

Morphological and Syntactic Labels: Dynamic Labeling of Fuzzy Predicates in a Head-final Language¹

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1. INTRODUCTION

As shown below, based on Martin (1975), Kageyama (1982, 1993) argues that there are five major categories in Japanese: verbs, nouns, adjectives, adjectival nouns and verbal nouns; and proposes the following:

	V	N	A
(1) a. verbs:	+	-	-
b. nouns	-	+	-
c. adjectives:	-	-	+
d. adjectival nouns:	-	+	+
e. verbal nouns:	+	+	-

(Kageyama 1982, p. 218, cf. Martin 1975)

(i) verbs have a conjunction of [+V], [-N] and [-A] features; (ii) nouns a conjunction of [-V], [+N] and [-A]; (iii) adjectives a conjunction of [-V], [-N] and [+A]; (iv) adjectival nouns a conjunction of [-V], [+N] and [+A]; (v) verbal nouns a conjunction of [+V], [+N] and [-A] (cf. Matsushita 1930, Miyagawa 1987, Ito and Sugioka 2002, Ueno 2016, Yuhara 2020, etc.).² Furthermore, under this proposal, Kageyama (1982, 1993) presumes that the categories with the proposed features above are visible to morphology and syntax in the same way.

In this paper, I attempt to show that (i) adjectives, verbs, adjectival nouns, and verbal nouns in Japanese are distinct categories in morphology (Matsushita 1930, Martin 1975, Kageyama 1982, 1993, etc.); however, (ii) all these predicates display verbal or nominal properties similarly in syntax, depending on contexts. To capture these properties, I wish to suggest a novel possibility below:

	<i>morphological labels</i>	<i>syntactic label</i>
(2) a. adjective (<i>utukusi</i> ‘beautiful’):	A	[?V or ?N]
b. verb (<i>tabe</i> ‘eat’):	V	[?V or ?N]
c. adjectival noun (<i>kirei</i> ‘beautiful’):	AN	[?V or ?N]
d. verbal noun (<i>syokuzi</i> ‘eat’):	VN	[?V or ?N]

Namely, I propose that (i) as shown in (2a–d), the four predicates in Japanese possess distinct categorial labels for morphology, but have the same categorial label for syntax (cf. 1); accordingly, (ii) morphology deals with these major categories differently; but (iii) syntax treats them basically in the same way, depending on syntactic environments.

More specifically, in (2a–d), I adopt Martin (1976)/Kageyama (1982, 1993) hypothesis for morphology: morphology uses (i) the categorial label A for adjective (see 2a); (ii) the label V for verb (see 2b); (iii) the label AN for adjectival noun (see 2c); (iv) the label VN for verbal noun (see 2d).³ My new proposal in (2a–d) is this: for all these four predicates in Japanese, syntax draws upon the identical fuzzy, categorial label: a disjunction of two labels, [?V or ?N], which differs significantly from their morphological labels (see 2a–d).⁴ Furthermore, I argue that as predicted by Dynamic Syntax (Kempson et al. 2001, Cann et al. 2005, etc.; cf. Phillips 1996, 2003, Abe 1998), head-final languages such as Japanese consistently display a unique pattern where a fuzzy predicate comes first, and then, follows a ‘syntactic updater,’ i.e. a ‘head,’ which determines the nature of the fuzzy category by means of two-step

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² Matsushita (1930) regards adjectival nouns as ‘non-conjugated adjectives’ and verbal nouns as ‘non-conjugated verbs’ (cf. Ueno 2016, Yuhara 2020). Hence, for Matsushita (1930), adjectival nouns are essentially adjectives; verbal nouns are verbs. Conceptually, Matsushita’s (1930) view thus contrasts sharply with Martin’s (1975) and Kageyama’s (1982, 1993). My proposal in this paper can be considered to be an attempt to reconcile these two conflicting views. I am very grateful to Ichiro Yuhara, who brought Matsushita (1930) to my attention.

³ This is just for ease of exposition. There is no theoretical difference, even if I assume Matsushita’s (1930) categories, adjective (A), verb (V), non-conjugated adjective (NA), non-conjugated verb (NV), for morphological labels in (2a–d) (cf. Ueno 2016, Yuhara 2020).

⁴ An obvious alternative is to propose: syntax uses (i) the fuzzy categorial label with a disjunction of two options, [?A or ?N], for adjectives and adjectival nouns, and (ii) the fuzzy categorial label, [?V or ?N], for verbs and verbal nouns (cf. Hoshi 2014, Hoshi 2019a–b, Hoshi 2020a–c). In this paper, I pursue simpler and more radical an approach in (2), where syntax draws upon the single fuzzy categorial label, [?V or ?N], for all these predicates.

c-selection gradually in the course of left to right processing of a string of words (Hoshi 2014, 2019a–b, 2020a–c).

Here, it must be stressed that theoretically, the proposed category with a disjunction of two choices, i.e. [?V or ?N], in (2a–d) is totally different from a ‘categoryless root’ proposed by Distributed Morphology (Halle & Marantz 1993, Harley & Noyer 1999, Harley & Noyer 2000, etc.), by Exo-skeletal Model (Borer 2003, etc.), or by Asymmetrical Morphology (Di Sciullo 2005) (cf. Lieber 2006). Under the proposal in (2a–d), (i) the four predicates in Japanese are stored with the syntactically underspecified label [?V or ?N] in the lexicon; (ii) thus, the predicate with the fuzzy label [?V or ?N] is not a categoryless root, but it is indeed a syntactic category with its own distinctive label [?V or ?N]; (iii) the final categorial nature of the fuzzy category in (2a–d) is not determined by invisible functional categories, *v* or *n*, through merge⁵, but is determined by two-step c-selection, called ‘dynamic labelling,’ triggered by various types of visible ‘syntactic updaters’ in an efficient way in the course of left to right processing of a string of words.

Apparently, Kageyama’s (1982, 1993) system in (1a–e) is simpler than mine in (2a–d), and thus, (1a–e) seem conceptually better than (2a–d). The point of this paper, however, is to try to show that the proposed dissociation between morphology and syntax in (2a–d) could provide us with a simple, efficient performance-based syntactic analysis of a wide range of constructions in Japanese (cf. Jackendoff 1997, 2002, 2011, Culicover & Jackendoff 2005, etc.). To attain this aim, for example, I attempt to demonstrate below that given the proposal in (2a–d) together with ‘dynamic labeling,’ (i) we do not need any special grammatical operation like Argument Transfer (Grimshaw & Mester 1988), Abstract Incorporation (Kageyama 1993), or LF Incorporation (Saito & Hoshi 2000), in order to account for the nature of the Japanese light verb construction (cf. Miyamoto & Kishimoto 2016, etc.); (ii) we do not need, either, ‘direct head adjunction at D-structure’ (Kageyama 1993), or ‘non-local Agree’ by N, i.e. a ‘marked option of Agree’ (Kishimoto 2006: 783), to account for the properties of *-kata* ‘way’ nominalization in Japanese.

In the following section, I show very briefly that the morphological labels in (2a–d) are well-motivated. In section 3, I attempt to demonstrate that the proposal in (2a–d) together with ‘dynamic labeling,’ i.e. two-step c-selection, could shed a new light on the nature of predicates in a head-final language like Japanese. In section 4, I conclude the discussion of this paper.

2. MORPHOLOGICAL LABELS

The morphological labels in (2a–d) that I adopt directly from Martin (1975), Kageyama (1982, 1993), etc. are motivated by a variety of well-known data like the ones below. First, observe that the acceptability of (3a–d) is accounted for,

- (3) a. [A utukusi] -[T i] /-*[T ru]
beautiful- PRES/-* PRES
b. [V tabe]-*[T i] /-[T ru]
eat -* PRES/- PRES
c. [AN kirei] -*[T i] /-*[T ru]
beautiful -* PRES/-* PRES
d. [VN syokuzi] -*[T i] /-*[T ru]
eat -* PRES/-* PRES

if we assume that the present tense marker $-[T i]$ morphologically c-selects only the morphological label A (see 2a), whereas the present tense marker $-[T ru]$ morphologically c-selects V only (see 2b).

Second, the acceptability of (4a–d) is explained,

- (4) a. *[A utukusi] - [V na]
beautiful- COP
b. *[V tabe]-[V na]
eat - COP
c. [AN kirei] -[V na]
beautiful- COP
d. *[VN shokuzi]-[V na]
eating - COP

once we suppose that the copula verb $-[V na]$ morphologically c-selects only the morphological label AN (see 2c).

Finally, we can account for the grammaticality of (5a–d),

- (5) a. *[A utukusi] -[AspN tyuu]
beautiful - while
b. *[V tabe] -[AspN tyuu]
eat - while
c. *[AN kirei] -[AspN tyuu]
beautiful - while
d. [VN syokuzi] -[AspN tyuu]
eat - while

by assuming that the aspectual noun head $-[AspN tyuu]$ morphologically c-selects VN only (see 2d). Because [A utukusi] and [AN kirei], on the one hand, and [V tabe] and [VN syokuzi] on the other hand, are semantically basically the same, the c-selection-based analysis of the data in (3a–d), (4a–d), and (5a–d) seems to be a reasonable one.⁶⁷

⁵ In this paper, I do not assume abstract empty categories such as *v* or *n*, keeping the spirit of Jackendoff (1997, 2002, 2011), Culicover & Jackendoff (2005), etc.

⁶ For more evidence for the morphological labels in (2a–d), the reader is referred to Matsushita (1930), Martin (1975), Kageyama (1982, 1993), Ito and Sugioka (2002), Sugioka (2009), Ueno (2016), among others.

3. DYNAMIC LABELING OF THE FUZZY LABEL [?V or ?N]

Given the fuzzy label with a disjunction of two options, [?V or ?N], in (2a–d), I now propose this: Japanese possesses two types of syntactic updaters, i.e. ‘dynamic categorizers,’ which trigger two-step c-selection, called ‘dynamic labeling,’ step by step in the course of left to right processing of a string of words (cf. Hoshi 2014, 2019a–b, 2020a–c). Consider the two types of dynamic labeling below:

- (6) a. In syntax, dynamic categorizers such as case markers or aspectual head nouns *first c-select* the fuzzy [?V or ?N] label, and *then c-select* the N label, *turning* the fuzzy category into an N category.⁸
- b. In syntax, dynamic categorizers such as the light verb *su* ‘do’ or aspectual head nouns *first c-select* the fuzzy [?V or ?N] label, and *then c-select* the V label, *turning* the fuzzy category into a V category.

In short, (i) dynamic categorizers in (6a) are dynamic ‘nominalizers’; (ii) those in (6b) are dynamic ‘verbalizers.’ In the course of left to right parsing of a string of words, as in (6a), dynamic categorizers such as case markers in Japanese first c-select the fuzzy [?V or ?N] label and then, c-select its N label, ‘nominalizing’ the fuzzy category. As in (6b), dynamic categorizers such as the light verb *su* ‘do’ first c-select the fuzzy label [?V or ?N], and c-select again the V label, ‘verbalizing’ the fuzzy category.⁹

Below, I attempt to demonstrate that with these two types of dynamic labeling in (6a–b), i.e. ‘dynamic nominalization and verbalization,’ we can account for a variety of context-dependent properties of Vs, As, ANs and VNs in Japanese in an adequate way. At the same time, I try to show that as predicted by Dynamic Syntax (Kempson et al. 2001, Cann et al. 2005, etc.), a head-final language like Japanese consistently shows a distinctive pattern where a ‘chameleon-like’ fuzzy predicate emerges first, and then, follows a syntactic updater, i.e. a dynamic categorizer, which determines the categorial nature of the fuzzy category gradually in the course of left to right processing of a string of words.

3.1 Verbal Nouns or Non-conjugated Verbs?

Consider first (7a–b), both of which involve the verbal

noun *kenkyuu* ‘study.’ (7a–b) are well-formed.

- (7) a. John-no nihongo -no [kenkyuu] -ga
 John-GEN Japanese-GEN study -NOM
 subarasi -i.
 wonderful -PRES
 ‘John’s study of Japanese is wonderful.’
- b. John-ga nihongo-o [kenkyuu] -si-ta.
 John-NOM Japanese-ACC study -do-PAST
 ‘John studies Japanese.’

Given the two types of dynamic labeling in (6a–b), we can account for nominal and verbal properties of *kenkyuu* in (7a–b) in syntax, as follows:

Consider, first, example (7a), where the verbal noun *kenkyuu* shows nominal properties. Morphologically, case makers such as *-ga* c-select the morphological label VN in (2d), and hence, (8) is well-formed morphologically.

- (8) [_{VN} kenkyuu]-ga

On the other hand, for (7a), in the course of left to right processing of a linguistic string, syntax first constructs the fuzzy structure like (9a), which is based on the verbal noun [_{?V or ?N} *kenkyuu*] (see 2d).

- (9) a. ?[_{?VP or ?NP} John-?no [_{?V' or ?N'} nihongo-?no [_{?V or ?N} kenkyuu]]]
 b. ?[_{?VP or ?NP} John-?no [_{?V' or ?N'} nihongo-?no [_{?V or ?N} kenkyuu]]]-ga
 c. [_{NP} John-no [_{N'} nihongo-no [_N kenkyuu]]]-ga

In (9a), the genitive case marked NPs, *John-no* and *nihongo-no*, are not licensed yet, because the genitive case marker *-no* must be within an N projection (Saito 1982, 1985, Fukui 1986, etc.).¹⁰ Then, in the course of left to right parsing of a linguistic string, the nominative case marker *-ga*, i.e. a dynamic nominalizer, comes, first c-selecting the fuzzy [?V or ?N] projection as in (9b); and then, c-selects the N label, nominalizing the entire fuzzy projection as in (9c) (see 6a). Consequently, at the processing stage of (9c), the two genitive markers are licensed within the N projection; and the nominal property of the verbal noun *kenkyuu* in (7a) is accounted for syntactically. Notice here that under the dynamic labeling analysis, morphological structure (8) and syntactic structures (9a–c) are treated completely

⁷ See Hudson (1998: 5–8) for a discussion of the identical meaning of a noun like [_N *liking*] and a verb like [_V *like*]; and the same meaning of [_N *knowledge*] and [_V *know*]. See also Kageyama (1993: 22–40) and Huddleston & Pullum (2002: 30–31) for relevant discussion on category–meaning distinctions.

⁸ Sugioka (2009: 92, 27b–d) suggests that an aspectual head noun like [_{AsPN} *tyuu*] may nominalize any part of the projection of a verbal noun by means of its c-selection. The proposed dynamic labeling in (6a) heavily relies on this insight by Sugioka (2009).

⁹ An intuition behind the two-step c-selection, called dynamic labeling, in (6a–b) is the following: a dynamic categorizer *first selects/captures* a ‘chameleon-like’ fuzzy predicate with two options of its labels/‘colors;’ and *then, selects/determines* one of its labels/‘colors.’

¹⁰ In structures such as (9a–c), ? before case markers like *-ga*, *-o*, or *-no* indicates that those particles are not yet licensed syntactically.

separately (see 2d).

Consider next example (7b), where the verbal noun *kenkyuu* displays verbal properties. For (7b), as in (10a), in the course of left to right processing of words, syntax first builds the underspecified structure based on the fuzzy [$?V$ or $?N$] category, *kenkyuu*.

- (10)a. $?[?_{VP}$ or $?_{NP}$ John-?ga [$?_{V'}$ or $?_{N'}$ nihongo-?o [$?_{V}$ or $?_{N}$ kenkyuu]]]
 b. $?[[?_{VP}$ or $?_{NP}$ John-?ga [$?_{V'}$ or $?_{N'}$ nihongo-?o [$?_{V}$ or $?_{N}$ kenkyuu]]] [si]]
 c. [[$_{VP}$ John-ga [$_V$ nihongo-o [$_V$ kenkyuu]]] [si]]

In (10a), neither the nominative case marker *-ga* nor the accusative case marker *-o* is licensed, because these particles must be within the projection of V (Saito 1982, 1985, Fukui 1986). As in (10b), the light verb *si*, i.e. a dynamic verbalizer, then follows, and first c-selects the fuzzy [$?V$ or $?N$] projection; and subsequently, c-selects the V label, verbalizing the fuzzy category of [$?_{V}$ or $?_{N}$ *kenkyuu*] as in (10c) (see 6b). As a result, at the parsing point of (10c), the verbal case array in (10c) is licensed (cf. 9c); and the verbal properties of the verbal noun *kenkyuu* in (7b) are accounted for in syntax.¹¹

The proposed dynamic labeling analysis accounts for the unacceptability of (11a–b) naturally.

- (11)a. *John-ga nihono -o [kenkyuu] -ga
 John-NOM Japanese-ACC study -NOM
 subarasi -i (cf. 7a)
 wonderful-PRES
 b. *John-no nihongo-no [kenkyuu] -si-ta.
 John-GEN Japanese-GEN study -do-PST
 (cf. 7b)

In (11a), the dynamic categorizer, *-ga*, nominalizes the fuzzy category [$?_{V}$ or $?_{N}$ *kenkyuu*], and thus, verbal case markers *-ga* and *-o* are disallowed (see 6a; 9a–c). In (11b), on the other hand, the dynamic categorizer, the light verb *si*, verbalizes the fuzzy predicate [$?_{V}$ or $?_{N}$ *kenkyuu*], and thus, the genitive case marker *-no* is prohibited (see 6b; 10a–c).

In this context, (12a–b), both of which are acceptable, are significant in that the verbal noun, i.e. *kenkyuu*, in (12a–b) displays both nominal and verbal properties (cf. 7a–b; 9a–c; 10a–c).

- (12)a. John-ga London-de gengogaku-no
 John-NOM London-in linguistics-GEN

[kenkyuu] -o si -ta.
 study -ACC do -PST
 ‘John studied linguistics in London.’
 (cf. Grimshaw & Mester 1988)

- b. John-ga London-de gengogaku-no
 John-NOM London-in linguistics-GEN
 [kenkyuu] -no ori, ...
 study -GEN occasion, ...
 ‘When John studied linguistics in London, ...’
 (cf. Shibatani & Kageyama 1988)

Observe that in (12a–b), the theme argument of *kenkyuu*, i.e. *gengogaku* ‘linguistics,’ is marked by the ‘nominal’ particle *-no*; on the other hand, the agent, *John*, and the source, *London*, are marked by ‘verbal’ particles, *-ga* and *-de*, respectively. Importantly, however, unlike (7a–b), examples (12a–b) involve not just one, but two dynamic categorizers. That is, (12a) involves a dynamic nominalizer, i.e. the accusative case *-o* (see 6a) and a dynamic verbalizer, i.e. the light verb *si* (see 6b); similarly, (12b) involves a dynamic nominalizer, i.e. the genitive case *-no*, and a dynamic verbalizer, i.e. the temporal noun *ori* ‘occasion’ (see 6b). The proposed usage-based analysis based on (2a–d) together with dynamic labeling in (6a–b) accounts for the data in (12a–b) as follows:

Morphologically, case markers in Japanese c-select the morphological label VN (see 2d), and thus, (13a–b) are both morphologically well-formed (see 12a–b).

- (13)a. [$_{VN}$ kenkyuu]-o b. [$_{VN}$ kenkyuu]-no

Syntax parses a string of words in (12a–b) exactly in the same way in relevant respects. I, therefore, consider the parsing process for (12a) only. As in (14a),

- (14)
 a. $?[?_{VP}$ or $?_{NP}$ John-?ga [$?_{V'}$ or $?_{N'}$ London-?de [$?_{V'}$ or $?_{N'}$ gengogaku-?no [$?_{V}$ or $?_{N}$ kenkyuu]]]]]
 b. $?[?_{VP}$ or $?_{NP}$ John-?ga [$?_{V'}$ or $?_{N'}$ London-?de [$?_{V'}$ or $?_{N'}$ gengogaku-?no [$?_{V}$ or $?_{N}$ kenkyuu]]-o]]]
 c. $?[?_{VP}$ or $?_{NP}$ John-?ga [$?_{V'}$ or $?_{N'}$ London-?de [$_{NP}$ gengogaku-no [$_N$ kenkyuu]]-o]]]
 d. $?[[?_{VP}$ or $?_{NP}$ John-?ga [$?_{V'}$ or $?_{N'}$ London-?de [$_{NP}$ gengogaku-no [$_N$ kenkyuu]]-o]] [si]]]
 e. [[$_{VP}$ John-ga [$_V$ London-de [$_{NP}$ gengogaku-no [$_N$ kenkyuu]]-o]] [si]]]

¹¹ In this paper, I attempt to argue for the core idea of Dynamic Syntax: underspecified linguistic representation gets updated gradually in the course of left to right parsing of a string of words (Kempson et al. 2001, Cann et al. 2005, etc.). There is, however, an important difference between the ‘strict’ dynamic syntactic analysis and my dynamic labeling analysis. That is, the strict dynamic syntactic analysis builds up semantic representations with *no syntactic features* at all, directly from words encountered in a linguistic string (Cann et al. 2005: 32, (2.1) vs. (2.2); 223, para. 2, etc.); whereas I propose that syntax constructs representations which necessarily include *syntactic features* such as categorial labels, i.e. V or N (cf. Phillips 1996, 2003, etc.). I am very grateful to Tohru Seraku for bringing Cann et al. (2005: 223, para. 2) to my attention.

in the course of left to right processing of a string of words, syntax first constructs the underspecified projection based on the fuzzy [$?V$ or $?N$] predicate, *kenkyuu* (see 2d). In (14a), none of the particles, *-ga*, *-de* or *-no*, is licensed, because they are within the fuzzy [$?V$ or $?N$] projection. As in (14b), at the next parsing stage, the dynamic nominalizer, *-o*, appears, first c-selecting the second lowest fuzzy [$?V$ or $?N$] projection; as in (14c), the accusative case marker *-o* then c-selects the N label, nominalizing the lower part of the fuzzy [$?V$ or $?N$] projection. At the parsing stage of (14c), thanks to the N projection created by the dynamic nominalizer *-o*, the genitive case marker attached to *gengogaku* is licensed.

As shown in (14d), at a later stage of the parsing process, the second syntactic updater, i.e. a dynamic verbalizer (see 6b), the light verb *si* ‘do’ comes, first c-selecting the whole fuzzy [$?V$ or $?N$] projection; as illustrated in (14e), *si* subsequently c-selects the V label, verbalizing the entire fuzzy [$?V$ or $?N$] projection. Consequently, the verbal particles, the nominative case *-ga* and the postposition *-de*, are licensed within the newly created V projection in (14e).¹² Notice here as well that under the dynamic labeling analysis, morphological structures (13a–b) and syntactic structures (14a–e) are clearly dissociated. Notice further that in order to account for the nature of light verb constructions such as (12a), we do not have to appeal to any special grammatical operation like Argument Transfer (Grimshaw & Mester 1988), Abstract Incorporation (Kageyama 1993, cf. Baker 1985), or LF Incorporation (Saito & Hoshi 2000) (cf. Miyamoto & Kishimoto 2016).

The unacceptability of example (15) reinforces the validity of the dynamic labeling analysis in (14a–e) for light verb construction (12a).

- (15) *John-ga London-de gengogaku-no
 John-NOM London-in linguistics -GEN
 [kenkyuu] -si -ta.
 study -do -PST
 ‘John studied Japanese.’
 (cf. Kageyama 1993: 10, 22–40, Chapter 5)

This is so, because the only difference between (12a) and (15) is minimal: that is, (i) light verb construction (12a) involves both a dynamic nominalizer, i.e. the accusative case *-o*, and a dynamic verbalizer, i.e. the light verb *si* (see 6a–b); (ii) on the other hand, (15) involves only a dynamic verbalizer, i.e. the light verb *si* (see 6b). Hence, in (15), there is no dynamic categorizer which can turn the fuzzy [$?V$ or $?N$]

projection of *kenkyuu* into an N projection which contains the genitive case marked internal argument *nihongo-no* ‘Japanese-GEN.’ Hence, there is no way for the genitive case maker *-no* to be licensed within the projection of N in (15) (cf. 12a; 14b–c).

3.2 Adjectival Nouns or Non-conjugated Adjectives?

Consider next well-formed examples (16a–b), both of which involve the adjectival noun, *nigate* ‘weak.’

- (16)a. John-no suugaku-no [nigate]-o
 John-GEN math -GEN weak -ACC
 kaisyoo -i-masu.¹³
 help-resolve- -PRES
 ‘We will help John overcome his weak spots on mathematics.’
- b. John-ga suugaku-ga [nigate] -da.
 John-NOM math -NOM weak -COP
 ‘John is poor at mathematics.’

The proposed dynamic labeling analysis accounts for nominal properties of the adjectival noun *nigate* in (16a) and verbal properties of *nigate* in (16b) adequately.

Let us consider the nominal properties of the adjectival noun *nigate* in (16a) first. Morphologically, case markers such as *-o* c-select the morphological label AN, and thus, (17) is well-formed morphologically.

- (17) [_{AN} nigate]-o

For (16a), in the course of left to right processing of a string of words, syntax first builds underspecified representation like (18a), which is based on the adjectival noun [$?V$ or $?N$ *nigate*] (see 2c).

- (18) a. $?[?_{VP}$ or $?_{NP}$ John-?no [$?_{V'}$ or $?_{N'}$ suugaku-?no
 [$?_{V}$ or $?_{N}$ nigate]]]
 b. $?[?_{VP}$ or $?_{NP}$ John-?no [$?_{V'}$ or $?_{N'}$ suugaku-?no
 [$?_{V}$ or $?_{N}$ nigate]]]-o
 c. [_{NP} John-no [_N suugaku-no [_N nigate]]]-o

At the initial parsing stage of (16a), as in (18a), *John-no* and *suugaku-no* are not licensed, because the genitive case marker *-no* is not inside an N projection (Saito 1982, 1985, Fukui 1986, etc.). Then, at a later point of left to right parsing of a linguistic string, as in (18b), the accusative case *-o*, i.e. a dynamic nominalizer, follows, first c-selecting the fuzzy [$?V$ or $?N$] projection; as in (18c), the accusative case then c-selects the N label, nominalizing the whole fuzzy projection in accordance with (6a). Hence, at the processing stage of (18c), the

¹² Notice that in (14a–e), the lower part of the projection of *kenkyuu* turns out to be an N projection; the upper part becomes a V projection. If correct, the proposed dynamic labeling analysis implies that natural language may form this type of ‘mixed category projection’ which contradicts with X’ Theory (cf. Chomsky 1981, etc.) The reader is referred to Sugioka (2009: 92, 27b–d), who first proposes a ‘mixed category projection’ analysis of the $-[A_{SpN} tyuu]$ ‘middle’ construction, which involves a verbal noun (see also fn. 8).

¹³ I thank Mayumi Hoshi for drawing my attention to examples such as (16a).

two genitive marked arguments, i.e. *John-no* and *suugaku-no*, are licensed within the N projection; and the nominal properties of the adjectival noun *nigate* in (16a) are accounted for in syntax.

Consider now the verbal properties of the adjectival noun *nigate* in (16b). For (16b), as in (19a), in the course of left to right processing of words, syntax first builds the fuzzy representation based on the fuzzy [$?V$ or $?N$] category, *nigate* (see 2c).

- (19) a. $?[?_{VP}$ or $?_{NP}$ John- $?ga$ [$?_{V'}$ or $?_{N'}$ suugaku- $?ga$ [$?_{V}$ or $?_{N}$ *nigate*]]]
 b. $?[[?_{VP}$ or $?_{NP}$ John- $?ga$ [$?_{V'}$ or $?_{N'}$ suugaku- $?o$ [$?_{V}$ or $?_{N}$ *nigate*]]] [*da*]]
 c. $[[_{VP}$ John- ga [$_{V'}$ suugaku- ga [$_{V}$ *nigate*]]] [*da*]]

In (19a), the two instances of the nominative case marker *-ga* are not licensed, because the verbal case particle must be within the projection of V (Saito 1982, 1985, Fukui 1986). As in (19b), at the next processing stage, the copula verb *-da*, i.e. a dynamic verbalizer, then emerges, and first c-selects the fuzzy [$?V$ or $?N$] projection; and subsequently, c-selects the V label, verbalizing the fuzzy category of [$?_{V}$ or $?_{N}$ *nigate*] as in (19c) in accordance with (6b). Consequently, at the processing stage of (19c), both the nominative subject, *John-ga*, and the nominative object, *suugaku-ga*, are licensed by the [+stative] V *nigate* (cf. Kuno 1973); thus, the verbal properties of the adjectival noun *nigate* in (16b) is accounted for in syntax.¹⁴ Notice here as well that under the dynamic categorization analysis based on (2a–d), morphological structure (17), on the one hand, and the syntactic structures in (18a–c) and (19a–c), on the other, are handled significantly differently.

The ungrammaticality of (20a–b) is also expected by the proposed analysis.

- (20) a. *John-*ga* suugaku -*ga* [*nigate*] -*o*
 John-NOM mathematics -NOM weak -ACC
 kaisyosi -i-masu (cf. 16a)
 help-resolve - -PRES
 b. *John-no nihongo-no [*nigate*] -*da*. (cf. 16b)
 John-GEN Japanese-GEN weak -COP

This is so, because in (20a), the dynamic categorizer, *-o*, nominalizes the fuzzy category [$?_{V}$ or $?_{N}$ *nigate*], and thus, the verbal case marker *-ga* is disallowed (see 6a; cf. 18a–c). On the other hand, in (20b), the dynamic verbalizer, i.e. the copula verb *-da*, turns the fuzzy predicate [$?_{V}$ or $?_{N}$ *nigate*] into V, and thus, the nominal case marker *-no* is prohibited (see 6b; cf. 19a–c).

The unacceptability of (21) parallels that of (15); the ill-formedness of (21) is accounted for as follows:

- (21) *John-*ga* suugaku-no [*nigate*] -*da*.
 John-NOM math -GEN weak -COP
 ‘John is poor at mathematics.’ (cf. 15, 16b)
 (cf. Kuroda 1978, 1992: 236)

As in (22a), in the course of left to right processing of a string of words, syntax constructs initially the fuzzy projection based on the [$?V$ or $?N$] adjectival noun, *nigate*.

- (22) a. $?[?_{VP}$ or $?_{NP}$ John- $?ga$ [$?_{V'}$ or $?_{N'}$ suugaku- $?no$ [$?_{V}$ or $?_{N}$ *nigate*]]]
 b. $?[[?_{VP}$ or $?_{NP}$ John- $?ga$ [$?_{V'}$ or $?_{N'}$ suugaku- $?no$ [$?_{V}$ or $?_{N}$ *nigate*]]] [*da*]]
 c. * $[[_{VP}$ John- ga [$_{V'}$ suugaku- $*no$ [$_{V}$ *nigate*]]] [*da*]]

In (22a), neither the nominative case *-ga* nor the genitive case *-no* is licensed, because both of the case particles are contained within the fuzzy [$?V$ or $?N$] projection. At the next parsing stage of (22b), the dynamic verbalizer, i.e. the copula verb *-da*, emerges,

¹⁴ Under the dynamic labeling analysis of fuzzy predicates in Japanese, both the copula verb *-da* and the light verb *-su* are a dynamic verbalizer, which c-selects a fuzzy [$?V$ or $?N$] predicate in syntax. As shown below, however, there is an important difference between *-da* and *-su*. That is, as in (ia), the copula verb *-da* may s-select the [+stative] predicate, *nigate*, or as in (ib), *-da* may s-select the [-stative] predicate, *kenkyuu*.

- (i) a. John-*ga* suugaku-*ga* [*nigate*] -*da*.
 John-NOM math -NOM weak -COP
 ‘John is poor at mathematics.’
 b. John-*ga* suugaku-*o* [*kenkyuu*] -*da*.
 John-NOM math -Acc study -COP
 ‘John studies mathematics.’

(cf. Matsumoto 1996, Ueno 2016)

On the other hand, as shown in (iib), the light verb *-su* can s-select the [-stative] predicate, *kenkyuu*, but as in (iia), *-su* cannot s-select the [+stative] predicate, *nigate*.

- (ii) a. *John-*ga* suugaku-*ga* [*nigate*] -*su-ru*.
 John-NOM math -NOM weak -do-PRES
 b. John-*ga* suugaku-*o* [*kenkyuu*] -*su-ru*.
 John-NOM math -Acc study -do-PRES

and c-selects the [$?V$ or $?N$] fuzzy projection. Then, as in (22c), the copula verb triggers c-selection once again in accordance with (6b), verbalizing the entire fuzzy projection. Consequently, in the final representation in (22c), the nominative case marker *-ga* is licensed within the projection of V. However, in (22c), the genitive case *-no* is illicit, because example (21) lacks a dynamic nominalizer, which turns the fuzzy [$?V$ or $?N$] projection into an N projection; hence, there is no N projection which can contain *suugaku-no* ‘math-GEN’ (cf. 15).

3.3 Fuzzy Verbs

Consider now examples in (23a–b), both of which involve the verb, *tabe* ‘eat.’

- (23) a. John-ga ringo-o [tabe] -ta.
 John-NOM apple-ACC eat -PST
 ‘John ate an apple.’
- b. i. John-no ringo-no [tabe] -kata
 John-gen apple-gen eat -WAY
 ‘John’s way of eating an apple’

(cf. Kageyama 1993, Ito & Sugioka 2002, Kishimoto 2006, etc.)

Observe that in (23a), the verb *tabe* displays verbal properties, licensing the verbal case particles, *-ga* and *-o*; *tabe* in (23b), on the other hand, appears to show nominal properties, licensing the genitive case marker *-no* (cf. 7a–b, 16a–b).

Exactly the same contrast emerges in (24a–b), both of which involve the complex causative verb, [tabe]-[sase] ‘eat-cause.’

- (24) a. John-ga Mary-ni ringo-o
 John-NOM Mary-DAT apple-ACC
 [tabe] -[sase] -ta.
 eat - cause -PST
 ‘John made Mary eat an apple.’
 (cf. Kuroda 1965, Kuno 1973, Shibatani 1973, etc.)
- b. John-no Mary-e-no ringo-no
 John-GEN Mary-to-GEN apple-GEN
 [tabe] -[sase] -kata
 eat - cause -WAY
 ‘John’s way of making Mary eating an apple’
 (cf. Kageyama 1993, Ito & Sugioka 2002, Kishimoto 2006, etc.)

Namely, in (24a), the complex verb, [tabe]-[sase], displays verbal properties, allowing the verbal case particles, *-ga*, *-ni*, and *-o*. In contrast, in (24b), the same complex causative verb appears to show nominal

properties, licensing the genitive case, *-no*.

(23b) and (24b) are instances of *-kata* ‘way’ nominalization, which seems to be unique to head-final languages such as Japanese.¹⁵ Given the contrast in (23a–b) and (24a–b), a question arises as to why verbs in a head-final language like Japanese display such verbal or nominal properties, depending on syntactic environments. Here, I wish to suggest that this context-dependent phenomenon arises, precisely because as proposed in (2a–d), not only verbal nouns and adjectival nouns, but also verbs and adjectives have the syntactically fuzzy [$?V$ or $?N$] label (cf. Hoshi 2014, 2019a–b, 2020a–c).

Now, let us consider how the dynamic labeling analysis accounts for the data in (23a–b) and (24a–b), based on (2a–d) and (6a–b). Since the proposed analysis treats (23a–b) and (24a–b) exactly in the same way in all important respects. Below, I focus on discussing the nature of the data in (24a–b).

Morphologically, (i) the causative verb $-[V \text{ sase}]$ c-selects the morphological label V; (ii) tense markers such as $-[T \text{ ta}]$ c-select V; (iii) nominal suffixes such as $-[N \text{ kata}]$ ‘way’ c-select the label V (see 2b). Hence, (25a–b) are both well-formed morphologically (see 24a–b).

- (25) a. $[V [V \text{ tabe}]-[V \text{ sase}]]-[T \text{ ta}]$
 b. $[V [V \text{ tabe}]-[V \text{ sase}]]-[N \text{ kata}]$

For Japanese causative (24a), in the course of left to right parsing of a string of words, syntax first builds the fuzzy projection based on [$?V$ or $?N \text{ tabe}$] and [$?V$ or $?N \text{ sase}$] (see 2b), as in (26a).

- (26)
- a. $?[?VP \text{ or } ?NP \text{ John-?ga } [?VP \text{ or } ?NP \text{ Mary-?ni } [?V' \text{ or } ?N' \text{ ringo-?o } [?V \text{ or } ?N \text{ tabe}]]] [?V \text{ or } ?N \text{ sase}]$
- b. $?[TP [?VP \text{ or } ?NP \text{ John-?ga } [?VP \text{ or } ?NP \text{ Mary-?ni } [?V' \text{ or } ?N' \text{ ringo-?o } [?V \text{ or } ?N \text{ tabe}]]] [?V \text{ or } ?N \text{ sase}] [T \text{ ta}]$
- c. $[TP [VP \text{ John-ga } [VP \text{ Mary-ni } [V' \text{ ringo-o } [V \text{ tabe}]]] [V \text{ sase}]] [T \text{ ta}]$ (cf. Kuroda 1965, etc.)

In (26a), none of the verbal case particles, *-ga*, *-ni*, or *-o*, is licensed, because they are within the projection of the underspecified projection of [$?V$ or $?N$]. As in (26b), then, the past tense marker $[T \text{ ta}]$ comes, and first, c-selects the fuzzy [$?V$ or $?N$] label. At the processing stage of (26c), the tense marker $[T \text{ ta}]$ triggers c-selection once again, c-selecting the V label, and verbalizing the entire [$?V$ or $?N$] projection, as a dynamic verbalizer like the light verb *su*, in accordance with (6b). The structure in (26c) thus turns out to be essentially the same as Kuroda’s (1965) bi-clausal structure for Japanese causative. Consequently, at the

¹⁵ The reader is referred to Kageyama (1993), Ito & Sugioka (2002), and particularly Kishimoto (2006) for much detailed discussion of the nature of *-kata* ‘way’ nominalization in Japanese.

parsing point of (26c), all the verbal case markers, *-ga*, *-ni* and *-o*, are contained inside the V projection, and are licensed in a proper way.

For (24b), on the other hand, syntax processes from left to right a string of words as follows:

(27)

- a. ${}_{[?VP \text{ or } ?NP]} \text{John-no } [{}_{[?VP \text{ or } ?NP]} \text{Mary-e-no } [{}_{[?V \text{ or } ?N']} \text{ringo-no } [{}_{[?V \text{ or } ?N]} \text{tabe}]]] [{}_{[?V \text{ or } ?N]} \text{sase}]$
 b. ${}_{[NP[{}_{[?VP \text{ or } ?NP]} \text{John-no } [{}_{[?VP \text{ or } ?NP]} \text{Mary-e-no } [{}_{[?V \text{ or } ?N']} \text{ringo-no } [{}_{[?V \text{ or } ?N]} \text{tabe}]]] [{}_{[?V \text{ or } ?N]} \text{sase}]]] [{}_{[N]} \text{kata}]$
 c. ${}_{[NP]} [{}_{[NP]} \text{John-no } [{}_{[NP]} \text{Mary-e-no } [{}_{[N']} \text{ringo-no } [{}_{[N]} \text{tabe}]]] [{}_{[N]} \text{sase}]] [{}_{[N]} \text{kata}]$ (cf. 26c)

As in (27a), initially, syntax constructs the fuzzy projection based on the underspecified predicates $[{}_{[?V \text{ or } ?N]} \text{tabe}]$ and $[{}_{[?V \text{ or } ?N]} \text{sase}]$ (see 2b); at this stage, none of the three instances of the genitive case marker *-no* is licensed. Then, as in (27b), the nominal head $[{}_{[N]} \text{kata}]$ comes, and c-selects first the fuzzy $[{}_{[?V \text{ or } ?N]}$ projection. As illustrated in (27c), at the final stage of left to right parsing, $[{}_{[N]} \text{kata}]$ triggers c-selection once again, c-selecting the N label, consequently, nominalizing the whole projection, in accordance with (6a). As a result, the three instances of the genitive case marker *-no* are all included within the N projection. The distinctive properties of *-kata* nominalization in head-final languages such as Japanese in (24b) are thus accounted for, based on (2b) and (6a).

In a nutshell, as shown in (25a–b), both the past tense marker $-[{}_{[T]} \text{ta}]$ and the nominal suffix $-[{}_{[N]} \text{kata}]$ c-select the morphological label V exactly in the same way. However, under the dynamic labeling analysis, $[{}_{[T]} \text{ta}]$ and $[{}_{[N]} \text{kata}]$ behave completely differently in syntax. Namely, in syntax, tense markers such as $[{}_{[T]} \text{ta}]$ ‘verbalize’ the fuzzy $[{}_{[?V \text{ or } ?N]}$ projection dynamically, whereas nominal suffixes such as $[{}_{[N]} \text{kata}]$ ‘nominalize’ the fuzzy category under the dynamics of language (see 6a–b). If correct, the dynamic labeling analysis reinforces the presupposition of this paper. That is, (i) predicates in Japanese possess distinct categorial labels for morphology and syntax (see 2a–d); therefore, (ii) Japanese morphology and syntax treat these major categories significantly differently (see 25a–b; 26a–c vs. 27a–c). The proposed analysis of the data in (23a–b) and (24a–b), if correct, thus implies that morphology and syntax are indeed separate components of grammar.

The unacceptability of (28a–b) is expected under the dynamic categorization analysis based on (2b) and (6a–b).

- (28) a. *John-no Mary -e -no ringo-no
 John-GEN Mary -to -GEN apple-GEN

$[{}_{[tabe]} - [{}_{[sase]} -ta]$
 eat - cause -PST

- b. *John-ga Mary-ni ringo-o
 John-NOM Mary-DAT apple-ACC
 $[{}_{[tabe]} - [{}_{[sase]} -kata]$
 eat - cause -WAY

In (28a), the past tense marker $[{}_{[T]} \text{ta}]$ verbalizes the entire fuzzy $[{}_{[?V \text{ or } ?N]}$ projection which is based on the complex causative verb $[{}_{[tabe]} - [{}_{[sase]}]$ in syntax (see 2b and 6b), and thus, no instance of the genitive case marker *-no* is licensed. In (28b), on the other hand, the nominal head $[{}_{[N]} \text{kata}]$ nominalizes the whole fuzzy $[{}_{[?V \text{ or } ?N]}$ projection based on the complex predicate $[{}_{[tabe]} - [{}_{[sase]}]$ in syntax (see 2b and 6a), and thus, the verbal case particles, *-ga*, *-ni*, and *-o*, are not permitted.

Importantly, the following sharp contrasts could suggest:

- (29) a. John-ga subayaku /*subayai ringo-o
 John-NOM quickly /*quick apple-ACC
 tabe -ta.
 eat -PST
 ‘John ate an apple quickly/*quick.’

- b. John-no *subayaku /subayai ringo-no
 John-GEN *quickly /quick apple-GEN
 tabe -kata
 eat -WAY

‘John’s way of eating an apple *quickly/quick.’
 (cf. Kishimoto 2006: 782, 21a–b)

Thanks to the dynamic verbalizer $[{}_{[T]} \text{ta}]$, example (29a) must have a V projection which the adverbial modifier *subayaku* ‘quickly’ modifies, but (29a) lacks an N projection that the adjectival modifier *subayai* ‘quick’ may modify (see 26a–c). In contrast, thanks to the dynamic nominalizer $[{}_{[N]} \text{kata}]$, (29b) necessarily has an N projection which the adjectival modifier *subayai* modifies; but crucially, (29b) lacks completely a V projection that the adverbial modifier *subayaku* can modify (see 27a–c).¹⁶

Here as well, it should be noted that under the dynamic labeling analysis based on (2b) and (6a–b), we do not have to adopt anything special like ‘direct head adjunction at D-structure’ (Kageyama 1993) or ‘non-local Agree’ by the nominal suffix $-[{}_{[N]} \text{kata}]$ (Kishimoto 2006), in order to account for the unique properties of *-kata* nominalization in Japanese.

3.4 Fuzzy Adjectives

Consider finally examples (30a–b), both of which

¹⁶ Under the analysis proposed in this paper, (ia–b) are treated in the same way in syntax, as shown in (iia–b).

- (i) a. *tabe su-ru b. syokuzi su-ru
 eat do-pres eat do-pres

involve the adjective *utukusi* ‘beautiful’ (cf. 23a–b).

- (30) a. Mary-ga utukusi -i.
Mary-NOM beautiful -PRES
‘Mary is beautiful.’
- b. Mary-no utukusi -sa
Mary-GEN beautiful -NESS
‘Mary’s beauty’

In (29a), the adjective *utukusi* shows verbal properties, allowing the nominative case *-ga*; while in (29b), the same adjective appears to display nominal properties, licensing the genitive case marker *-no*.

Exactly the same contrast arises in (31a–b) (cf. 24a–b).

- (31) a. John-ga ringo-ga tabe -ta -i.
John-NOM apple-NOM eat -want -PRES
‘John wants to eat an apple.’
- b. John-no ringo-no tabe -ta -sa
John-GEN apple-GEN eat -want -NESS
‘John’s desire to eat an apple’
(cf. Kageyama 1993, Ito and Sugioka 2002, etc.)

(31a–b) both involve the complex adjective [_V *tabe*]-[_A *ta*] ‘eat-want.’ As in (30a), the complex adjective in (31a) shows verbal properties, permitting the verbal case particle, i.e. *-ga* (cf. 24a). On the other hand, as in (30b), the complex predicate [_V *tabe*]-[_A *ta*] in (31b) seems to display nominal properties, allowing the genitive case particle, *-no* (cf. 24b).

The dynamic labeling analysis based on (2a) and (6a–b) accounts for the contrast in (30a–b) and (31a–b) exactly in the same way. I thus focus on examining the nature of (31a–b) below. Morphologically, (i) the present tense marker $[-_T i]$ c-selects the morphological label A; (ii) the desiderative adjectival morpheme $[-_A ta]$ c-selects V; (iii) the nominal suffix $[-_N sa]$ ‘-ness’ c-selects the label A. Both (32a) and (32b) are thus morphologically well-formed.

- (32) a. [_A [_V *tabe*]-[_A *ta*]]-[_T i]
b. [_A [_V *tabe*]-[_A *ta*]]-[_N sa]

For Japanese desiderative construction (31a), in the course of left to right processing of a string of words, syntax first builds the fuzzy projection based on [_V or ?N *tabe*] and [_V or ?N *ta*] as in (33a).

- (33) a. ?[?VP or ?NP John-?ga [_V or ?N’ [_V or ?NP ringo-?ga [_V or ?N *tabe*]] [_V or ?N *ta*]]]
b. ?[TP [_V or ?NP John-?ga [_V or ?N’ [_V or ?NP ringo-?ga [_V or ?N *tabe*]] [_V or ?N *ta*]]] [_T i]
c. [TP [_{VP} John-ga [_V’ [_{VP} ringo-ga [_V *tabe*]] [_V *ta*]]] [_T i]

Then, as in (33b), the present tense marker [_T i] comes, and first c-selects the fuzzy [_V or ?N] projection. In (33a–b), the two instances of the nominative case maker *-ga* are not licensed, because they are not inside the projection of V. At the parsing stage of (33c), the tense marker [_T i] triggers c-selection once again, c-selecting the V label, and verbalizing the entire [_V or ?N] projection, as a dynamic verbalizer like the light verb *su*, in accordance with (6b) (cf. 26c). Consequently, at the processing point of (33c), the nominative subject, *John-ga*, and the nominative object, *ringo-ga*, are both contained within the projection of V, and they are licensed properly.

For $[-_N sa]$ nominalization in (31b), syntax processes from left to right a string of words as below:

- (34) a. ?[?VP or ?NP John-?no [_V or ?N’ [_V or ?NP ringo-?no [_V or ?N *tabe*]] [_V or ?N *ta*]]]
b. ?[TP [_V or ?NP John-?no [_V or ?N’ [_V or ?NP ringo-?no [_V or ?N *tabe*]] [_V or ?N *ta*]]] [_N sa]
c. [_NP [_NP John-no [_N’ [_NP ringo-no [_N *tabe*]]] [_N *ta*]]] [_N sa] (cf. 33c)

As in (34a), first, syntax generates the fuzzy projection based on the underspecified predicates [_V or ?N *tabe*] and [_V or ?N *ta*] (see 2a–b); at this stage, none of the two instances of the genitive case marker *-no* is licensed. Then, as in (34b), the nominal head [_N sa] ‘-ness’ comes, and c-selects first the fuzzy [_V or ?N] projection. As shown in (34c), at the final stage of left to right parsing, [_N sa] c-selects the N label again, finally nominalizing the whole projection, in accordance with (6a). As a result, the two instances of the genitive case marker *-no* are all inside the N projection. The unique properties of *-sa* nominalization in Japanese in (31b) are thus explained, based on (2a) and dynamic labeling (6a).

Under the dynamic labeling analysis, the unacceptability of (35a–b) is also expected.

- (35) a. *John-no ringo-no tabe-ta -i.
John-GEN water-GEN eat -want-PRES

- (ii) a. [_V or ?N *tabe*]-su-ru b. [_V or ?N *syokuzi*] su-ru

The contrast between (ia) and (ib) is accounted for in morphology, as in (iii-a–b) (cf. 5a–d).

- (iii) a. *[_V *tabe*]-su-ru b. [_{VN} *syokuzi*]-su-ru

- b. *John-ga ringo-o tabe-ta -sa
John-NOM apple-ACC eat -want-NESS

This is because in (35a), the present tense maker [_T *i*] necessarily creates a V projection, not an N projection, by means of dynamic verbalization (see 6b); (ii) in (35), the nominal suffix [_N *sa*] necessarily constructs an N projection, not a V projection, by dynamic nominalization (see 6a).

The data in (36a–b) parallel (29a–b) in significant respects, and support the proposed uniform treatment of verbs and adjectives in Japanese (see 2a–b).

- (36) a. John-ga sugoku /*sugoi ringo-ga
John-NOM awfully /*awful apple-NOM
tabe -ta -i.
eat -want -PRES
'John wants to eat an apple awfully/*awful.'
b. John-no *sugoku /sugoi ringo-no
John-GEN *awfully /awful apple-GEN
tabe -ta -sa
eat -want -NESS
'John's desire to eat an apple *awfully/awful'

In (36a), the adverbial modifier *sugoku* 'awfully' is licensed, but the adjectival modifier *sugoi* 'awful' is not (cf. 29a). In (36b), in contrast, the adjectival modifier *sugoi* is permitted, but the adverbial modifier *sugoku* is disallowed (cf. 29b). This is because in (36a), the dynamic verbalizer [_T *i*] constructs a V projection which may contain the adverbial modifier *sugoku* (see 2a–b and 6b). In (36a), however, no N projection is generated which may contain the adjectival modifier *sugoi*. In (36b), on the other hand, the dynamic nominalizer [_N *sa*] necessarily generates an N projection based on the verb *tabe* 'eat' and the adjective *ta* 'want'; the N projection constructed may thus contain the adjectival modifier *sugoi* (see 2a–b and 6a). Crucially, *-sa* nominalization construction (36b) turns out to lack a V projection completely in syntax (see 34c), paralleling *-kata* nominalization construction (29b) (see 27c).¹⁷

4. CONCLUSION

In this paper, I have attempted to show that (i) adjectives, verbs, adjectival nouns, and verbal nouns in Japanese constitute distinct categories for morphology

(Matsushita 1930, Martin 1975, Kageyama 1982, 1993, etc.); but (ii) all these categories display verbal or nominal properties similarly in syntax, depending on contexts. To account for such intriguing properties, I have proposed that all those predicates in Japanese indeed have different categorial labels for morphology; significantly, however, syntax draws upon the identical fuzzy [_{?V} or _{?N}] label for all of the predicates (see 2a–d). Furthermore, I have attempted to show that as predicted by Dynamic Syntax (Kempson et al. 2001, etc.), Japanese, i.e. a typical head-final language, displays consistently a unique pattern where a fuzzy predicate comes first, and then, follows a syntactic updater, i.e. a head, which determines the categorial nature of the fuzzy predicate by means of two-step c-selection, i.e. dynamic labeling in (6a–b), gradually in the course of left to right processing of a string of words (cf. Hoshi 2014, 2019a–b, 2020a–c).

If correct, the proposed dynamic labeling analysis implies that (i) morphology and syntax are two separate components of grammar, and thus, morphology cannot be reduced to syntax (contra. Halle & Marantz 1993, Harley & Noyer 1999, Harley & Noyer 2000, Borer 2003, Di Sciullo 2005, etc.; cf. Lieber 2006); (ii) the dynamics of language affects significantly the nature of lexical items (see 2a–d), grammatical operations (see 6a–b), etc., as predicted by Hawkins' (2004, 2014, etc.) Performance-Grammar Correspondence Hypothesis (cf. Phillips 1996, 2003, Abe 1998; contra. Chomsky 1965, 1981, 1995, etc.).

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¹⁷ Under the proposed account, (ia–b) are dealt with in the same way in syntax, as shown in (iia–b).

- (i) a. *utukusi -da b. kirei -da
beautiful -PRES beautiful -PRES

- (ii) a. [_{?V} or _{?N} utukusi] da b. [_{?V} or _{?N} kirei] da

The contrast between (ia–b) is accounted for in morphology, as in (iia–b) (cf. 4a–d).

- (iii) a. *[_A utukusi]-da b. [_{AN} kirei]-da

In (iia), the adjective *utukusi* is ill-formed, because [_A *utukusi*]- cannot be morphologically selected by *-da*.

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