

The Internal Structures of Adjectives in Japanese*

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Many studies have been made on the internal structures of verbs and nouns, but less is known about the internal structure of adjectives. A close examination of adjectives suggests that some adjectives have complex internal structures like items in other lexical categories. In this paper, I propose the internal structures of adjectives in Japanese in the framework of Distributed Morphology proposed by Marantz (1997 and subsequent work). I demonstrate that Japanese adjectives come in four types in terms of their syntactic and semantic properties, and claim that each type of adjectives has a different internal structure. This claim reveals that there is a close relationship between the internal structures of adjectives and their interpretations; the internal structure of adjectives determines their semantic type. This paper also demonstrates that there is a correlation to some extent between the morphology and the semantics of adjectives in Japanese.

Keywords: Japanese adjective, morphological structure, Distributed morphology

1. Introduction

Although a large number of studies have been made on the internal structures of verbs and nouns, the internal structures of adjectives have not been a main subject of study. It has been assumed that any type of adjective has a simple internal structure; adjectives are base-generated in the head position of AP.

In this paper, I propose that some types of adjectives in Japanese have complex structures like elements of other lexical categories. It has been observed that there are mainly two types of adjectives in Japanese in terms of their morphological properties; canonical adjectives and nominal adjectives. I demonstrate, however, that Japanese adjectives are, in fact, classified into four types with respect to their morphological and syntactic properties. I also show that the morphological and syntactic classification of Japanese adjectives corresponds, to some extent, to their semantic classification. Based on these observations, I propose that each type of adjectives in Japanese has a different internal structure. This claim reveals that there is a close relationship between the internal structure of adjectives and their interpretations; the internal structures of adjectives determine their interpretations.

The organization of this paper is as follows. In section 2, I demonstrate the classification of Japanese adjectives into three types in terms of their morphological properties. In section 3, I classify Japanese adjectives into 14 semantic classes based on Scott's (2002) classification of adjectives, and demonstrate that there is a correlation to some extent between the morphology and the semantic classes of adjectives. In section 4, I closely examine each morphological type of Japanese adjectives. I propose that the semantic properties of adjectives are, to some extent, responsible for their morphological realizations. I also claim that Japanese adjectives should be divided into four types with respect to their morphological and syntactic behaviors. In section 5, I claim that the four types of Japanese adjectives have different internal structures. I also propose that there is a close relationship between the internal structure of adjectives and their interpretations. The last section is a brief summary.

2. Morphological Classification of Japanese Adjectives

It has been observed that Japanese adjectives are mainly classified into two types. The adjectives *takai* and *uresii* in (1) inflect by themselves, while the adjectival stems *sizuka* and *byooki* in (2) require an overt copula to inflect. Nishiyama (1999) refers to the former type in (1) as *canonical adjectives* and the latter type in (2) as *nominal adjectives*.

* This article is based on a paper presented at the ELSJ Spring Forum 2010 held at Aoyama Gakuin University. I am grateful to the audience at the conference. My thanks also go to Akira Watanabe, Noriko Imanishi, Yuki Ishihara, and an anonymous reviewer for their valuable comments and suggestions. Needless to say, all remaining errors are mine.

- (1) *Canonical adjectives*:
- a. Yama-ga takai / takakatta.
 mountain-Nom high.Nonpast / high.Past
 ‘The mountain is/was high.’
- b. Purezento-ga uresii / uresikatta.
 present-Nom pleasing.Nonpast / pleasing.Past
 ‘The present is/was pleasing. (= I am/was pleased with the present.)’
- (2) *Nominal adjectives*:¹
- a. Yoru-ga sizuka-da / sizuka-datta.
 night-Nom quiet-Cop.Nonpast / quiet-Cop.Past
 ‘The night is/was quiet.’
- b. Taroo-ga byooki-da / byooki-datta.
 Taro-Nom sick-Cop.Nonpast / sick-Cop.Past
 ‘Taro is/was sick.’

Nominal adjectives are sub-divided into two types. The inflectional patterns of the adjectives in (1) are given in (3).

(3) *Nominal adjectives*:

	<i>sizuka</i> - ‘quiet’ (<i>na</i> -adjective)	<i>byooki</i> - ‘sick’ (<i>no</i> -adjective)
Imperfective form	sizuka-daroo	byooki-daroo
Continuative form	sizuka-de	byooki-de
Predicative form	sizuka-da	byooki-da
Attributive form	sizuka-na	byooki-no
Hypothetical form	sizuka-nara	byooki-nara

A difference between the adjectives *sizuka*- and *byooki*- is found in their attributive forms; the morpheme *na* attaches to the former type, the morpheme *no* to the latter. Let us call the *sizuka*-type adjectives *na*-adjectives and the *byooki*-type adjectives *no*-adjectives.

Consider the inflectional patterns of canonical adjectives in (2), as given in (4).

(4) *Canonical adjectives*:

	<i>takak</i> - ‘high’	<i>uresik</i> - ‘pleasing’
Imperfective form	takak-aroo	uresik-aroo
Continuative form	takak-u	uresik-u
Predicative form	taka-i (>takak-i)	uresi-i (>uresik-i)
Attributive form	taka-i (>takak-i))	uresi-i (>uresik-i)
Hypothetical form	takak-ere	uresik-ere

These adjectives have stems ending with the consonant /k/ in the imperfective, continuative and hypothetical

¹ This type of adjectives is labeled “nominal” since they show parallel inflectional patterns with nominal predicates, as given in (i).

(i) *Nominal predicate*:

- Hanako-ga gakusee-da / gakusee-datta.
 Hanako-Nom student-Cop.Nonpast student-Cop.Past
 ‘Hanako is/was a student.’

forms. In the predicative and attributive forms, the consonant /k/ is dropped by the phonological constraint in (5), which prohibits the sequence of /k/ and /i/.

- (5) VELAR
*[ki] (Nishiyama 1999: 191: (20))

I refer to canonical adjectives as *k*-adjectives.

In sum, Japanese has three types of adjectives in terms of their morphological properties, (i) *k*-adjective (e.g., *takak* ‘high’), (ii) *na*-adjective (e.g., *sizuka-na* ‘quiet’) and (iii) *no*-adjective (e.g., *byooki-no* ‘sick’).

3. Semantic Classification of Japanese Adjectives

In this section, I classify Japanese adjectives into semantic classes based on Scott’s (2002) classification of adjectives. It has been observed that the orderings of prenominal adjectives are the same in many languages. This observation suggests that there is a universal hierarchy of adjectives according to their semantic classes (Cinque 1994, Sproat and Shih 1990, Scott 2002, Laenzlinger 2005). The following hierarchy of adjectives is proposed by Scott (2002).

- (6) SUBJECTIVE COMMENT² > SIZE > LENGTH > HEIGHT > SPEED > DEPTH > WIDTH > WEIGHT > TEMPERATURE > WETNESS > AGE > SHAPE > COLOR > NATIONALITY/ORIGIN > MATERIAL (cf. Scott 2002)

Japanese does not have such restrictions on the ordering of prenominal adjectives. I claim, however, that there is a correlation to some extent between the semantic classification of adjectives and their morphological classification. Let us classify Japanese adjectives into 14 semantic classes, based on the semantic classification in (6).³ (7) is the list of Japanese adjectives classified by the semantic classes.⁴

- (7) a. SUBJECTIVE COMMENT:
kitanak- ‘dirty,’ *kawaiik*- ‘pretty,’ *itak*- ‘sore,’ *nemuk*- ‘sleepy,’ *kayuk*- ‘itchy,’ *daruk*- ‘lazy,’
ayauk- ‘dangerous,’ *amak*- ‘sweet,’ *karak*- ‘bitter,’ *mezurasik*- ‘rare,’ *hagesik*- ‘severe,’
sabisik- ‘lonely,’ *kanasik*- ‘sad,’ *tanosik*- ‘pleasant,’ *uresik*- ‘happy, pleasing,’ *natukasik*- ‘good old,’
kurusik- ‘painful,’ *itosik*- ‘dear,’ *otonasik*- ‘quiet,’ *yasasik*- ‘gentle,’ *oisik*- ‘delicious’ (*k*-adjective)
kokkei-na ‘funny,’ *mare-na* ‘rare,’ *sinsen-na* ‘fresh,’ *baka-na* ‘stupid,’ *suki-na* ‘favorite,’
kirai-na ‘unfavorite,’ *kimyoo-na* ‘strange,’ *sinsetu-na* ‘kind,’ *syooziki-na* ‘honest’ (*na*-adjective)
- b. SIZE:
ook- ‘big,’ *tiisak*- ‘small’ (*k*-adjective)
ooki-na ‘big,’ *tiisa-na* ‘small’ (*na*-adjective)
- c. LENGTH:
nagak- ‘long,’ *mizikak*- ‘short’ (*k*-adjective)

² Scott (2002) claims that the category Subjective Comment can be decomposed into Evidential/Universal Comment and Subjective Comment; Evidential indicates “some kind of general, stable or standard evaluation,” and Subjective Comment indicates “the speaker’s own evaluation or an evaluation that may be more transitory.” I consider both Evidential/Universal Comment and Subjective Comment to be the category Subjective Comment here. Notice that many adjectives are ambiguous between Subjective Comment and other categories such as Size, Length, Height and so on. I take into account only the adjectives that are unambiguously related to Subjective Comment (or Evidential/Universal Comment).

³ In this paper, I do not take the semantic class WETNESS into account, since Japanese does not have lexical adjectives related to WETNESS; it is always realized in deverbal forms in Japanese.

⁴ The adjectives given in (11) are mainly collected from Nishio (1972).

d. HEIGHT:		
	<i>takak-</i> ‘tall,’ <i>hikuk-</i> ‘short’	(<i>k</i> -adjective)
e. SPEED:		
	<i>hayak-</i> ‘fast,’ <i>osok-</i> ‘slow’	(<i>k</i> -adjective)
f. DEPTH:		
	<i>hukak-</i> ‘deep,’ <i>asak-</i> ‘shallow’	(<i>k</i> -adjective)
g. WIDTH:		
	<i>hirok-</i> ‘wide,’ <i>semak-</i> ‘narrow’	(<i>k</i> -adjective)
h. WEIGHT:		
	<i>omok-</i> ‘heavy,’ <i>karuk-</i> ‘light’	(<i>k</i> -adjective)
i. TEMPERATURE:		
	<i>atuk-</i> ‘hot,’ <i>samuk-</i> ‘cold,’ <i>suzusik-</i> ‘cool’	(<i>k</i> -adjective)
j. AGE:		
	<i>huruk-</i> ‘old,’ <i>wakak-</i> ‘young,’ <i>atarasik-</i> ‘new’	(<i>k</i> -adjective)
k. SHAPE:		
	<i>maruk-</i> ‘round,’ <i>sikakuk-</i> ‘square’	(<i>k</i> -adjective)
	<i>maru-no</i> ‘round,’ <i>sikakuku-no</i> ‘square,’ <i>sankaku-no</i> ‘triangular,’ <i>hisigata-no</i> ‘diamond’	(<i>no</i> -adjective)
l. COLOR:		
	<i>akak-</i> ‘red,’ <i>aok-</i> ‘blue,’ <i>sirok-</i> ‘white,’ <i>kurok-</i> ‘black’	(<i>k</i> -adjective)
	<i>aka-no</i> ‘red,’ <i>ao-no</i> ‘blue,’ <i>siro-no</i> ‘white,’ <i>kuro-no</i> ‘black,’ <i>midori(iro)-no</i> ‘green,’	
	<i>momoiro-no</i> ‘pink,’ <i>pinku-no</i> ‘pink,’ <i>buruu-no</i> ‘blue,’ <i>orenzi-no</i> ‘orange,’	(<i>no</i> -adjective)
	<i>makka-na</i> ‘deep red,’ <i>massao-na</i> ‘deep blue,’ <i>massiro-na</i> ‘completely white,’	
	<i>makkuro-na</i> ‘completely black’	(<i>na</i> -adjective)
m. NATIONALITY/ORIGIN:		
	<i>nihon-no</i> ‘Japanese,’ <i>amerika-no</i> ‘American’	(<i>no</i> -adjective)
n. MATERIAL:		
	<i>mokusei-no</i> ‘wooden,’ <i>tetu-no</i> ‘iron’	(<i>no</i> -adjective)

The observations obtained from the list in (7) are summarized in (8).⁵

- (8)
- a. SUBJECTIVE COMMENT is realized as either a *k*- or *na*-adjective.
 - b. SIZE is realized as either a *k*-adjective or *na*-adjective.
 - c. All the adjectives related to the semantic classes LENGTH, HEIGHT, SPEED, DEPTH, WIDTH and WEIGHT are realized as *k*-adjectives.
 - d. TEMPERATURE and AGE are, in principle, realized as *k*-adjectives.
 - e. SHAPE is realized either as a *k*-adjective or *no*-adjective.
 - f. COLOR is realized as either a *k*-, *no*-, or *na*-adjective.
 - g. NATIONALITY/ORIGIN and MATERIAL are realized as *no*-adjectives.

⁵ An anonymous reviewer points out that there are many counterexamples to the generalizations in (8). First, contrary to (8b), some SIZE adjectives such as *tokudai-no* ‘oversized’ and *gokusyoo-no* ‘minimal’ are realized as *no*-adjectives. Second, contrary to (8c), some adjectives related to HEIGHT, SPEED, WIDTH and WEIGHT are realized as *no*-adjectives (e.g., *koosoo-no* ‘high,’ *koosoku-no* ‘fast,’ *teiseku-no* ‘slow,’ and *habahiro-no* ‘wide’ and *keiryoo-no* ‘light’). Third, there are also some adjectives related to TEMPERATURE and AGE that are realized as *no*-adjectives (e.g., *koo'on-no* ‘hot,’ *teion-no* ‘cold,’ *roorei-no* ‘old,’ *zyakunen-no* ‘young’), contrary to (8d). Notice, however, that these adjectives are obviously compounds. Some of these adjectives can be decomposed into a degree modifier and an adjectival root; *tokudai-no* ‘oversized,’ for example, consists of the degree modifier *toku* ‘extremely’ and the adjectival root *dai* ‘big.’ And the others can be decomposed into an adjectival root and a noun; for example, *roorei-no* ‘old’ consists of the adjectival root *roo* ‘old’ and *rei* ‘age.’ I do not deal with these adjectives in this paper and leave them for my future research.

Notice that many semantic classes allow only certain morphological types of adjective in their realizations. As in (8c), LENGTH, HEIGHT, SPEED, DEPTH, WIDTH and WEIGHT are always realized as *k*-adjectives. NATIONALITY/ORIGIN and MATERIAL are only realized as *no*-adjectives, as in (8g). These observations seem to suggest that the morphological realizations of Japanese adjectives are sensitive to the semantic classes of adjectives.

However, there are some semantic classes that allow two types of morphological realizations of adjectives; as in (8e) and (8f), the semantic classes SHAPE and COLOR have an alternation between *k*-adjectives and *no*-adjectives in their realizations.⁶ Both the adjectives *maruk-* and *maru-no*, for example, have the meaning “round,” although the former is a *k*-adjective and the latter is a *no*-adjective, as in (9a). The same can be found in the case of COLOR, as in (9b). It should be noted that the two adjectives in each of the pair have the same stem.

- (9) a. SHAPE:
 {maru(k)-i / ?maru-no} teeburu / {sikaku(k)-i / sikaku-no} teeburu
 round / round table / square / square table
- b. COLOR:
 {siro(k)-i / siro-no} hane / {kuro(k)-i / kuro-no} hane
 white / white feather / black / black feather

Now it is necessary to consider why some semantic classes allow only certain morphological types of adjectives in their realizations, while other semantic classes allow an alternation between two morphological types of adjectives to be overtly realized.

4. A Close Examination of Japanese Adjectives

I have demonstrated that some semantic classes of adjectives are closely related to the morphology of Japanese adjectives. However, there are some semantic classes that allow an alternation between two morphological types of adjectives in their realizations. In this section, however, I closely examine each morphological type of Japanese adjectives, and show that an overt realization of adjective is due to its semantic and morphological properties, as given in (10).

- (10) a. Non-gradable adjectives are realized as *no*-adjectives.
 b. Gradable adjectives are realized as *na*-adjectives when the stem is a noun.
 c. Otherwise, gradable adjectives are realized as *k*-adjectives.

This section also shows that Japanese adjectives are, in fact, divided into four types; *k*-adjectives are further classified into two types. In section 2, I have demonstrated that Japanese adjectives are classified into three types in terms of their morphological properties. I claim that some *k*-adjectives should be distinguished from others in respect of their syntactic behaviors.

⁶ There are some COLOR adjectives that are realized as *na*-adjectives. Notice there is a semantic difference between *k*-/*no*-adjectives and *na*-adjectives. Take the adjectives *akak-/aka-no* ‘red’ and *makka-na* ‘deep red,’ for example. The *na*-adjective *makka-na* ‘deep red’ can be decomposed into the prefix *ma-* and the root *aka*. The prefix *ma-* attaches to the root *aka* ‘red’ and restricts the denotation to the cognitive reference point expressed by the root (cf. Poser 1990). That is, the *k*-/*no*-adjectives *akak-/aka-no*, which simply mean ‘red,’ have a wider meaning than *makka-na*. I consider that COLOR adjectives prefixed with *ma-* have different internal structures from other COLOR adjectives; they have more complex internal structures since they include a modifier (i.e., the prefix *ma-*) in their internal structures. I suppose that the difference in the morphological realizations between COLOR adjectives prefixed with *ma-* and the others are due to the difference in their internal structures. Although a closer examination is required, I do not consider the *na*-adjectives related to COLOR as counterparts of *k*-/*no*-adjectives.

4.1. No-adjectives

Let us first consider *no*-adjectives. Recall that NATIONALITY/ORIGIN and MATERIAL are only realized as *no*-adjectives.

(11) NATIONALITY/ORIGIN and MATERIAL are only realized as *no*-adjectives.

Notice that the adjectives related to these semantic classes are not gradable. Kennedy and McNally (2005) mention that gradable adjectives accept modification by the degree adverb *very* while absolute adjectives do not. The examples in (12) show that *no*-adjectives are non-gradable, because they cannot be modified by the degree adjective *totemo* ‘very.’⁷

(12) *No*-adjectives cannot accept modification by the degree adverb *totemo* ‘very.’
 *totemo nihon-no bunka / *totemo tetu-no tobira
 very Japanese culture / very iron door

There is another piece of evidence to show that *no*-adjectives are non-gradable. Recall that adjectives of SHAPE and COLOR have an alternation between *k*- and *no*-adjectives in their realizations, as repeated in (13).

(13) a. SHAPE:
 {maru(k)-i / ?maru-no} teeburu / {sikaku(k)-i / sikaku-no} teeburu
 round / round table / square / square table
 b. COLOR:
 {siro(k)-i / siro-no} hane / {kuro(k)-i / kuro-no} hane
 white / white feather / black / black feather

Although the *k*-adjective and the *no*-adjective in each pair seem to have the same meaning, the two adjectives should be distinguished in terms of gradability. The examples in (14) suggest that *k*-adjectives are gradable, since they accept modification by the adverb *totemo* ‘very.’ On the other hand, *no*-adjectives are not gradable because they do not accept modification by the degree adverb.

(14) a. SHAPE:
 totemo {maru(k)-i/*maru-no} teeburu / totemo {sikaku(k)-i/*sikaku-no} teeburu
 very round / round table / very square / square table
 b. COLOR:
 totemo {siro(k)-i/*siro-no} hane / totemo {kuro(k)-i /*kuro-no} hane
 very white / white feather / very black / black feather

These examples do not only show that *no*-adjectives are non-gradable, but they also suggest that *no*-adjectives must be realized when the adjectives are non-gradable; otherwise, *k*-adjectives are realized. That is, it is possible to conclude that non-gradable adjectives are always realized as *no*-adjectives in Japanese.

4.2. Na-adjectives

Next, let us consider *na*-adjectives. I have shown that *na*-adjectives share some properties with *no*-adjectives:

⁷ This fact seems to suggest that *no*-adjectives are nouns, since nouns cannot be modified by the degree adverb *totemo* ‘very.’ I will mention the difference between *no*-adjectives and pure nouns in section 5.

both *no*- and *na*-adjectives show parallel inflectional patterns with nominal predicates (cf. footnote 1). Moreover, there are some roots that can form either *na*- or *no*-adjectives, as in (15).

- (15) a. {wazuka-na / wazuka-no} okane
 {a little-NA / a little-NO} money
 b. {muyoo-na / muyoo-no} sinpai
 {needless-NA / needless-NO} concern
 c. {koosiki-na / koosiki-no} kaigi
 {formal-NA / formal-NO} meeting

However, *no*- and *na*-adjectives can be distinguished in terms of gradability; unlike *no*-adjectives, *na*-adjectives are gradable. Mihara (2008) observes that *na*-adjectives can appear with degree adverbs, as in (16).

- (16) a. motto {wazuka-na / *wazuka-no} okane
 more {a little-NA / a little-NO} money
 b. mattaku {muyoo-na / *muyoo-no} sinpai⁸
 completely {needless-NA / needless-NO} concern
 c. kanari {koosiki-na / *koosiki-no} kaigi
 fairly {formal-NA / formal-NO} meeting

In sum, *na*-adjectives have nominal properties as well as *no*-adjectives. But they are distinguished from *no*-adjectives in terms of gradability; *na*-adjectives are gradable, while *no*-adjectives are not.

4.3. *K*-adjectives

Let us consider *k*-adjectives in this subsection. I have shown that *k*-adjectives are also gradable as well as *na*-adjectives, since they accept modification by the degree adverb *totemo* ‘very’ (cf. (14)). However, *k*-adjectives are distinguished from *na*-adjectives in the categorial status of the stem. I propose that the stem of *na*-adjectives is a noun, while the stem of *k*-adjectives is not.

The claim that the stem of *na*-adjectives is a noun follows from the fact that *na*-adjectives exhibit several nominal properties. First, *na*-adjectives show parallel inflectional patterns with nominal predicates. But *k*-adjectives inflect in a quite different way, as in (17c).

- (17) a. Yoru-ga sizuka-da / sizuka-datta. (na-adjective)
 night-Nom quiet-Cop.Nonpast / quiet-Cop.Past
 ‘The night is/was quiet.’
 b. Hanako-ga gakusee-da / gakusee-datta. (nominal predicate)
 Hanako-Nom student-Cop.Nonpast / student-Cop.Past
 ‘Hanako is/was a student.’
 c. Yama-ga takai / takakatta. (k-adjective)
 mountain-Nom high.Nonpast / high.Past
 ‘The mountain is/was high.’

Second, there are some morphemes that attach to the stem of *na*-adjectives and nouns, as in (18a) and (18b). However, these morphemes never attach to the stem of *k*-adjectives, as in (18c).

⁸ Akira Watanabe (p.c.) points out that some native speakers accept the modification of *no*-adjectives by the degree adverbs such as *mattaku* ‘completely.’

- (18) a. *na*-adjective:
 sizuka-mitai / sizuka-rasii
 quiet-seem / quiet-seem
- b. noun:
 otoko-mitai / otoko-rasii
 man-seem / man-seem
- c. *k*-adjective:
 *taka-mitai ($\sqrt{\text{taka-i}}$ -mitai) / *taka-rasii ($\sqrt{\text{taka-i}}$ -rasii)
 high-seem / high-seem

These observations suggest that *k*-adjectives and *na*-adjectives should be distinguished in terms of nominal properties. I propose that these contrasts follow from the difference of the categorial status of their stems; *na*-adjectives have a nominal stem, while *k*-adjectives do not.

Last, I demonstrate that *k*-adjectives are, in fact, classified into two types. Consider the nominative object construction in (19) and (20).⁹

- (19) a. Taroo-ni(-wa)/*-ga gakkoo-ga daru-i.
 Taro-Dat(-Top)/*-Nom school-Nom boring-Pred
 ‘To Taro, the school is boring.’
- b. Taroo-ni(-wa)/*-ga inu-ga kawai-i .
 Taro-Dat(-Top)/*-Nom dog-Nom pretty-Pred
 ‘To Taro, the dog is pretty.’
- (20) a. watasi-ni(-wa)/-ga gakkoo-ga tanosi-i (koto)
 I-Dat(-Top)/-Nom school-Nom happy-Pred (fact)
 ‘(that) I enjoy the school.’
- b. watasi-ni(-wa)/-ga [sobono si]-ga kanasi-i (koto)
 I-Dat(-Top)/-Nom [grandma’s death]-Nom sad-Pred (fact)
 ‘(that) I feel sad for my grandma’s death.’

The above examples show that some *k*-adjectives can take a nominative object, while others do not.¹⁰ In (19), the experiencer argument *Taro* cannot be marked with the nominative particle. On the other hand, in (20), the experiencer argument can be marked with the nominative particle.¹¹ This contrast suggests that some *k*-adjectives have the internal structure where both the experiencer and theme arguments can be licensed, while others only license one argument. It should be noted that the *k*-adjectives in (20) are etymologically derived from psych verbs.¹² Based on this fact, I suppose that *k*-adjectives can license two arguments if they have a “psych predicate”

⁹ The nominative object construction should be distinguished from the major subject construction in (i).

(i) Sendai-ga sakana-ga uma-i.
 Sendai-Nom fish-Nom taste.good.Pred
 ‘It is in Sendai that fish taste good.’

(Koizumi 1998: 146: (15))

¹⁰ Notice that all the *k*-adjectives that can take a nominative object are related to the semantic class Subjective Comment. It is not the case, however, that all the adjectives related to Subjective Comment can take a nominative object.

¹¹ There are some *na*-adjectives that can take a nominative object.

(i) *suki-na* ‘like,’ *kirai-na* ‘hate,’ *hituyoo-na* ‘need,’ *tokui-na* ‘good at,’ *heta-na* ‘bad at’
 I do not take these adjectives into account here. I leave this matter for my future research.

¹² In traditional Japanese grammar, canonical adjectives are sub-divided into two types in terms of their inflectional patterns; so-called *k(u)*-inflectional adjectives and *sik(u)*-inflectional adjectives. It has been observed that *k(u)*-inflectional adjectives and *sik(u)*-inflectional adjectives are distinguished in terms of their meanings; *sik(u)*-inflectional adjectives tend to express “emotion” while *k(u)*-inflectional adjectives tend to express “properties.” This tendency is due to the fact that most *sik(u)*-inflectional adjectives are originally derived from psych verbs

in their internal structure.¹³ Let us refer to this type of *k*-adjectives as psych *k*-adjectives.

There is another contrast between *k*- and psych *k*-adjectives. The verbalizing morpheme *-m(u)* can attach to psych *k*-adjectives, but not to *k*-adjectives, as in (21).¹⁴

- (21) Attachment of the verbalizing morpheme *-m(u)*
- a. *k*-adjective:
- | | | | | |
|---------------|--------------|--------------|--------------|-------------|
| *kawai(k)-mu, | *naga(k)-mu, | *taka(k)-mu, | *haya(k)-mu, | *huka(k)-mu |
| pretty-MU | long-MU | high-MU | fast-MU | deep-MU |
- b. psych *k*-adjective:
- | | | | |
|---------------|---------------|-----------------|--------------|
| kanasi(k)-mu, | tanosi(k)-mu, | natukasi(k)-mu, | sitasi(k)-mu |
| sad-MU | happy-MU | good.old-MU | familiar-MU |
| ‘grieve’ | ‘enjoy’ | ‘miss’ | ‘fraternize’ |

Given that only the predicates that license two arguments can be verbalized by the morpheme *-mu*, the contrast in (21) also follows from the fact that psych *k*-adjectives are derived from psych verbs, while *k*-adjectives are not.

To summarize, the three types of adjectives in Japanese have different morphological and semantic properties. First, non-gradable adjectives are always realized as *no*-adjectives. Second, gradable adjectives are realized as either *na*- or *k*-adjectives. Adjectives are realized as *na*-adjectives if the stem is a noun. Otherwise, gradable adjectives are realized as *k*-adjectives. It should be also noted that *k*-adjectives can be classified into two types; some *k*-adjectives (i.e., psych *k*-adjectives) license two arguments, while others do not.

5. The Internal Structures of Japanese Adjectives

In section 5, I propose that each type of adjective has a different internal structure. I follow the theoretical assumptions in the framework of Distributed Morphology (DM) proposed by Marantz (1997 and subsequent work). The basic assumptions of DM relevant here are listed in (22).

- (22) a. The syntactic categories N, V, and A are created by the syntax. (Marantz 1997 and subsequent work)
- b. A root is category-neutral and it becomes an N, V, or A when it merges with a functional category such as n^0 , v^0 , or a^0 (Marantz 2001).
- c. The phonological contents of the terminal nodes are inserted post-syntactically by the vocabulary insertion rules.

Based on the assumptions in (22), my proposals are given in (23).

- (23) a. The feature [+gradable] is encoded in the functional head a^0 , which forms an adjective.¹⁵

(Kuginuki 1996). In modern Japanese, however, it seems impossible to distinguish *sik(u)*-inflectional adjectives from *k(u)*-inflectional adjectives: there are many *k(u)*-inflectional adjectives that can take a nominative object; there are also many *sik(u)*-inflectional adjectives that do not allow a nominative object. I suppose that *k*-adjectives license a nominative object when they are derived from psych verbs.

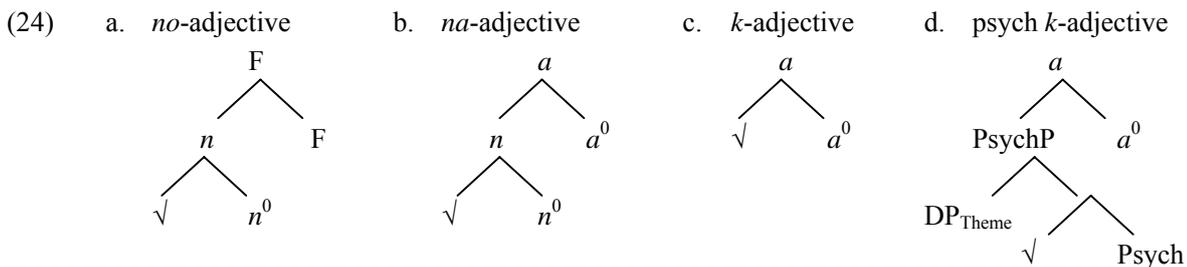
¹³ It should be noted that not all the adjectives that allow a nominative object are derived from psych verbs. The adjective *kowak*- ‘afraid,’ for example, is not derived from a psych verb, but it can be used in the nominative object construction. I suppose that the adjective *kowak*- began to license a nominative object because of the historical change of its meaning.

¹⁴ An anonymous reviewer points out that there are a few *k*-adjectives that can be verbalized by attachment of the morpheme *-m(u)* but cannot take a nominative object; *ayasik*- ‘suspicious,’ *itak*- ‘sore,’ *kurusik*- ‘painful’ and *osik*- ‘pity, poor.’ I put these adjectives aside in this paper.

¹⁵ This claim would suggest that nouns are always nongradable. But it has been observed that there are some nouns that accept modification by degree adverbs (Mihara 2008). I consider that only the nouns derived from adjectives or verbs can accept modification by degree adverbs.

- b. The roots of *no*-adjectives combine with the functional head n^0 to form a noun, before combining with the functional head F.
- c. The roots of *na*-adjectives combine with the the functional head n^0 and then combine with the functional head a^0 .
- d. *K*-adjectives are also obtained by combination of the category-neutral root with the functional head a^0 .
- e. The roots of psych *k*-adjectives combine with the functional head Psych and then combine with the functional head a^0 .

The internal structures for adjectives in Japanese are illustrated in (24).^{16,17} Each type of adjective in Japanese is realized by the vocabulary insertion rules in (25).



(25) Vocabulary Insertion Rules:

- a. /no/ ↔ [n^0 , F]
- b. /na/ ↔ [n^0 , a^0]
- c. /k/ ↔ [Psych, a^0]¹⁸
- d. /k/ ↔ [a^0]

First, as in (23a), the feature [+gradable] is encoded in the functional head a^0 , which forms an adjective. Let us suppose that gradability is a fundamental property of adjectives. Recall that all the types but *no*-adjectives are gradable. I propose the difference between *no*-adjectives and the other types is explained by the absence/presence of the a^0 head. That is, *no*-adjectives are not genuine adjectives in a strict sense. The structures of *no*- and *na*-adjectives are illustrated in (24a) and (24b), respectively. In both structures, the root merges with the n^0 head to form a noun. This analysis accounts for the fact that *no*- and *na*-adjectives have some properties of nouns. As given in (24a), *no*-adjectives are derived by combination of the root with the n^0 head and then with the functional head F. I suppose that the functional head F is required in order for nouns to have the attributive use.^{19,20} On the

¹⁶ The complex head a is equivalent to the A head which is generally assumed in the syntax. DM does not make a distinction between a and the A head, on the assumption that a single generative system is responsible both for the word formation and for the syntactic operations.

¹⁷ The structures in (24) are for the adjectives in the attributive use. I suppose that the DP modified by *na*-adjectives and *k*-adjectives is generated in the complement position of the complex head a and the whole structure projects aP . In the case of *no*-adjectives, I tentatively suppose that the DP appears in the complement position of the complex F head. But a closer examination is required to discuss this matter.

¹⁸ The complex head [Psych, a^0] might be realized as /na/ in some cases, since there are some *na*-adjectives that take a nominative object (cf. footnote 11).

¹⁹ I assume that the functional head F is equivalent to the Mod head in the sense of Rubin (1997). Rubin claims that the functional head Mod mediates the relation between an attributive adjective and its modifying noun. It has been observed crosslinguistically that (most) relational adjectives cannot be used predicatively. Given that *no*-adjectives are the overt realizations of relational adjectives in Japanese, I suppose that a functional head to function as a “linker” is included in the structure *no*-adjectives.

²⁰ I suppose that the existence of the functional head F distinguishes *no*-adjectives from pure nouns such as *gakusee* ‘student.’ A pure noun cannot be used attributively since its root combines with the category-determining head n^0 but does not combine with the F head.

other hand, as in (24b), *na*-adjectives are derived when the root combines with the n^0 head and then with the a^0 head.

Second, as in (23d), *k*-adjectives are obtained by combination of the category-neutral root with the a^0 head. Recall that many semantic classes of adjectives are realized as *k*-adjectives. This fact suggests that *k*-adjectives are default gradable adjectives in Japanese, and they have the simplest internal structure as in (24c).

Recall, however, that some *k*-adjectives can take a nominative object. Based on the fact that many psych *k*-adjectives are derived from psych verbs, I suppose that the root of psych *k*-adjectives combines with the functional head Psych and then with the a^0 head. Let us suppose that the functional head Psych introduces the theme argument in its specifier position, as illustrated in (24d).

The differences between *k*-adjectives and psych *k*-adjectives can be explained by assuming the different internal structures in (24c) and (24d). First, as repeated in (26), the verbalizing morpheme *-m(u)* can attach to psych *k*-adjectives, but not to *k*-adjectives.

(26) Attachment of the verbalizing morpheme *-m(u)*

a. genuine *k*-adjective:

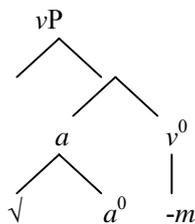
*kawai(k)-mu, pretty-MU	*naga(k)-mu, long-MU	*taka(k)-mu, high-MU	*haya(k)-mu, fast-MU	*huka(k)-mu deep-MU
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b. psych *k*-adjective:

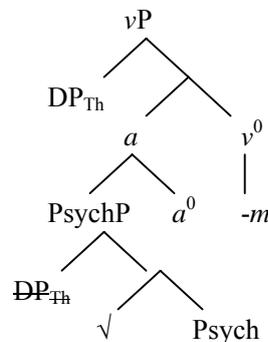
kanasi(k)-mu, sad-MU 'grieve'	tanosi(k)-mu, happy-MU 'enjoy'	natukasi(k)-mu, good.old-MU 'miss'	sitasi(k)-mu familiar-MU 'fraternize'
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Now suppose that the verbalizing morpheme *-m* is the morphological realization of the v^0 head, which assigns a thematic role to the argument in its specifier position but does not introduce any argument by itself. The structures of *k*-adjectives and psych *k*-adjectives with the morpheme *-m* are illustrated in (27).

(27) a. *k*-adjective:



b. psych *k*-adjective:

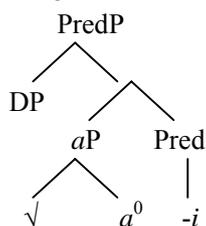


There is no argument in the specifier position of vP to be licensed in the case where a *k*-adjective is verbalized by attachment of the morpheme *-m*, as in (27a). The morpheme *-m* cannot attach to *k*-adjectives since it is impossible to assign a thematic role to an argument by the v^0 head. The attachment of the morpheme *-m* to psych *k*-adjectives is possible, because as in (27b) the argument that is base-generated in [Spec, PsychP] moves to [Spec, vP] to be licensed by the v^0 head.

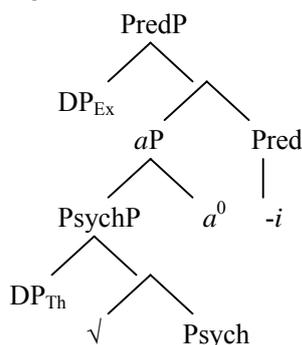
Second, psych *k*-adjective predicates license both the experiencer and theme arguments, while *k*-adjective predicates only license the theme argument. I propose that *k*- and psych *k*-adjectives have the structures in (28) when they have the predicative use.

(28) Predicative²¹

a. *k*-adjective:



b. psych *k*-adjective:



In both structures, *aP* is supported by the functional head *Pred* to be predicates. The *Pred* head assigns a thematic role to the external argument in its specifier position. *K*-adjective predicates cannot license more than one argument, since there is only one position for arguments, i.e., the specifier position of *PredP*, as illustrated in (28a). The internal structure of psych *k*-adjectives, on the other hand, includes the functional head *Psych*, which introduces the theme argument in its specifier position, as well as the *Pred* head. Thus, psych *k*-adjective predicates can license both the experiencer and theme arguments.

6. Conclusion

In this paper, I demonstrated that there are four types of adjectives in Japanese. I showed that each type of adjective shows different morphological, syntactic and semantic behaviors. Based on these observations, I proposed that each type of adjectives has a different internal structure in the framework of DM. I demonstrated that some types of adjectives in Japanese have more complex structures than others. This claim proposes that there is a close relationship between the internal structure of adjectives and their interpretations.

There are some remaining problems. First, there are some other phenomena to be considered. For example, there are many other morphemes that can attach only to certain types of adjectives. The verbalizing morphemes *-mer(u)* and *-ma(ru)*, for example, can only attach to *k*-adjectives, but not to psych *k*-adjectives, as in (29).

(29) Attachment of the verbalizing morpheme *-mar(u)/-me(ru)*

a. *k*-adjective:

taka(k)-mar-u,	haya(k)-mar-u,	huka(k)-mar-u,	hiro(k)-mar-u
high-MAR-Nonpast	fast-MAR-Nonpast	deep-MAR-Nonpast	wide-MAR-Nonpast
‘become high’	‘become fast’	‘deepen’	‘spread’
taka(k)-me-ru,	haya(k)-me-ru,	huka(k)-me-ru,	hiro(k)-me-ru
high-ME-Nonpast	fast-ME-Nonpast	deep-ME-Nonpast	wide-ME-Nonpast
‘raise’	‘accelerate’	‘deepen’	‘spread’

b. psych *k*-adjective:

*kanasi(k)-mar-u/me-ru,	*natukasi(k)-mar-u/me-ru,
sad-MAR-Nonpast/ME-Nonpast	good.old-MAR-Nonpast/ME-Nonpast
*tanosi(k)-mar-u/me-ru,	*sitasi(k)-mar-u/me-ru
happy-MAR-Nonpast/ME-Nonpast	familiar-MAR-Nonpast/ME-Nonpast

It is necessary to show how the contrasts among different types of adjectives with these morphemes can be

²¹ The structures in (28) are based on Nishiyama’s (1999) claim. However, he suggests that the morpheme *k* is the *Pred* head. I propose that the morpheme *i* is the realization of the *Pred* head, as illustrated in (28); the morpheme *k* is the functional head *a* to form a gradable adjective, as mentioned in (25d).

captured under my proposal.

Second, it is unclear how semantically different *k*-adjectives are from *na*-adjectives. I suggested that the difference between *k*-adjectives and *na*-adjectives can be reduced to the difference in the categorial status of their stems: gradable adjectives are realized as *na*-adjectives when the stem is a noun; otherwise, they are realized as *k*-adjectives. However, there seems to be a semantic difference between *k*-adjectives and *na*-adjectives. Recall that all the adjectives related to the semantic classes LENGTH, HEIGHT, SPEED, DEPTH, WIDTH, WEIGHT, TEMPERATURE and AGE are usually realized as *k*-adjectives, but they are not, in principle, realized as *na*-adjectives. It needs further consideration why these semantic classes are not realized as *na*-adjectives.²²

Third, I have not attested whether the same is true in other languages. I suspect that languages vary with respect to the number of the types of adjectives allowed in them. I leave these matters for my future research.

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²² I thank an anonymous reviewer for pointing out this problem.

