acceptable under the interpretation of external causation, i.e. *burando* ‘brand’ interpreted as the company acting as Agent. Thus, the minimal pair of deadjectival verbs *hiro-mar-u* and *hiro-gar-u* aptly shows the validity of our contention that the result state cannot be entailed in the transitive construction of internal causation.

Now, nearly synonymous with *hiro-mar-u* ‘broaden’ is the Sino-Japanese verb *kakudai* ‘broaden, enlarge’. Transitivity of Sino-Japanese verbs cannot be marked morphologically and they combine with the light verb *su-ru* ‘do’ for inflection. Some of them have intransitive use only and others have transitive use only, but a number of COS verbs show transitivity alternation and *kakudai* ‘broaden’ is one of them. What is noteworthy for our concern in this study is that when *kakudai* forms the transitive construction of internal causation, a causative affix *-(s)ase* can be added; as a matter of fact, the causative form (37b) is preferred over the simple transitive form *-su* for expressing internal causation with *hitoride.ni* ‘by itself’ (37c).

- (37) a. Seisaku no sizi ga kakudai-su-ru. ‘The policy’s support broadens.’  
 policy GEN support NOM broaden-do-PRES  
 b. Seisaku ga sizi o kakudai-s-ase-ru.  
 policy NOM support ACC broaden-do-cause-PRES  
 ‘The policy broadened its support.’  
 c. ?Seisaku ga hitoride.ni sizi o kakudai-su-ru.<sup>8</sup>  
 policy NOM by.itself support ACC broaden-do-cause-PRES  
 ‘The policy broadened its support by itself.’

The appearance of the causative affix *-(s)ase* in (37b) is significant because the

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*nar-u* (see (5) above), *hiroku-naru* ‘become broad’, while *hiro-mar-u* in (36a) cannot be paraphrased periphrastically because of its lexicalized meaning.

8 The transitive form would be perfectly acceptable with Agent as the subject NP under the interpretation of external causation, as shown below:

morphology on the verb reveals that the transitive construction of internal causation involves the event of causation external to the event of inchoative change, as postulated in the pseudo-reflexive structure (19).

In this respect it is also noteworthy that the causative affix can ameliorate the otherwise unacceptable transitive construction under the interpretation of internal causation for verbs formed with the affix *-r* (34a) as shown in (38). The effect can also be observed for verbs formed with *-mar* (39a) and *-me* (39b); although (39b) is acceptable to begin with, (39c) implies internal causation to a greater extent.

(38) Taihuu ga seiryoku o yowa-r-ase-ru. (cf. 34a)

typhoon NOM power ACC weak-*r*-CAUSE-PRES

‘The typhoon weakens its power.’

(39) a. Mina no kitai ga taka-mar-u.

all GEN expectation NOM high-*mar*-PRES

‘Everyone’s expectations gets higher.’

b. Mina ga kitai o taka-me-ru.

all NOM expectation ACC high-*mar*-PRES

‘Everyone raises their expectations.’

c. Mina ga kitai o taka-mar-ase-ru.

all NOM expectation ACC high-*mar*-CAUSE-PRES

‘Everyone raises their expectations.’

Finally, periphrastic forms *A-ku* {*suru* / *naru*} ‘{make / become} A’ (cf. (5)) also entail the result state and show telicity with time adverbials and cannot precede *saiyuu ni* ‘in the middle of’.

(40) a. Taihuu no seiryoku ga {1 zikan de / \*1 zikan} yowa-ku nar-u.<sup>9</sup>

typhoon GEN power NOM 1 hour in 1 hour weak-ADV become-PRES

‘The power of the typhoon gets weak {in 1 hour / for 1 hour}.’

b. \*Syarin no kaiten ga haya-ku nar-u saiyuu ni

wheel GEN spin NOM quick -ADV become-PRES middle in

‘in the middle of the spin of the wheel becoming quick’

As predicted they cannot form the transitive construction of internal causation (41ab), in contrast to the same form in the transitive construction of external causation (41cf).

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i. Seitoo ga sizi o kakudai su-ru no ni hissi da.  
 party NOM support ACC broaden do-PRES TO DAT eager COPULA.  
 ‘The party is eager to broaden its support.’

9 See note 5 for the acceptable interpretation for *1 zikan* ‘for 1 hour’ and its non-relevance.

- (41) a \*Taihuu ga seiryoku o yowa-ku su-ru.  
 typhoon NOM power ACC weak-ADV make-PRES  
 ‘The typhoon weakens its power.’
- b. \*Syarin ga kaiten o haya-ku su-ru.  
 wheel NOM spin ACC quick-ADV make-PRES  
 ‘The wheel quickens its spin.’
- cf. Sui-on ga taihuu no seiryoku o yowa-ku su-ru.  
 sea-temp. NOM typhoon GEN power ACC weak-ADV make-PRES  
 ‘The (low) temperature of the sea makes the power of the typhoon weak.’

### 3.2.2. The nature of the argument NPs

The second condition for the pseudo-reflexive structure concerns the nature of the argument NPs in the transitive constructions. As it was mentioned earlier regarding (19), Causer (x-y) has the internal control for the change denoted by the verb. The examples presented so far have a natural force, self-moving object, and fluctuating entity as the subject NP, as summarized below.

- (42) [ x - y CAUSE [ [ y GO TO [ y BE AT-z\* ] ] ] ] (=19))  
 x-y : [+ internal control ] for change (or so perceived)  
 - natural force e.g. wind (17), river (23), typhoon (34)  
 - self-moving object e.g. spinning wheel (18)  
 - fluctuating entity e.g. stock price (21), support for a party/policy (22) (35),  
 expectation (39)

Hasegawa (2004) discusses various ‘unaccusative’ transitive constructions including the inherently-directed motion verbs discussed in this study as well as psychological verbs and ‘self-change’ verbs with animate subject NPs.<sup>10</sup> She proposes a possessor-raising movement from the direct object NP position to account for the transitive constructions, stating that ‘it [the possessor] does not have any particular control over the occurrence of the event itself, but it merely is the main entity that undergoes the change’ (p.311). However, this characterization does not explain the cases like (20) where the possessor cannot be ‘raised’ to the subject NP. In fact, as pointed out in 2.3. these subject NPs do not have internal control over the change, and

10 The examples discussed in Hasegawa (2004) include the following: *kokoro o itame-ru* ‘hurt feeling’, *kodomo o naku-su* ‘lose a child’, *hone o or-u* ‘break a bone’, *tane ga me o das-u* ‘a seed puts out a bud’, *ki ga mi o tuke-ru* ‘a tree bears a fruit’. Note that they depict a change with a telic interpretation only.

so cannot form the pseudo-reflexive structure. Contrarily, the subject NPs discussed in Hasegawa (2004), namely, an animate undergoer or affectee of the change can be conceived as having some control or responsibility for the COS event. If that is the case, it might be possible to expand the semantic structure (19) to these cases, although there is one crucial difference in that many of the cases seem to depict a change with only telic interpretation.

It was mentioned regarding (19) that the Theme argument *y* in the pseudo-reflexive structure denotes the property of the subject NP *x*. In fact, it cannot be just any property but must be a measurable one, that denotes or implies concrete values on a monotonic scale inherent in the semantics of the verb. More specifically, the examples given so far are strength in the force of nature (17, 34), speed of the spinning wheel (18), numerical values of the stock price (21) or vote count (22), and volume of water in the river (23). The following slightly modified versions of (23) reveal the point in question.

- (39) a. *Kawa no {sui-i / sui-men} ga agar-u.*  
 river GEN {water-level / water-surface} NOM rise-PRES  
 ‘The {level / surface} of water in the river rises.’
- b. *Kawa ga {sui-i / \*sui-men} o age-ru.*  
 river NOM {water-level / water-surface} ACC raise-PRES  
 ‘The river raises its {water level / water surface}.’

In (39) we have a minimal pair, i.e. *sui-i* ‘water level’ is an explicitly measurable property while *sui-men* ‘water surface’ is a physical object not inherently measurable. Though both can rise (30a), only the water level can felicitously form the transitive construction of internal control (30b).

### 3.2.3. The interdependence between the subject NP and the object NP

Thus, we have characterized the subject NP as having internal control and the direct object NP as denoting some measurable property. But why this combination? What is special about the subject-object relation that can form the pseudo-reflexive structure? Rappaport-Hovav and Levin (2012) make relevant remarks on the unexpected causative variants of verbs of calibratable change, such as *skyrocket*.

- (40) {Solving this issue / \*My mother} skyrocketed my personal growth.

(Rappaport-Hovav and Levin 2012: (28))

They point out that this type of construction is possible under the interdependent subject-object relation of inherently possessed properties, where the object NP



denotes abstract measurable entities, representing properties of entities with scalar values rather than physical objects. Furthermore, “changes in the values of properties inherently possessed by animates are like internally caused changes of state: they are generally only under the control of the possessor” (p.168). Although these remarks were made for the causatives involving implied animate possessors in English, they can also apply to the internally-controlled COS constructions in Japanese discussed here. Namely, the 'x-y' composite in the pseudo-reflexive structure involves interdependent relation, which is conditioned by the internal control of the entity over the measurable property, whether the internal control is real (natural forces) or only so perceived (as in the cases of the price of stocks or the spinning of wheels, etc.). This relation is represented in the pseudo-reflexive COS structure (19), from which the transitive morphosyntax with inchoative semantics can be projected.

#### 4. Summary and remaining issues

We have observed that the anticausativization in deadjectival and inherently-directed verbs in Japanese can morphosyntactically manifest not only in intransitive constructions but also in transitive constructions in certain cases. It was proposed that a pseudo-reflexive semantic structure (19) repeated below can project both intransitive and transitive constructions with the interpretation of internal control over the event.

(19) [ x - y CAUSE [ [ y GO TO [ y BE AT-z\* ] ] ] ]

This semantic structure is also consistent with the restriction on the verb that it does not entail a fixed result state, which can yield an atelic interpretation of degree achievement for both intransitive and transitive constructions, while a telic interpretation is also possible if the result state is contextually fixed. Furthermore, (19) represents the unique condition on the arguments of transitive constructions of internally-caused COS, namely, there is an interdependence between x and y in that they form a composite of the entity with an inherent control (at least so perceived) and its measurable property.

There are some remaining issues. As mentioned in 2.3. (note 10), there are cases of non-volitional transitive constructions of various types discussed in Hasegawa (2004). Furthermore, in a recent paper, Schäfer (to appear) discusses what he calls “transitive anticausatives” in French, Greek, Turkish, and so on, which share many features with the constructions presented in this study, and proposes a syntactic analysis. One type of transitive constructions discussed there (41a) would translate into Japanese (41b).

- (41) a. Les nuages ont change leur forme.  
           the clouds have changed their shape
- b. Kumo ga katati o kae-ta.                   ‘Clouds changed their shapes.’  
           cloud NOM shape ACC change-PAST

Although shape is not a property that is measurable on the monotonic scale as the examples discussed in this study, it is a variable property (as is *iro* ‘color’, which can also be the object NP in (41b)). Hence, this type of construction may be amenable to the pseudo-reflexive semantic structure proposed here, as (41) shares not only the synonymous intransitive construction (*Kumo no katati ga kawat-ta*. ‘The cloud’s shape changed.’) but also the interpretation of internal control and the interdependence of the subject NP and the object NP as discussed in 3.2. On the other hand, cases like (41), as the examples from Hasegawa (2004) (see note 10), do not seem to allow atelic interpretation without a contextual help, which may well be because the object NPs do not denote a scalar property. Consequently, a wider variety of the transitive constructions involving internal control needs to be investigated and accounted for in the future study.

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