A Note on Deadjectival Nominalizations and Verbalizations in Japanese*

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1. Introduction

In Japanese, adjectival stems are nominalized by attachment of a nominalizing suffix to them.[1] There are three morphemes to form a deadjectival nominal: -*sa*, -*me*, and -*mi*.

(1) takak- 'high'
  a. taka-sa 'highness, height'
  b. taka-me 'on the high side'
  c. taka-mi 'a height, an eminence, a high place'

The three morphemes have different selectional restrictions. The morpheme -*sa* can in principle attach to all adjectives. The morphemes -*me* and -*mi*, on the other hand, cannot follow some adjectives, as in (2) and (3).

(2) hirok- 'wide'
  a. hiro-sa 'wideness, width'
  b. hiro-me 'on the wide side'
  c. *hiro-mi

(3) akiraka-na 'clear'
  a. akiraka-sa 'clearness'
  b. *akiraka-me
  c. *akiraka-mi

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[1] Japanese has several morphological types of adjectives.

(i) a. *k*-adjective
  taka(k)-i biru
  high building
  '(a/the) high building'
  b. *na*-adjective
  sizuka-na yuube
  quiet evening
  '(a/the) quiet evening'
  c. deverbal adjective
  hira-i-ta doa
  closed door
  '(a/the) closed door'

In this paper, I mainly deal with the nominalizations of underived adjectives (i.e., *k*-adjectives and *na*-adjectives). The nominalizing morphemes -*sa*, -*me*, and -*mi* cannot follow deverbal adjectives. Instead, only the verbal stem of deverbal adjectives can be nominalized by attachment of the nominalizing suffixes such as -*i* and -*e*.

This paper clarifies the selectional properties of the deadjectival nominalizers in Japanese, and reveals a correlation between deadjectival nominalizations and verbalizations. These observations suggest that the semantic classes may affect the overt morphology in Japanese.

The organization of this paper is as follows. Section 2 briefly reviews the classification of adjectives in terms of scale structures. Section 3 demonstrates the patterns of adjectival nominalizations in Japanese. Section 4 shows that there is a correlation between the verbalizations of adjectives and *mi*-nominalizations, and claims that the nasal consonant /m/ of the nominalizer *-mi* is an independent morpheme that is related to the dimensions such as HEIGHT and DEPTH. The last section concludes the paper.

2. Semantic Types of Adjectives

2.1 Semantic Classification of Adjectives

Before coming to a close examination of the patterns of deadjectival nominalizations in Japanese, let us briefly review the adjectival classifications based on Kennedy and McNally (2005).

Adjectives are either gradable or nongradable. Gradable adjectives can appear in comparative constructions, while nongradable adjectives cannot.

(4) Gradable adjective
- a. This is the highest building in Tokyo.
- b. My hair is straighter than yours.
- c. Some stars are more visible than others.

(5) Nongrable adjective
- a. *This chair is more wooden than that table.
- b. *Kyoto is the most Japanese place of all.

According to Kennedy and McNally (2005), gradable adjectives can be classified into two types in terms of scale structures. One type of adjectives is the ones which have totally open scales. Another type of adjectives has totally closed scales. Other adjectives have partially or totally closed scales; the adjectives whose scales have a minimal element but lack a maximal one, the ones whose scales have a maximal but no minimal element and the ones whose scales have both a minimal and a maximal element. Kennedy and McNally demonstrate that totally open scale adjectives and (partially or totally) closed scale adjectives exhibit different patterns of acceptability with endpoint modifiers such as *100%*, *completely* and *fully*, as given in (6). They also make a distinction between positive and negative members of antonym pairs. Antonym pairs such as *tall* and *short* use the same scales, but they have inverse ordering relations on those scales. The examples in (7) show that both members of the antonym pairs of totally open scale adjectives cannot be modified by the endpoint adverbs. In the case of partially or totally closed scale adjectives, on the other hand, either or both members of the pair can accept modification by these adverbs, as in (8)-(10).

(6) Scale types and modification by endpoint modifiers

	Totally open scale	Closed scale		
		Lower closed scale	Upper closed scale	Totally closed scale
$\mathrm{Deg}_{\max}\ \mathrm{A}_{pos}$	??	??	√	√
$\mathrm{Deg}_{\max}\ \mathrm{A}_{neg}$	??	√	??	√

(Kennedy and McNally (2005: 354))

(7) Open scale pattern
a. Her brother is completely ??tall/??short.
b. The pond is 100% ??deep/??shallow.
c. Max is fully ??eager/??uneager to help.

(8) Lower closed scale pattern
a. The pipe is fully ??bent/straight.
b. The room became 100% ??loud/quiet.
c. That author is completely ??famous/unknown.

(9) Upper closed scale pattern
a. We are fully certain/??uncertain about the results.
b. This product is 100% pure/??impure.
c. The treatment is completely safe/??dangerous.

(10) Closed scale pattern
a. The room was 100% full/empty.
b. The flower was fully open/closed.
c. The figure was completely visible/invisible.

(Kennedy and McNally (2005: 355))

Kennedy and McNally claim that scale structures are crucial in determining the standard of comparison. Totally open scale adjectives have a context-dependent standard, while closed scale adjectives have a trivial, non-context-dependent standard. Following their terms, I refer to the former as relative adjectives and the latter as absolute adjectives.

I do not make the distinction among partially and totally closed scale adjectives since it is irrelevant here. Thus, adjectives can be semantically classified into three types, as in (11).

(11) Semantic classification of adjectives
a. Nongradable adjectives
b. Gradable adjectives
i. Totally open scale adjectives (i.e., relative adjectives)
ii. (Partially or totally) closed scale adjectives (absolute adjectives)

2.2 Morphological and Semantic Classes of Adjectives in Japanese

Japanese has several morphological types of adjectives. In Morita (2011, to appear), I demonstrate that there is a tendency for a certain semantic class of adjectives to have a certain morphological realization. First, nongradable modifiers usually have the morphological form '(nominal) root + the linking morpheme *-no*' when they are used attributively.[2]

(12) Nongradable adjectives
ki-no 'wooden', tetu-no 'iron', nihon-no 'Japanese', amerika-no 'American',
huransu-no 'French', ame-no 'rainy', hare-no 'fine'

[2] Since the stems in (12) require the linking morpheme *-no* in their attributive use, they might not be adjectival, but rather be nominal. In other words, Japanese seems to use a nominal stem in order to have nongradable modifiers. See Morita (2011, to appear) for more details.

Second, totally open-scale adjectives tend to be realized as *k*-adjectives. Notice that adjectives related to the semantic classes such as SIZE, LENGTH, HEIGHT, SPEED, DEPTH, WIDTH, and TEMPERATURE have totally open scales.

(13) Relative adjectives

a. SIZE: ookik- 'big, large' / tiisak- 'small'[3]
b. LENGH: nagak- 'long' / mizikak- 'short'
c. HEIGHT: takak- 'high' / hikuk- 'low'
d. SPEED: hayak- 'fast' / osok- 'slow'
e. DEPTH: hukak- 'deep' / asak- 'shallow'
f. WIDTH: hirok- 'wide' / semak- 'narrow'
g. WEIGHT: omok- 'heavy' / karuk- 'light'
g. TEMPERATURE: atuk- 'hot' / samuk-, tumetak- 'cold',
atatakak- 'warm' / suzusik- 'cool'
i. AGE: huruk- 'old' / atarasik- 'new', wakak- 'young'

Partially and totally closed scale adjectives are likely to be realized as either *na*-adjectives or deverbal forms.

(14) Absolute adjectives

a. Lower-closed scale adjectives
massugu-na 'straight' / magat-ta 'bent'
taira-na 'flat' / dekoboko-si-ta 'rough'
kirei-na, seiketu-na 'clean' / yogore-ta 'dirty'
b. Upper-closed scale adjectives
anzen-na 'safe' / kiken-na 'dangerous'
akiraka-na, meeryoo-na 'clear' / humeeryoo-na 'unclear'
tasika-na 'certain' / futasika-na 'uncertain'
c. Totally closed scale adjectives
simat-ta, tozi-ta 'closed' / hira-i-ta, a-i-ta 'open'
sin-da 'dead' / iki-ta 'alive'
nemut-ta 'asleep' / (me-ga) same-ta 'awake'

The morphological realizations of adjectives in Japanese are summarized in (15).

(15) Morphology of Japanese adjectives

Semantic type	Nongradable	Gradable	
		Relative	Absolute
Morphology	(nominal) root + the linking morpheme *-no*	*k*-adjective	*na*-adjective deverbal

[3] The SIZE adjectives can be realized as *na*-adjectives (i.e., *ooki-na* 'large' and *tiisa-na* 'small').

3. The Patterns of Deadjectival Nominalizations in Japanese

3.1 The Morpheme -Sa

Now let us make a close examination of which semantic types of adjectives the nominalizing morphemes *-sa*, *-me* and *-mi* can attach to. First, the morpheme *-sa* can attach to gradable adjectives; it can follow both *k*-adjectives and *na*-adjectives, as given in (16) and (17).

(16) Relative adjectives

a. SIZE
ookik- 'big, large' → ooki-sa / tiisak- 'small' → tiisa-sa

b. LENGH
nagak- 'long' → naga-sa / mizikak- 'short' → mizika-sa

c. HEIGHT
takak- 'high' → taka-sa / hikuk- 'low' → hiku-sa

d. SPEED
hayak- 'fast' → haya-sa / osok- 'slow' → oso-sa

e. DEPTH
hukak- 'deep' → huka-sa / asak- 'shallow' → asa-sa

f. WIDTH
hirok- 'wide' → hiro-sa / semak- 'narrow' → sema-sa

g. WEIGHT:
omok- 'heavy' → omo-sa / karuk- 'light' → karu-sa

h. TEMPERATURE
atuk- 'hot' → atu-sa / samuk-'cold' → samu-sa, tumetak- 'cold' → tumeta-sa
atatakak- 'warm' → atataka-sa / suzusik- 'cool'→ suzusi-sa

i. AGE
huruk- 'old' → huru-sa / atarasik- 'new' → atarasi-sa
wakak- 'young' → waka-sa

(17) Absolute adjectives

massugu-na 'straight' → massugu-sa
taira-na 'flat' → taira-sa
kirei-na 'clean' → kirei-sa
seiketu-na 'clean' → seiketu-sa
anzen-na 'safe' → anzen-sa
kiken-na 'dangerous' → kiken-sa
akiraka-na 'clear' → akiraka-sa
humeeryoo-na 'unclear' → humeeryoo-sa
tasika-na 'certain' → tasika-sa
hutasika-na 'uncertain' → hutasika-sa

Nongradable adjectives, on the other hand, do not allow *-sa* to attach.

(18) Nongradable adjectives
nihon-no 'Japanese' → *nihon-sa
huransu-no 'French' → *huransu-sa
ki-no 'wooden' → *ki-sa
tetu-no 'iron' → *tetu-sa
ame-no 'rainy' → *ame-sa

The above observations suggest that the morpheme -*sa* can attach to all types of gradable adjectives, but it cannot to nongradable adjectives. Given that the stem of nongradable modifiers is nominal (cf. footnote 2), it might be possible to conclude that the morpheme -*sa* can follow the adjectival root.[4]

3.2 The Morpheme -Me

The morpheme -*me* can only attach to relative adjectives. It attaches to *k*-adjectives, but never to *na*-adjectives and nongradable modifiers.

(19) Relative adjectives
a. SIZE
ookik- 'big, large' → ooki-me / tiisak- 'small' → tiisa-me
b. LENGH
nagak- 'long' → naga-me / mizikak- 'short' → mizika-me
c. HEIGHT
takak- 'high' → taka-me / hikuk- 'low' → hiku-me

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[4] According to Fujii (2008), the morpheme -*sa* can attach to a stem which possesses some gradable property, regardless of its syntactic category. She shows the morpheme -*sa* can follow a noun, as given in (i).
(i) a. tensai 'genius' → tensai-sa
b. bizin 'beauty' → bizin-sa
c. bonzin 'ordinary person' → bonzin-sa
d. akutoo 'villan' → akutoo-sa
Although Fujii mentions that the stems in (i) are nominal, their categorial status is controversial. They are ambiguous between a noun and an adjective. For example, they exhibit a different behavior from other nouns in the attributive use. When a noun modifies another noun, the linking morpheme -*no* follows the modifying noun, as in (ii).
(ii) a. hana-no e
flower-NO picture
b. yasai-no ryoori
vegetable-NO dishes
The roots in (i), on the other hand, can precede either the morpheme -*no* or the morpheme -*na*.
(iii) a. tensai-no/na kodomo
genius-NO/NA child
b. bizin-no/na tuma
beauty-NO/NA wife
c. bonzin-no/na otoko
ordinary.person-NO/NA man
d. akutoo-no/na rentyuu
villan-NO/NA fellows
Here I leave open whether these stems are nominal or adjectival.

d. SPEED
hayak- 'fast' → haya-me / osok- 'slow' → oso-me
e. DEPTH
hukak- 'deep' → huka-me / asak- 'shallow' → asa-me
f. WIDTH
hirok- 'wide' → hiro-me / semak- 'narrow' → sema-me
g. WEIGHT
omok- 'heavy' → omo-me / karuk- 'light' → karu-me
h. TEMPERATURE[5]
atuk- 'hot' → atu-me / samuk-'cold' → samu-me
atatakak- 'warm' → atataka-me / suzusik- 'cool'→ suzusi-me
i. AGE
huruk- 'old' → huru-me / atarasik- 'new' → atarasi-me
wakak- 'young' → waka-me

(20) Absolute adjectives
massugu-na 'straight' → *massugu-me
taira-na 'flat' → *taira-me
kirei-na 'clean' → ?kirei-me[6]
seiketu-na 'clean' → *seiketu-me
anzen-na 'safe' → *anzen-me
kiken-na 'dangerous' → *kiken-me
akiraka-na 'clear' → *akiraka-me
humeeryoo-na 'unclear' → *humeeryoo-me
tasika-na 'certain' → *tasika-me
hutasika-na 'uncertain' → *hutasika-me

(21) Nongradable adjectives
nihon-no 'Japanese' → *nihon-me
huransu-no 'French' → *huransu-me
ki-no 'wooden' → *ki-me
tetu-no 'iron' → *tetu-me
ame-no 'rainy' → *ame-me

3.3 The Morpheme -Mi

The morpheme *-mi* have a strict selectional restriction. First, it attaches to neither closed scale adjectives nor nongradable adjectives.[7]

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[5] The morpheme *-me* cannot attach to the adjective *tumetak-* 'cold' for some reason (**tumeta-me*).
[6] The nominalized form *kirei-me* is getting accepted among young Japanese speakers.
[7] In footnote 2, I mentioned that the stems of nongradable adjectives are nominal. A reviewer points out a possibility that the nominalizing morphemes *-sa*, *-me*, and *-mi* cannot attach to a nominal stem. As given in footnote 4, however, there are some stems that are ambiguous between nouns and adjectives. Recall that the morpheme *-sa* can follow these stems, although *-me*, and *-mi* cannot attach to them.
(i) a. tensai 'genius' → tensai-sa, *tensai-me, *tensai-mi
b. bizin 'beauty' → bizin-sa, *bizin-me, *bizin-mi
c. bonzin 'ordinary person' → bonzin-sa, *bonzin-me, *bonzin-mi
d. akutoo 'villan' → akutoo-sa, *akutoo-me, *akutoo-mi

(22) Absolute adjective
massugu-na 'straight' → *massugu-mi
taira-na 'flat' → *taira-mi
kirei-na 'clean' → ?kirei-mi
seiketu-na 'clean' → *seiketu-mi
anzen-na 'safe' → *anzen-mi
kiken-na 'dangerous' → *kiken-mi
akiraka-na 'clear' → *akiraka-mi
humeeryoo-na 'unclear' → *humeeryoo-mi
tasika-na 'certain' → *tasika-mi
hutasika-na 'uncertain' → *hutasika-mi

(23) Nongradable adjectives
nihon-no 'Japanese' → *nihon-mi
huransu-no 'French' → *huransu-mi
ki-no 'wooden' → *ki-mi
tetu-no 'iron' → *tetu-mi
ame-no 'rainy' → *ame-mi

Unlike the morpheme *-me*, *-mi* cannot follow all gradable adjectives.

(24) Relative adjectives
a. SIZE
ookik- 'big, large' → *ooki-mi / tiisak- 'small' → *tiisa-mi
b. LENGH
nagak- 'long' → *naga-mi / mizikak- 'short' → *mizika-mi
c. HEIGHT
takak- 'high' → taka-mi 'an eminence, a high place' / hikuk- 'low' → *hiku-mi
d. SPEED
hayak- 'fast' → *haya-mi / osok- 'slow' → *oso-mi
e. DEPTH
hukak- 'deep' → huka-mi 'the depths, a deep place' / asak- 'shallow' → *asa-mi
f. WIDTH
hirok- 'wide' → *hiro-mi / semak- 'narrow' → *sema-mi, *seba-mi
g. WEIGHT
omok- 'heavy' → omo-mi[8] / karuk- 'light' → *karu-mi

Since the categorial status of these stems is not clear, I only suppose that the nominalizing morphemes *-sa*, *-me*, and *-mi* cannot attach to nongradable adjectives.

[8] The adjective *omok-* 'heavy' can be nominalized by attachment of *-mi*. Notice that there is a semantic difference between the *mi*-nominalized form of the WEIGHT adjective (i.e., *omo-mi* 'weight') and the those of the other adjectives such as HEIGHT and DEPTH. The deadjectival nominals accompanied by *-mi* express the degree or the state of the property denoted by the adjective. In addition, the *mi*-nominalized forms of the HEIGHT and DEPTH adjectives have the interpretation of the place that has the property denoted by the adjectival stem: *taka-mi* and *huka-mi* are also interpreted as 'a high place' and 'a deep place,' respectively. The *mi*-nominalized form of WEIGHT, on the other hand, does not have the interpretation such as 'a place that is heavy.' This difference seems to be related to the fact that HEIGHT and DEPTH are used to measure three-dimensional objects, while WEIGHT is not.

h. TEMPERATURE
atuk- 'hot' → *atu-mi / samuk-'cold' → *samu-mi
atatakak- 'warm' → *atataka-mi[9] / suzusik- 'cool'→ *suzusi-mi

i. AGE
huruk- 'old' → *huru-mi / atarasik- 'new' → *atarasi-mi
wakak- 'young' → *waka-mi

The above observations can be summarized as in (25).

(25) Attachment of the nominalizing morpheme *-mi*

Semantic class	Polarity	Attachment of *-mi*
a. SIZE	Positive	*
	Negative	*
b. LENGTH	Positive	*
	Negative	*
c. HEIGHT	Positive	ok
	Negative	*
d. SPEED	Positive	*
	Negative	*
e. DEPTH	Positive	ok
	Negative	*
f. WIDTH	Positive	*
	Negative	*
g. WEIGHT	Positive	(ok)
	Negative	*
h. TEMPERATURE	Positive	*
	Negative	*
i. AGE	Positive	*
	Negative	*

The positive members of the adjectives of the semantic classes HEIGHT, DEPTH, and WIDTH can be nominalized by attachment of the morpheme *-mi*. As Jang and Shi (2006) observe, it seems that the morpheme *-mi* can attach only to the positive members of 'measure adjectives,' which is a subgroup of gradable adjectives. These adjectives are also referred to as 'dimensional adjectives,' since the semantic classes LENGTH, HEIGHT, DEPTH and WIDTH are used when describing the dimensions of thing. It has been observed that dimensional adjectives can follow measure phrases such as 'three meters' and 'twenty meters,' as in (26). Notice that only the positive members of these adjectives can appear with measure phrases.[10]

[9] The morpheme *-mi* cannot attach to the adjective *atatakak-* 'warm' that expresses a higher degree of temperature. The attachment of *-mi* is possible when the adjective *atatakak-* means 'being friendly in a way that makes someone feel comfortable.'

[10] The negative members of dimensional adjectives can co-occur with measure phrases if they have the comparative forms, as in (i).

(i) a. This rod is three meters shorter than that one.
b. This building is twenty meters lower than that one.
c. This crater is 1.2 meters shallower than that one.
d. This road is five meters narrower than that one.

This fact can be explained by the analysis of adjectival polarity in terms of scale structures (Kennedy 2001). Given that gradable adjectives are functions from objects to degrees, Kennedy supposes that positive and negative

(26) a. LENGTH
This rod is three meters long/*short.
b. HEIGHT
That building is twenty meters high/*low.
c. DEPTH
This swimming pool is 1.2 meters deep/*shallow.
d. WIDTH
The river is five meters wide/*narrow.

Although Jang and Shi's observation is correct, it should be noted that the morpheme *-mi* cannot attach to the positive member of the LENGTH adjective *nagak-* 'long.' I will come back to this issue in the next section.

There are some evaluative adjectives to which the morpheme *-mi* can attach.

(27) amak- 'sweet' → ama-mi 'sweetness', karak- 'hot, fiery' → kara-mi 'hot taste',
nigak- 'bitter' → niga-mi 'bitterness, bitter taste',
umak- 'well; tasty' → uma-mi 'taste, skill', yawarakak- 'soft' → yawaraka-mi ''

Notice that most of the adjectives in (27) are related to the taste. Moreover, the *mi*-nominalized forms of these adjectives have the same meanings as their *sa*-nominalized forms. For example, the nominals *ama-mi* and *ama-sa*, both of which are derived by the adjective *amak-* 'sweet,' mean 'sweetness.' The *mi*-nominalized form of the dimensional adjective *takak-* 'high,' *taka-mi*, on the other hand, has the meaning 'an eminence, high place,' while its *sa*-nominalized form *taka-sa* has the meaning 'height.' I suppose that the morpheme *-mi* in (27) is different from the one that attaches to dimensional adjectives, and do not take it into account here.[11]

3.4 Summary

The nominalizing morphemes *-sa*, *-me* and *-mi* have the following selectional restrictions.

(28) a. The morpheme *-sa* can attach to all (gradable) adjectives.
b. The morpheme *-me* can only attach to relative adjectives.
c. The morpheme *-mi* can only attach to the positive members of some dimensional adjectives.

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adjectives are different in the ranges of the functions denoted by the adjectives. Positive adjectives denote functions from individuals to positive degrees, while negative adjectives denote functions from individuals to negative degrees. He assumes that for any object x, the positive and negative projection of x on a scale S are complementary intervals on the scale, as shown in (ii).

(ii) S: 0 ---------- $pos_S(x)$ ---------- • ---------- $neg_S(x)$ --------→ ∞

Notice that positive degrees are intervals which range from the lower end of a scale to some point, while negative degrees are intervals which range from some point to the upper end of a scale. Measure phrases can appear with positive adjectives, since they specify the degrees to which an object extends from the lower point of a scale. In the case of negative adjectives, however, measure phrases cannot specify the degrees, since the reference point of negative gradable adjectives cannot be determined absolutely. In the comparative constructions, the standard of comparison provides a derived reference point, and measure phrases can combine with negative comparative adjectives.

[11] The Chinese character meaning 'taste' is assigned to the morpheme *-mi* in (27), while it isn't to the one that attaches to dimensional adjectives. Although the assignment of the Chinese character to *-mi* in (27) has been assumed to be arbitrary, it is true that the former *-mi* is different from the latter.

It should be noted that the morphemes *-me* and *-mi* share the nasal consonant /m/. From the fact that both morphemes can attach only to gradable adjectives, the consonant /m/ seems to be related to the property of being gradable. The next section examines the consonant /m/ as an independent morpheme.

4. Correlation between *Mi*-Nominalization and Verbalizations

4.1 Deadjectival Verbalizations in Japanese

This section reveals a correlation between deadjectival nominalizations and verbalizations in Japanese. The observations made here suggest that the consonant /m/ is an independent morpheme that is related to the semantic notions of dimensions.

Let us first consider the patterns of deadjectival verbalizations in Japanese. Deadjectival verbs are formed by attachment of the verbalizing morphemes *-me-* and *-mar-* to adjectival stems. The morpheme *-me-* attaches to an adjectival stem to form a transitive verb, and the morpheme *-mar-* attaches to form an intransitive verb. Both *-me-* and *-mar-* can only follow gradable adjectives. Moreover, they cannot attach to all gradable adjectives.

(29) SIZE
a. ookik-'large'
*ooki-me- 'to enlarge (transitive)' / *ooki-mar- 'to enlarge (intransitive)'
b. tiisak- 'small'
*tiisa-me- 'to make smaller' / *tiisa-mar- 'to get smaller'

(30) LENGTH
a. nagak- 'long'
*naga-me- 'to lengthen (transitive)' / *naga-mar- 'to lengthen (intransitive)'
b. mizikak- 'short'
*mizika-me- 'to shorten (transitive)' / *mizika-mar- 'to shorten (intransitive)'

(31) HEIGHT
a. takak- 'high'
taka-me- 'to heighten' / taka-mar- 'to raise'
b. hikuk- 'low'
hiku-me- 'to lower (transitive)' / ??hiku-mar- 'to lower (intransitive)'

(32) SPEED
a. hayak- 'fast'
haya-me- 'to hasten, to quicken' / haya-mar- 'to quicken (intransitive)'
b. osok- 'slow'
oso-me- 'to slow (transitive)' / oso-mar- 'to slow (intransitive)'

(33) DEPTH
a. hukak- 'deep'
huka-me- 'deepen (transitive)' / huka-mar- 'deepen (intransitive)'
b. asak- 'shallow'
*asa-me- 'to shallow (transitive)' / *asa-mar- 'to shallow (intransitive)'

(34) WIDTH

a. hirok- ‘wide’
hiro-mer- ‘to spread (transitive)’ / hiro-ma- ‘to spread (intransitive)’

b. semak- ‘narrow’
seba-mer- ‘to narrow’ / seba-ma- ‘to get narrow’

(35) WEIGHT

a. omok- ‘heavy’
*omo-mer- ‘to make heavier’ / *omo-ma- ‘to get heavy’

b. karuk- ‘light’
*karu-mer- ‘to lighten (transitive)’ / *karu-ma- ‘to lighten (intransitive)’

(36) TEMPERATURE

a. atuk- ‘hot’
*atu-me- ‘to heat (up)’ / *atu-mar- ‘to get hot’

b. samuk- ‘cold’
*samu-me- ‘to cool’ / *samu-mar- ‘to get cold’

c. atatakak- ‘warm’[12]
*atataka-me- ‘to warm (up)’ / *atataka-mar- ‘to get warm’

d. suzusik- ‘cool’
*suzu-me- ‘to cool’/ *suzu-mar- ‘to get cool’

(37) AGE

a. huruk- ‘old’
*huru-me- ‘to age (transitive)’ / *huru-mar- ‘to age (intransitive)’

b. atarasik- ‘new’
*atarasi-me- ‘to renew (transitive)’ / *atarasi-mar- ‘to renew (intransitive)’

c. wakak- ‘young’
*waka-me- ‘to make young’ / *waka-mar- ‘to become young’

The facts observed in (29)-(37) are summarized as in (38). It should be noted that the patterns of deadjectival verbalizations with the morpheme *-me-* are quite similar to the patterns with *-mar-*.

[12] The transitive and intransitive verbs ‘to warm’ in Japanese are *atatam-e-* and *atatam-ar-*, respectively. Although the adjective *atatakak-* shares the stem *atata-* with these transitive and intransitive forms, the verbal forms *atatam-e-* and *atatam-ar-* are not derived from the adjective *atatakak-*. It seems that the adjective *atatakak-* and the verbs *atatam-e-* and *atatam-ar-* are all derived from the verb *atatam-*, which is no longer used. The verbalizing morphemes *-me-* and *-mar-* cannot attach to the adjective *atatakak-* since it seems to be impossible to verbalize a deverbal adjective.

(38) Deadjectival Deverbalizations in Japanese

Semantic class	Polarity	Attachment of the transitivizer *-me-*	Attachment of intransitivizer *-mar-*
a. SIZE	Positive	*	*
	Negative	*	*
b. LENGTH	Positive	*	*
	Negative	*	*
c. HEIGHT	Positive	ok	ok
	Negative	ok	??
d. SPEED	Positive	ok	ok
	Negative	ok	ok
e. DEPTH	Positive	ok	ok
	Negative	*	*
f. WIDTH	Positive	ok	ok
	Negative	ok	ok
g. WEIGHT	Positive	*	*
	Negative	*	*
h. TEMPERATURE	Positive	*	*
	Negative	*	*
i. AGE	Positive	*	*
	Negative	*	*

4.2 Correlation of Deadjectival Verbalizations to Mi-*Nominalization*

Like the nominalizing morphemes *-me* and *-mi*, the verbalizing morphemes *-me-* and *-mar-* also include the consonant /m/. Sugioka (2002) supposes that the consonant /m/ of the verbalizing morphemes *-me-* and *-mar-* is related to the nominalizer *-me*. The deadjectival verbalizations with *-me-* and *-mar-*, however, are not related to *me*-nominalizations, but rather to *mi*-nominalizations. Recall that the nominalizer *-me* can attach to all gradable adjectives, while *-mi* can only attach to the positive members of dimensional adjectives. The table in (39) shows that the patterns of deadjectival nominalizations with the nominalizer *-mi* are quite similar to the patterns of deadjectival verbalizations with *-me-* and *-mar-*.

(39) *Mi*-Nominalization and Deadjectival Verbalizations

Semantic class	Polarity	Attachment of *-mi*	Attachment of the transitivizer *-me-*	Attachment of intransitivizer *-mar-*
a. SIZE	Positive	*	*	*
	Negative	*	*	*
b. LENGTH	Positive	*	*	*
	Negative	*	*	*
c. HEIGHT	Positive	ok	ok	ok
	Negative	*	ok	??
d. SPEED	Positive	*	ok	ok
	Negative	*	ok	ok
e. DEPTH	Positive	ok	ok	ok
	Negative	*	*	*
f. WIDTH	Positive	*	ok	ok
	Negative	*	ok	ok
g. WEIGHT	Positive	(ok)	*	*
	Negative	*	*	*
h. TEMPERATURE	Positive	*	*	*
	Negative	*	*	*
i. AGE	Positive	*	*	*
	Negative	*	*	*

There are several differences between *mi*-nominalizations and deadjectival verbalizations. First, the nominalizer *-mi* cannot attach to the negative member of the HEIGHT adjectives (i.e., the adjective *hikuk-* 'short, low'), while the verbalizer *-me-* can. Second, the nominalizer *-mi* cannot attach to the SPEED adjectives, while the verbalizers *-me-* and *-mar-* can. Although these are the points to be considered, I leave them open in this paper.

Third, the nominalizer *-mi* cannot attach to the WIDTH adjectives, while the verbalizers *-me-* and *-mar-* can. As given in (34a), however, the verbalized forms derived by the adjective *hirok-* 'wide' do not have the meanings such as 'making something wide' and 'become wide.' In order to have these meanings, the other verbalized forms such as *hiro-g-e-* 'to widen (transitive)' and *hiro-g-ar-* 'to widen (intransitive)' need to be used. It should also be noted that a phonological change takes place by attachment of the verbalizers *-me-* and *-mar-* to the adjectival stem *semak-* 'narrow'; as in (34b), the derived forms are *seba-me-* and *seba-mar-*, instead of the forms *sema-me-* and *sema-mar-*. I suppose that the WIDTH adjectives undergo different verbalizing operations from other dimensional adjectives do.

Last, the nominalizer *-mi* can attach to the positive member of the WEIGHT adjectives (i.e., the adjective *omok-* 'heavy'), while the verbalizers *-me-* and *-mar-* cannot. As noted in footnote 8, however, the deadjectival nominal *omo-mi* 'weight' has a semantically different property from the *mi*-nominals derived from the other adjectives such as HEIGHT and DEPTH. I suppose that the *mi*-nominalization of the WEIGHT adjective *omok-* is an exceptional case, and do not take it into account.

4.3 The Morpheme -m-

As seen in the previous subsection, there is a correlation between the verbalizers *-me-* and *-mar-* and the nominalizer *-mi*, and all of them include the nasal consonant /m/. Given that the consonant /m/ is an independent morpheme, the verbalizing morphemes *-me-* and *-mar-* should be decomposed as *-m-e-* and *-m-ar-*, respectively.

This is confirmed by the fact that many transitive and intransitive verbs in Japanese are derived by attachment of either the transitivizer *-e-* or the intransitivizer *-ar-* to a verbal stem, as given in (40).[13]

(40) Transitive/intransitive alternation in Japanese

	Transitive	Intransitive
√ag-	ag-e- 'to raise'	ag-ar- 'to rise'
√atum-	atum-e- 'to collect'	atum-ar- 'to gather'
√hazim-	hazim-e- 'to begin'	hazim-ar- 'to begin'
√kak-	kak-e- 'to hang, to suspend'	kak-ar- 'to hang'
√mag-	mag-e- 'to bend'	mag-ar- 'to bend'
√osam-	osam-e- 'to store'	osam-ar- 'to stay in'
√sag-	sag-e- 'to lower'	sag-ar- 'to get low'
√tom-	tom-e- 'to stop'	tom-ar- 'to stop'
√um-	um-e- 'to bury'	um-ar- 'to be burried'

The morpheme *-m-* does not participate in verbalizing an adjectival stem. Rather, it is the morphemes *-e-* and *-ar-* that derive a verb from an adjectival stem.

The nominalizer *-mi* can also be decomposed as *-m-i*. Here the morpheme *-m-* of *-m-i* also does not participate in determining the category of the stem; it is the morpheme *-i* that nominalizes the adjectival stem. The examples in (41)-(43) show that the morpheme *-i* functions to nominalize a verbal stem: the case markers *-ga*, *-o*, and *-ni* can follow the deverbal nominals with *-i*.

(41) *yom-* 'to read'

a. Watasi-wa sono hon-o yon-da.
I-Top that book-Acc read-Past
'I read that book.'

b. Kare-wa yom-i-ga asai.
he-Top read-I-Nom shallow
'He has a shallow insight.'

(42) *tur-* 'to fish'

a. Kinoo-wa masu-o tut-ta.
yesterday-Top trout-Acc fish-Past
'(I) fished trout yesterday.'

b. Kinoo-wa tur-i-o si-ta.
yesterday-Top fish-I-Nom do-Past
'(I) went fishing yesterday.'

(43) *nom-* 'to drink'

a. Kare-wa maiban sake-o nom-u.
he-Top every.night alcohol-Acc drink-Nonpast
'He drinks every night.'

b. Kare-wa nom-i-ni dekake-ta.
he-Top drink-I-for go.out-Past
'He went out for a drink.'

[13] See Jacobsen (1992).

Given that the morpheme *-i* can attach to an adjectival stem as well as a verbal stem to nominalize, it is only the morpheme *-i*, but not *-m-i*, that nominalizes the stem of an adjective.

Given that the morpheme *-m-* of *-m-i*, *-m-e-*, and *-m-ar-* is not the functional category to derive either a verb or noun from an adjectival stem, what is it? Recall that *-m-i*, *-m-e-*, and *-m-ar-* can only attach to the dimensional adjectives such as HEIGHT and DEPTH. The morpheme *-m-* is clearly related to the dimensions such as HEIGHT and DEPTH. But a further investigation into its semantic properties is still needed.

The nominalizer *-me* also has the nasal consonant /m/. I claim, however, that it cannot be decomposed as *-m-e*. One piece of evidence for it is that the Chinese character that means 'eye' can be assigned to the morpheme *-me*. The observations made in section 3 also suggest that the morpheme *-me* does not have a close relation to *-m-i*, *-m-e-* and *-m-ar-*. I suppose that the morpheme *-me* functions to nominalize gradable adjectives, and means that the argument is on the side of a property which the adjective expresses.

5. Conclusion

This paper observes the patterns of deadjectival nominalizations and verbalizations in Japanese. Japanese has three types of deadjectival nominalizations, attachment of *-sa*, *-me*, and *-m-i*. Each nominalizing element has a different selectional restriction. This paper demonstrates that there is a correlation between deadjectival nominalizations with *-m-i* and deadjectial verbalizations with *-m-e-* and *-m-ar-*. This paper also reveals that the morpheme *-m-* of *-m-i*, *-m-e-* and *-m-ar-* is related to the dimensions such as HEIGHT and DEPTH. The observations have an implication that the semantic classes affect the overt morphology in Japanese. Further investigation is required to clarify the exact relationship between the semantics and the morphology.

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