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# Syntactic Nominalization and Nominative-Genitive Conversion: An Incremental Categorial Labeling Analysis[1]

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## 1. Introduction and data

In this paper, I attempt to argue that syntax parses a string of words one by one from left to right, building and enriching linguistic representation step by step to gain proper interpretation (Kempson et al. 2001, Cann et al. 2005, Kempson et al. 2011, Kempson 2015, 2017, among others; cf. Hawkins 1990, 1994, 2004, 2014, Phillips 1996, 2003, etc.; cf. Chomsky 1965, 1981, 1986, 1995, etc.).

More specifically, here, I try to show that in Japanese, a typical head-final language, i) syntax may first form a PREDICATE-LESS projection like [$_{VP}$ …-*ga* [$_{?V}$ *e*]] or [$_{?VP\ or\ ?NP}$ …-*no* [$_{?V\ or\ ?N}$ *e*]] based on case information (Kempson & Kiaer 2010, etc.; cf. Saito 1985, Koizumi 1995, Takano 2002); ii) given such a head-less structure, syntax then selects an appropriate syntactic label for a predicate in Japanese, which has a disjunction of two choices, [?V or ?N] (Hoshi 2021a–b, etc.); iii) subsequently, syntax inserts the predicate head with the hypothesized label into the empty head position, waiting for the hypothesized label to be c-selected and validated by the following heads. If correct, the proposed incremental categorial labeling analysis thus implies: a predicate in Japanese can be WEAK, because it does not have to form its syntactic domain on its own (cf. Pollard & Sag 1994, etc.); a Japanese predicate may simply be inserted into an empty head position together with a hypothesized syntactic label like [?V], [?V or ?N], etc.. To attain this aim, here, I focus on discussing the nature of the data in (1a–d), (2a–d) and (3a–d), where uniformly, the external argument is *John*, the internal argument is *nihongo* 'Japanese,' and the predicate is *wakar* 'understand,' a stative predicate.

Consider first (1a–d). In (1a–d), the stative predicate *wakar* is attached by the conclusive form of the present tense marker -*u*.

(1) a. John-ga nihongo-ga wakar-u.
John-NOM Japanese-NOM understand-PRES
'John understands Japanese.'
b. * John-no nihongo-ga wakar-u.
John-GEN Japanese-NOM understand-PRES
c. * John-ga nihongo-no wakar-u.
John-NOM Japanese-GEN understand-PRES
d. * John-no nihongo-no wakar-u.
John-GEN Japanese-GEN understand-PRES
(cf. Kuno 1973, Saito 1982, etc.)

(1a) is well-formed, where both the external and the internal arguments are marked by the nominative case marker -*ga*. On the other hand, the examples in (1b–d) are all unacceptable. In (1b), the external argument *John* is marked by the genitive case marker -*no*, whereas the internal argument *nihongo* is marked by the nominative case marker -*ga*. In (1c), the external argument is marked by -*ga*, and the internal argument by -*no*. In (1d), both *John* and *nihongo* are marked by the genitive case marker -*no*.

Examine next the data in (2a–d). In (2a–d), the stative predicate *wakar* is attached by the nominal suffix -*kata* 'way.' (In (2a–d), *i* is inserted between *wakar*- and -*kata* for a phonological reason, i.e. to avoid a consonant cluster.)

(2) a. * John-ga nihongo-ga wakar-i-kata
John-NOM Japanese-NOM understand- - way
'how John understands Japanese'
b. * John-no nihongo-ga wakar-i-kata
John-GEN Japanese-NOM understand- - way
c. * John-ga nihongo-no wakar-i-kata
John-NOM Japanese-GEN understand- - way
d. John-no nihongo-no wakar-i-kata
John-GEN Japanese-GEN understand- - way
(cf. Sugioka 1992, Kageyama 1993, Ito & Sugioka 2002, etc.)

(2a–c) are not well-formed, but (2d) is. In (2a), both the external and the internal arguments are marked by the nominative case marker -*ga* (cf. 1a). In (2b), the external argument *John* is marked by the genitive case, but the internal argument *nihongo* by the nominative case (cf. 1b). In (2c), the external argument is marked by -*ga*, but the internal argument by -*no* (cf. 1c). In

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(2d), on the other hand, both *John* and *nihongo* are attached by the genitive case marker *-no* (cf. 1d).

Consider finally the data in (3a–d), which are all acceptable. In (3a–d), the stative predicate *wakar* is followed by the adnominal form of the present tense marker *-u*, and the noun *koto* 'fact.'

(3) a. John-ga nihongo-ga wakar-u koto
John-NOM Japanese-NOM understand-PRES fact
'the fact that John understands Japanese'
b. John-no nihongo-ga wakar-u koto
John-GEN Japanese-NOM understand-PRES fact
c. John-ga nihongo-no wakar-u koto
John-NOM Japanese-GEN understand-PRES fact
d. John-no nihongo-no wakar-u koto
John-GEN Japanese-GEN understand-PRES fact

(cf. Harada 1971, Saito 1982, 2001, Miyagawa 1993, Watanabe 1996, Hiraiwa 2001)

In (3a), the external argument *John* and the internal argument *nihongo* are both marked by the nominative case *-ga* (cf. 1a and 2a). In (3b), the external argument is marked by the genitive case, whereas the internal argument is marked by the nominative case (cf. 1b and 2b). In (3c), the external argument *John* is marked by *-ga*, but the internal argument *nihongo* by the genitive case *-no* (cf. 1c and 2c). In (3d), both *John* and *nihongo* are marked by the genitive case marker *-no* (cf. 1d and 2d).

Significantly, native speakers of Japanese parse with ease the strings of words in (1a–d), (2a–d), and (3a–d), and judge which strings of words are acceptable, and which ones are not. A question thus arises as to how they parse such strings of words from left to right, incrementally forming linguistic representation. In this paper, I attempt to show that an incremental categorial labeling analysis based on Hoshi (2021a–b) could provide a natural way to answer this question. In the following section, I put forward the major hypotheses in Hoshi (2021a–b) that I adopt for the proposal here. In section 3, based on the proposed incremental categorial labeling analysis, I try to demonstrate how native speakers of Japanese parse from left to right the strings of words in (1a–d), (2a–d), and (3a–d) one by one. In section 4, I conclude the discussion of this paper.

## 2. Fuzzy predicates and incremental structure building

As in Hoshi (2021a–b), here, I adopt the following fundamental principle within the incremental architecture of Dynamic Syntax (Kempson et al. 2001, Cann et al. 2005, Kempson et al. 2011, Kempson 2015, 2017, etc.; Phillips 1997, 2003, etc.):

(4) While parsing a string of words one by one from left to right, syntax keeps hypothesizing upcoming linguistic representations together with their labels, which must subsequently be licensed.

Furthermore, I adopt the hypothesis in (5).

(5) Case markers such as *-ga*, *-o*, or *-no* help syntax to hypothesize upcoming phrase structures together with their labels. (Kempson and Kiaer 2010, etc.; cf. Saito 1985)

To be more precise, here, I assume:

(6) a. Case markers such as *-ga* or *-o* help syntax to hypothesize that phrases such as NP-*ga* or NP-*o* are immediately dominated by a ?V projection.
b. The genitive case marker *-no*, on the other hand, helps syntax to hypothesize that NP-*no* is immediately dominated by a fuzzy [?V or ?N] projection.[2]

Here, as below, I adopt the following proposal in Hoshi (2021a–b):[3] [4]

| | *morphological labels* | ***syntactic labels*** |
|---|---|---|
| (7) a. adjective (*utukusi* 'beautiful'): | A | **[?V or ?N]** |
| b. verb (*tabe* 'eat'): | V | **[?V or ?N]** |
| c. adjectival noun (*kirei* 'beautiful'): | AN | **[?V or ?N]** |
| d. verbal noun (*syokuzi* 'eat'): | VN | **[?V or ?N]** |

(Hoshi 2021a–b)

That is, the four predicates in Japanese, i.e. adjective, verb, adjectival noun, and verbal noun, have distinct morphological labels, viz. A, V, AN, and VN (cf. Kageyama 1993, Ito & Sugioka 2002, etc.). Importantly, however, all these predicates have the identical fuzzy syntactic label, [?V or ?N].[5]

Furthermore, here, I assume the lexical specifications for syntactic label validation in (8a–c) and

2 The assumption in (6b), which plays an essential role in this paper, is adopted, because in Japanese, a genitive case marked NP can be immediately dominated by either a V/T projection (see 9b) or an N projection (see 9c).

3 For proposals concerning categories in Japanese, the reader is referred to Matsushita (1930), Martin (1975), Kageyama (1982, 1993), Miyagawa (1987), Ito & Sugioka (2002), Kageyama & Kishimoto (2016), Kishimoto & Uehara (2016), Ueno (2016), Yuhara (2021), among others.

4 The proposal in (7a–d) implies that morphology and syntax are separate components of grammar; and morphology cannot be reduced to syntax (cf. Jackendoff 1997, 2003, Culicover & Jackendoff 2005, etc.).

5 It must be stressed here that theoretically, the proposed syntactic category with a disjunction of two choices, i.e. [?V or ?N], in (7a–d) is totally different from a 'categoryless root' proposed by Distributed Morphology (Halle & Marantz 1993, Harley & Noyer 1999,

the conditions for case licensing in (9a–c).

(8) In the syntactic component,
a. tense markers c-select and validate V.
b. case markers and nominal suffixes such as *-kata* 'way' c-select and validate N.[6]
c. nouns and postpositions such as *made* 'until' select and validate an adnominal T.
etc.
(Hoshi 2021a–b; cf. Sugioka 2009, p. 92, 27b–d)

(9) a. The nominative case *-ga* is licensed by T.
(cf. Saito 1985, Fukui 1986, etc.)
b. Either the nominative case *-ga* or the genitive case *-no* is licensed by the adnominal form of T.[7]
(Saito 2001, p. 271)
c. The genitive case *-no* is licensed within an N projection.
etc.

In the following section, I attempt to show that an incremental categorial labeling analysis based on (4), (5), (6a–b), (7a–d), (8a–c) and (9a–c) could provide a natural way to explain how native speakers of Japanese parse the string of words in (1a–d), (2a–d), and (3a–d).

## 3. An incremental categorial labeling analysis (cf. Hoshi 2021a–b)

### 3.1 *Parsing the strings of words in (1a-d): The case of a tensed clause*

Consider first how the string of words in (1a), repeated here as (10), is parsed from left to right under the proposed incremental categorial labeling analysis.

(10) John-ga nihongo-ga wakar-u. (= 1a)
John-NOM Japanese-NOM understand-PRES
'John understands Japanese.'

Given the string of words in (10), syntax first parses *John*, which is attached by the nominative case *-ga*.

(11) a. [$_{?VP}$ John-ga [$_{?V}$ *e*]]
b. [$_{?VP}$ John-ga [$_{?V'}$ nihongo-ga [$_{?V}$ *e*]]]
c. [$_{?VP}$ John-ga [$_{?V'}$ nihongo-ga [$_{?V}$ wakar]]]
d. [$_{TP}$ [$_{VP}$ John-ga [$_{V'}$ nihongo-ga [$_{V}$ wakar]]] [$_{T}$ u]]

Hence, as in (11a), syntax constructs the Larsonian VP shell structure with the empty ?V position; in accordance with (6a), *John-ga* is generated as the highest argument within the ?V projection. Then, syntax parses the second word *nihongo*, which is also attached by the nominative case *-ga*. As in (11b), *nihongo-ga* is then generated as the second highest argument within the ?V projection, also by (6a). Subsequently, syntax parses *wakar* attached by the tense marker *-u*. Given structure (11b) together with (7b), syntax chooses the syntactic label ?V for *wakar*, and inserts [$_{?V}$ *wakar*] into the empty ?V head position in (11b), forming representation (11c). Then, as illustrated in (11d), the present tense marker *u* successfully c-selects and validates the V projection by (8a), and the conclusive form of the tense marker *u* successfully licenses the two nominative case marked NPs, *John-ga* and *nihongo-ga*, by (9a).

Under the proposed incremental categorial labeling analysis, the string of words in (1b), repeated here as (12), is parsed as follows:

(12) * John-no nihongo-ga wakar-u. (= 1b)
John-GEN Japanese-NOM understand-PRES

Given (12), syntax first encounters *John*, which is attached by the genitive case *-no*.

(13) a. [$_{?VP\ or\ ?NP}$ John-no [$_{?V\ or\ ?N}$ *e*]]
b. [$_{?VP\ or\ ?NP}$ John-no [$_{?V'}$ nihongo-ga [$_{?V}$ *e*]]]
c. [$_{?VP\ or\ ?NP}$ John-no [$_{?V'}$ nihongo-ga [$_{?V}$ wakar]]]
d.* [$_{TP}$ [$_{VP}$ John-*no [$_{V'}$ nihongo-ga [$_{V}$ wakar]]]
[$_{T}$ u]]

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Harley & Noyer 2000, etc.), by Exo-skeltal Model (Borer 2003, etc.) or by Asymmetrical Morphology (Di Sciullo 2005) (cf. Lieber 2006). Under the proposal in (7a–d), unlike a categoryless root, (i) the four predicates in Japanese are stored with the syntactically underspecified categorial label [?V or ?N] in the lexicon; (ii) the final nature of the fuzzy syntactic category in (7a–d) is not determined by invisible functional categories, *v* or *n*, by means of merge, but is determined by c-selectin, triggered by visible syntactic updaters incrementally in the course of left to right processing of a string of words (see 8a–c).

6 As in Hoshi (2021a–b), I claim here that in the morphological component, case markers c-select the morphological labels, i.e. N, VN, AN, etc. (see ia–c), whereas the nominal suffix *-kata* c-selects the morphological label, V (see ii).

*Morphological labels*

(i) a. [$_{N}$ gakusee]-ni b. [$_{VN}$ kenkyuu]-o c. [$_{AN}$ kirei]-o
student-DAT study-ACC beauty-ACC

(ii) [$_{N}$ [$_{V}$ tabe]-[$_{N}$ kata]]
eat way 'how to eat'

As proposed in (8b), however, in the syntactic component, both case markers and nominal suffixes such as *-kata* c-select and validate the syntactic label, N (see 7a–d).

7 In this paper, I adopt (9b). It might, however, be the case that T uniformly licenses the nominative case *-ga*; the adnominal feature on T optionally licenses the genitive case *-no*, triggering nominative-genitive conversion in Japanese (cf. Hiraiwa 2001, etc.; cf. Kuroda 1988, 1992, etc.).

Hence, syntax forms the fuzzy [?V or ?N] projection with the empty [?V or ?N] head; in accordance with (6b), syntax generates *John-no* as the highest argument within the fuzzy [?VP or ?NP] structure as in (13a). Next, syntax parses the internal argument *nihongo* attached by the nominative case marker *-ga*, and forms structure (13b) by (6a), where *nihongo-ga* is generated as the second highest argument within the ?V projection. Given representation (13b) together with (7b), syntax selects the ?V label for *wakar*, and [$_{?V}$ *wakar*] is inserted into the empty ?V position, as shown in (13c). Finally, as shown in (13d), the tense marker *u* c-selects and validates the V projection in accordance with (8a); the nominative case *-ga* is licensed by the conclusive form of T by (9a). In (13d), however, there is no way for the genitive case marker *-no* to be licensed (see 9b–c); hence, (13d) results in ungrammaticality.

For the string of words in (1c), repeated here as (14), syntax parses the nominative case marked NP *John-ga* first, and then, parses the genitive case marked NP *nihongo-no*.

(14) * John-ga nihongo-no wakar-u. (= 1c)
John-NOM Japanese-GEN understand-PRES

Hence, as in (15a),

(15) a. [$_{?VP}$ John-ga [$_{?V}$ *e*]]
b. [$_{?VP}$ John-ga [$_{?V'\ or\ ?N'}$ nihongo-no [$_{?V\ or\ ?N}$ *e*]]]
c. [$_{?VP}$ John-ga [$_{?V'\ or\ ?N'}$ nihongo-no [$_{?V\ or\ ?N}$ wakar]]]
d.*[$_{TP}$ [$_{VP}$ John-ga [$_{V'}$ nihongo-*no [$_{V}$ wakar]]] [$_{T}$ u]]

syntax initially constructs the VP shell structure, where *John-ga* is generated as the highest argument by (6a); as in (15b), the genitive case marked NP *nihongo-no* is generated as an argument within the [?V or ?N] projection by (6b). Given structure (15b) and (7b), syntax chooses the fuzzy [?V or ?N] label for *wakar*, and inserts [$_{?V\ or\ ?N}$ *wakar*] into the empty [?V or ?N] position. Finally, as illustrated in (15d), the tense marker *u* c-selects and validates the V projection by (8a); the conclusive form of the tense marker licenses the nominative case marker on *John*. However, in (15d), the genitive case marker *-no* attached to *nihongo* cannot be licensed, and like (13d), structure (15d) turns out to be illicit.

As for the string of words in (1d), repeated here as (16), syntax parses a sequence of the two genitive case marked NPs, i.e. *John-no* and *nihongo-no*.

(16) * John-no nihongo-no wakar-u. (= 1d)
John-GEN Japanese-GEN understand-PRES

Hence, as shown in (17a-b),

(17) a. [$_{?VP\ or\ ?NP}$ John-no [$_{?V\ or\ ?N}$ *e*]]
b. [$_{?VP\ or\ ?NP}$ John-no [$_{?V'\ or\ ?N'}$ nihongo-no [$_{?V\ or\ ?N}$ *e*]]]
c. [$_{?VP\ or\ ?NP}$ John-no [$_{?V'}$ nihongo-no [$_{?V\ or\ ?N}$ wakar]]]
d.*[$_{TP}$ [$_{VP}$ John-*no [$_{V'}$ nihongo-*no [$_{V}$ wakar]]] [$_{T}$ u]]

initially, syntax builds the fuzzy [?VP or ?NP] structure, where *John-no* and *nihongo-no* are generated as the highest and the second highest arguments with the fuzzy projection. Then, given representation (17b) with (7b), syntax chooses the fuzzy label [?V or ?N] for the stative predicate *wakar*, and it inserts [$_{?V\ or\ ?N}$ wakar] into the empty [?V or ?N] position, as illustrated in (17c). Last, as in (17d), the present tense marker *u* c-selects and validates the V projection by (8a), but the two genitive case markers are not licensed.

### 3.2 *Parsing the strings of words in (2a-d): The case of syntactic nominalization*

Examine next the first ill-formed instance of syntactic nominalization in Japanese in (2a), repeated here as (18).

(18) * John-ga nihongo-ga wakar-i-kata
John-NOM Japanese-NOM understand- - way
'how John understands Japanese'
(= 2a; cf. 1a = 10)

Observe that (18) parallels (10), where syntax first parses a sequence of two nominative case marked NPs, i.e. *John-ga* and *nihong-ga*. Hence, as in (19a–b),

(19) a. [$_{?VP}$ John-ga [$_{?V}$ *e*]]
b. [$_{?VP}$ John-ga [$_{?V'}$ nihongo-ga [$_{?V}$ *e*]]]
c. [$_{?VP}$ John-ga [$_{?V'}$ nihongo-ga [$_{?V}$ wakar]]]
d.*[$_{NP}$ [$_{*VP}$ John-*ga [$_{*V'}$ nihongo-*ga [$_{*V}$ wakar]]] [$_{N}$ kata]]

syntax first constructs the ?V projection, where it generates by (6a), *John-ga* as the highest argument first, and *nihongo-ga* as the second highest argument next. Then, syntax parses the last word *wakar-i-kata* 'understand- -way.' Given representation (19b) together with (7b), as shown in (19c), syntax chooses the syntactic label ?V for *wakar*, and inserts [$_{?V}$ *wakar*] into the empty ?V head position. Finally, however, as illustrated in (19d), the nominal suffix *-kata* fails to c-select and validate the V projection (see 8b); and the two nominative case markers on *John* and *nihongo* are unlicensed (see 9a–b).

The string of words in the second case of Japanese nominalization in (2b), repeated here as (20), is also unacceptable, and is parsed by syntax as follows:

(20) * John-no nihongo-ga wakar-i-kata
John-GEN Japanese-NOM understand- - way
(= 2b; cf. 1b = 12)

(20) is similar to (12), because both examples begin with the genitive case marked NP *John-no*, and the nominative case marked NP, *nihongo-ga*. Hence, as in (21a),

(21) a. [$_{?VP\ or\ ?NP}$ John-no [$_{?V\ or\ ?N}$ *e*]]
b. [$_{?VP\ or\ ?NP}$ John-no [$_{?V'}$ nihongo-ga [$_{?V}$ *e*]]]
c. [$_{?VP\ or\ ?NP}$ John-no [$_{?V'}$ nihongo-ga [$_{?V}$ wakar]]]
d.*[$_{NP}$ [$_{NP}$ John-no [*$_{V}$, nihongo-*ga [*$_{V}$ wakar]]]
[$_{N}$ kata]]

syntax first builds the [?V or ?N] projection by (6b), where *John-no* is generated as the first argument. Then, as in (21b), syntax accommodates *nihongo-ga* as the second argument within the ?V projection by (6a). Given structure (21b) and (7b), syntax selects the syntactic label ?V for *wakar*, and it inserts [$_{?V}$ *wakar*] into the empty ?V position. Last, by (8b), the nominal suffix *-kata* c-selects and validates the N projection, but does not validate the V projection in (21d); the genitive case on *John* is licensed by (9c), whereas the nominative case on *nihongo* cannot be (see 9a–b). Hence, (21d) turns out to be unacceptable.

The string of words in the third case of syntactic nominalization in (2c), repeated here as (22), is ill-formed as well, and is parsed by syntax in the following way:

(22) * John-ga nihongo-no wakar-i-kata
John-NOM Japanese-GEN understand- - way
(= 2c; cf. 1c = 14)

(22) parallels (14) in that syntax parses the nominative case marked NP *John-ga* first, and then, the genitive case marked NP *nihongo-no*.

Hence, as in (23a),

(23) a. [$_{?VP}$ John-ga [$_{?V}$ *e*]]
b. [$_{?VP}$ John-ga [$_{?V',\ or\ ?N}$, nihongo-no [$_{?V\ or\ ?N}$ *e*]]]
c. [$_{?VP}$ John-ga [$_{?V',\ or\ ?N}$, nihongo-no [$_{?V\ or\ ?N}$ wakar]]]
d.*[$_{NP}$ [*$_{VP}$ John-*ga [$_{N'}$, nihongo-no [$_{N}$ wakar]]
[$_{N}$ kata]]

initially, syntax builds the ?VP shell structure by (6a), where the highest argument is *John-ga*. Then, as in (23b), by (6b), the genitive case marked NP *nihongo-no* is accommodated within the fuzzy [?V or ?N] projection. Given (23b) and (7b), syntax chooses the syntactic [?V or ?N] label for the predicate *wakar*, and it inserts [$_{?V\ or\ ?N}$ *wakar*] into the empty head position. As shown in (23d), however, the V projection cannot be validated by the c-selection of the nominal suffix *-kata* (see 8b); and the nominative case *-ga* on *John* cannot be licensed, either (see 9a–b).

Importantly, the string of words in (2d), repeated here as (24), is well-formed.

(24) John-no nihongo-no wakar-i-kata
John-GEN Japanese-GEN understand- - way
(= 2d; cf. 1d = 16)

For the string of words in (24), syntax first parses the genitive case marked NPs, *John-no* and *nihongo-no*, successively.

(25) a. [$_{?VP\ or\ ?NP}$ John-no [$_{?V\ or\ ?N}$ *e*]]
b. [$_{?VP\ or\ ?NP}$ John-no [$_{?V',\ or\ ?N'}$, nihongo-no
[$_{?V\ or\ ?N}$ *e*]]]
c. [$_{?VP\ or\ ?NP}$ John-no [$_{?V',\ or\ ?N'}$, nihongo-no
[$_{?V\ or\ ?N}$ wakar]]]
d. [$_{NP}$ [$_{NP}$ John-no [$_{N'}$, nihongo-no [$_{N}$ wakar]]]
[$_{N}$ kata]]

As illustrated in (25a–b), by (6b), syntax creates the fuzzy [?V or ?N] projection, where *John-no* is generated as the highest argument, and *nihongo-no* as the second highest argument (cf. 17a–b). Given representation (25b) together with (7b), syntax selects the fuzzy [?V or ?N] label for the predicate *wakar*, forming structure (25c). Finally, the nominal suffix *-kata* successfully c-selects and validates the N projection; furthermore, the two genitive case markers are properly licensed within the N projection by (9c).

### 3.3 *Parsing the strings of words in (3a-d): The case of nominative-genitive conversion*

Finally, let us consider the strings of words in (3a–d), which are all well-formed. Example (3a) is repeated here as (26).

(26) John-ga nihongo-ga wakar-u koto
John-NOM Japanese-NOM understand-PRES fact
'the fact that John understands Japanese'
(= 3a; cf. 10 and 18)

Example (26) parallels both (10) and (18), where syntax first parses a sequence of two nominative case marked NPs, *John-ga* and *nihongo-ga*. Hence, as in (27a–b),

(27) a. [$_{?VP}$ John-ga [$_{?V}$ *e*]]
b. [$_{?VP}$ John-ga [$_{?V'}$, nihongo-ga [$_{?V}$ *e*]]]
c. [$_{?VP}$ John-ga [$_{?V'}$, nihongo-ga [$_{?V}$ wakar]]]
(= 11c, 19c)
d. [$_{TP(?ADN)}$ [$_{VP}$ John-ga [$_{V'}$, nihongo-ga
[$_{V}$ wakar]]] [$_{T(?ADN)}$ u]]
e. [$_{NP}$ [$_{TP(ADN)}$ [$_{VP}$ John-ga [$_{V'}$, nihongo-ga
[$_{V}$ wakar]]] [$_{T(ADN)}$ u]] [$_{N}$ koto]]

syntax first builds the ?V projection by (6a), where

*John-ga* is generated as the first argument and *nihongo-ga* is generated as the second argument. Then, given structure (27b) together with (7b), syntax chooses the syntactic label ?V for the stative predicate *wakar*, and inserts [$_{?V}$ *wakar*] into the empty ?V head position, as illustrated in (27c). Subsequently, as in (27d), the T head, which is ?adnominal, c-selects and validates the V projection by (8a); furthermore, the two nominative cases are licensed by the ?adnominal T by means of (9b). Finally, the N head *koto* 'fact' selects and validates the adnominal T projection by (8c).

Examine next the first acceptable case of nominative-genitive conversion in Japanese.

(28) John-no nihongo-ga wakar-u koto
John-GEN Japanese-NOM understand-PRES fact
(= 3b; cf. 12 and 20)

Like (12) and (20), example (28) involves the sequence of the genitive subject *John-no* and the nominative object *nihongo-ga*. Hence, as in (29a),

(29) a. [$_{?VP\ or\ ?NP}$ John-no [$_{?V\ or\ ?N}$ *e*]]
b. [$_{?VP\ or\ ?NP}$ John-no [$_{?V'}$ nihongo-ga [$_{?V}$ *e*]]]
c. [$_{?VP\ or\ ?NP}$ John-no [$_{?V'}$ nihongo-ga [$_{?V}$ wakar]]] (= 13c, 21c)
d. [$_{TP(?ADN)}$ [$_{VP}$ John-no [$_{V'}$ nihongo-ga [$_{V}$ wakar]]] [$_{T(?ADN)}$ u]]
e. [$_{NP}$ [$_{TP(ADN)}$ [$_{VP}$ John-no [$_{V'}$ nihongo-ga [$_{V}$ wakar]]] [$_{T(ADN)}$ u]] [$_{N}$ koto]]

syntax first forms the [?V or ?N] projection by (6b), where the genitive subject *John-no* is generated as the highest argument. Then, as in (29b), syntax forms the ?V projection within the [?V or ?N] projection by (6a), where the nominative object *nihongo-ga* is generated as the second highest argument. Given (29b) and (7b), syntax selects the syntactic ?V label for *wakar*, and inserts [$_{?V}$ *wakar*] into the empty ?V head position, as shown in (29c). Then, as in (29d), the T head, which is ?adnominal, c-selects and validates the V projection by (8a); the genitive case *-no* and the nominative case *-ga* are both licensed by the ?adnominal T head by means of (9b) (cf. Saito 2001, p. 271). Finally, the nominal head *koto* successfully selects and validates the adnominal feature on the T head by (9c).

Under the proposed incremental categorial labeling analysis, the second acceptable case of nominative-genitive conversion in (3c), repeated here as (30), is explained in the same way.

(30) John-ga nihongo-no wakar-u koto
John-NOM Japanese-GEN understand-PRES fact
(= 3c; cf. 14 and 22)

Like (14) and (22), example (30) begins with the sequence of the nominative subject *John-ga* and the genitive object *nihongo-no*.

Hence, as in (31a),

(31) a. [$_{?VP}$ John-ga [$_{?V}$ *e*]]
b. [$_{?VP}$ John-ga [$_{?V'\ or\ ?N'}$ nihongo-no [$_{?V\ or\ ?N}$ *e*]]]
c. [$_{?VP}$ John-ga [$_{?V'\ or\ ?N'}$ nihongo-no [$_{?V\ or\ ?N}$ wakar]]] (= 15c, 23c)
d. [$_{TP(?ADN)}$ [$_{VP}$ John-ga [$_{V'}$ nihongo-no [$_{V}$ wakar]]] [$_{T(?ADN)}$ u]]
e. [$_{NP}$ [$_{TP(ADN)}$ [$_{VP}$ John-ga [$_{V'}$ nihongo-no [$_{V}$ wakar]]] [$_{T(ADN)}$ u]] [$_{N}$ koto]]

syntax first builds the ?V projection by (6a), where the nominative subject *John-ga* is generated as the highest argument. Then, given the genitive object *nihongo-no*, in (31b), syntax creates the fuzzy [?V or ?N] projection inside the ?VP shell structure by (6b); in (31b), *nihongo-no* is generated as the second highest argument inside the fuzzy projection. Given (31b) and (7b), as in (31c), syntax chooses the syntactic [?V or ?N] label for *wakar*, and inserts [$_{?V\ or\ ?N}$ *wakar*] into the empty [?V or ?N] head position. Subsequently, as in (31d), the T head with the ?adnominal feature c-selects and validates the V projection by (8a); the ?adnominal T head licenses the nominative case on *John* and the genitive case on *nihongo* by (9b) (cf. Saito 2001, p. 271). Finally, as shown in (31e), the adnominal feature of the T head is successfully licensed by the nominal head *koto* by (8c).[8] [9]

Consider now the last case of nominative-genitive

8 Yoko Sugioka points out in personal communication that there is a difference in acceptability between (3b) and (3c), repeated above as (28) and (30), respectively. Namely, (3b/28) is fully acceptable, whereas (3c/30) is not. Unfortunately, however, it is not clear if the proposed incremental categorial labeling analysis can capture this contrast adequately.

9 In contrast with (3c/30), the following example is unacceptable:

(i) * John-ga Mary-no home-ta koto
John-NOM Mary-GEN praise-PST fact
'the fact that John praised Mary'

Under the proposed categorial labeling analysis, syntax parses the string of words in (i) in the same way as (3c/30); the analysis accounts for the difference between (i) and (3c/30), as in (ia–e).

As below, syntax first parses the nominative subject John-ga, forming representation (iia).

(ii) a. [$_{?VP}$ John-ga [$_{?V}$ *e*]]
b. [$_{?VP}$ John-ga [$_{?V'\ or\ ?N'}$ Mary-no [$_{?V\ or\ ?N}$ *e*]]]
c. [$_{?VP}$ John-ga [$_{?V'\ or\ ?N'}$ Mary-no [$_{?V\ or\ ?N}$ home]]] (cf. 15c, 23c)

conversion in Japanese in (3d), which is repeated here as (32).

(32) John-no nihongo-no wakar-u koto
John-GEN Japanese-GEN understand-PRES fact
(= 3d; cf. 16 and 24)

Like (16) and (24), sentence (32) begins with the sequence of the two genitive case marked NPs, i.e. *John-no* and *nihongo-no*.

Hence, as in (33a–b),

(33) a. [$_{?VP\ or\ ?NP}$ John-no [$_{?V\ or\ ?N}$ *e*]]
b. [$_{?VP\ or\ ?NP}$ John-no [$_{?V'\ or\ ?N'}$ nihongo-no [$_{?V\ or\ ?N}$ *e*]]]
c. [$_{?VP\ or\ ?NP}$ John-no [$_{?V\ or\ ?N'}$ nihongo-no [$_{?V\ or\ ?N}$ wakar]]] (= 17c, 25c)
d. [$_{TP(?ADN)}$ [$_{VP}$ John-no [$_{V'}$ nihongo-no [$_{N}$ wakar]]] [$_{T(?ADN)}$ u]]
e. [$_{NP}$ [$_{TP(ADN)}$ [$_{VP}$ John-no [$_{V'}$ nihongo-no [$_{V}$ wakar]]] [$_{T(ADN)}$ u]] [$_{N}$ koto]]

syntax forms the fuzzy [?V or ?N] projection, where the genitive subject *John-no* is first generated as the first argument, and then, the genitive object *nihongo-no* is generated as the second argument. Given structure (33b) and (7b), as in (33c), syntax chooses the fuzzy [?V or ?N] label for the predicate *wakar*, and inserts [$_{?V\ or\ ?N}$ *wakar*] into the fuzzy empty head position. Then, as illustrated in (33d), the T head, which is ?adnominal, c-selects and validates the V projection by (8a); the two genitive cases are successfully licensed by the ?adnominal T head by means of (9b). Finally, as in (33e), the N head *koto* succeeds in selecting and validating the adnominal feature on the T head by (8c).

### 3.4 *Syntactic nominalization vs. nominative-genitive conversion*

As above, the fuzzy categorial label [?V or ?N] in (7b) plays a crucial role in accounting for the following contrasts between syntactic nominalization and nominative-genitive conversion. Consider first the contrast between (34a) and (34b) below:

(34) a. John-no nihongo-no kanpeki-na
John-GEN Japanese-GEN perfect-ADN
wakar-i-kata
understand- -way
'(Lit.) the way John understands Japanese perfect'
b. * John-no nihongo-no kanpeki-na
John-GEN Japanese-GEN perfect-ADN
wakar-u koto
understand-PRES(ADN) fact
'the fact that John understands Japanese perfect'

In (34a–b), the adnominal form of the predicate, *kanpeki* 'perfect,' is inserted (cf. 24 = 2d; 32 = 3d); (34a) is acceptable, while (34b) is not.

Given the assumptions in this paper, initially, syntax parses the string of words in (34a–b) exactly in the same way as below:

(35) a. [$_{?VP\ or\ ?NP}$ John-no [$_{?V\ or\ ?N}$ *e*]]
b. [$_{?VP\ or\ ?NP}$ John-no [$_{?V'\ or\ ?N'}$ nihongo-no [$_{?V\ or\ ?N}$ *e*]]]
c. [$_{?VP\ or\ ?NP}$ John-no [$_{?V'\ or\ ?N'}$ nihongo-no [$_{?N'}$ kanpeki-na [$_{?N}$ *e*]]] (for 34a–b)

First, syntax parses the two genitive case marked NPs, *John-no* and *nihongo-no*, successively; as in (35a), *John-no* is generated as the highest argument within the predicate-less [?V or ?N] projection by (6b); as in (35b), then, *nihonogo-no* is generated as the second argument within the head-less fuzzy projection, also by (6b). Syntax then parses the adnominal form of *kanpeki*, i.e. *kanpeki-na*; as in (35c), syntax accommodates *kanpeki-na* within the ?N projection.

Given the string of words in (34a), on the one hand, syntax finally parses the word, *wakar-i-kata*. As in (36a),

(36) a. [$_{?VP\ or\ ?NP}$ John-no [$_{?V'\ or\ ?N'}$ nihongo-no [$_{?N'}$ kanpeki-na [$_{?N}$ wakar]]]
b. [$_{NP}$ [$_{NP}$ John-no [$_{N'}$ nihongo-no [$_{N'}$ kanpeki-na [$_{N}$ wakar]]] [$_{N}$ kata]] (for 34a)

given structure (35c) with (7b), syntax chooses the ?N label for the predicate *wakar*, inserting [$_{?N}$ *wakar*] into the empty ?N head position in (36a). As in (36b), the nominal suffix *-kata* then c-selects and validates the N projection by means of (8b). The two genitive case markers in (36b) are properly licensed within the N

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d. [$_{TP(?ADN)}$ [$_{VP}$ John-ga [$_{V'}$ Mary-no [$_{V}$ home]]] [$_{T(?ADN)}$ ta]]
e.* [$_{NP}$ [$_{TP(ADN)}$ [$_{VP}$ John-ga [$_{V'}$ Mary-*no [$_{V}$ home]]] [$_{T(ADN)}$ ta]] [$_{N}$ koto]]

In (iia), *John-ga* is generated as the highest argument within the ?V projection by means of (6a). Then, as in (iib), syntax parses the genitive object *Mary-no*; the genitive case marked NP is generated immediately below the ?V' or ?N projection by (6b). Given (iib) together with (7b), as shown in (iic), the transitive predicate *home* 'praise' is inserted into the fuzzy ?V or ?N head position. Subsequently, as in (iid), the T head with the ?adnominal feature c-selects and validates the V projection by (8a); the tense licenses the nominative case marker on *John* by (9a). Last, as in (iie), the nominal head *koto* selects and validates the adnominal T by means of (8c). (iie) is illicit, however, because transitive predicates such as *home* license the accusative object obligatory, and there is no way for the genitive case *-no* to be properly licensed in (iie) (cf. 31e). I thank Jun Abe, who advised me to clarify the contrast between (3c/30) on the one hand and (i) on the other.

projection by (9c).

Given the string of words in (34b), on the other hand, syntax parses the adnominal present tense form of *wakar*, and then, parses the N, *koto* 'fact.' Hence, as in (37a),

(37) a. [$_{?VP\ or\ ?NP}$ John-no [$_{?V'\ or\ ?N'}$ nihongo-no [$_{?N'}$ kanpeki-na [$_{?N}$ wakar]]]
b.* [$_{TP(?ADN)}$ [$_{VP}$ John-no [$_{V}$ nihongo-no [$*_{N'}$ kanpeki-na [$*_{N}$ wakar]]] [$_{T(?ADN)}$ u]]
c.* [$_{NP}$ [$_{TP(ADN)}$ [$_{VP}$ John-no [$_{V}$ nihongo-no [$*_{N'}$ kanpeki-na [$*_{N}$ wakar]]] [$_{T(ADN)}$u]] [$_{N}$ koto]] (for 34b)

syntax may first select the ?N label for *wakar*, and insert [$_{?N}$ *wakar*] into the empty ?N head position. Then, as shown in (37b), the V projection is c-selected and validated by the adnominal form of T by (8a), but the N projection in (37b) cannot be licensed (see 8a–c). Hence, at the stage of (37b), the parsing process turns out to be illicit. (In (37b), the two genitive case markers on *John* and *nihongo* are checked by the adnominal feature on T by (9b) (cf. Saito 2001, p. 271). Finally, as in (37c), the nominal head *koto* selects and validates the adnominal feature on T by means of (8c).)

Examine next the opposite contrast between syntactic nominalization (38a) and nominative-genitive conversion (38b).[10]

(38) a.* John-no nihongo-no kanpeki-ni
John-GEN Japanese-GEN perfect-ADV
wakar-i-kata
understand- -way
'(Lit.) the way John understands Japanese fantastically'

b. John-no nihongo-no kanpeki-ni
John-GEN Japanese-GEN perfect-ADN
wakar-u koto
understand-PRES(ADV) fact
'the fact that John understands Japanese fantastically'

In (38a–b), the adverbial form of the predicate *kanpeki* is inserted (cf. 24 = 2d; 32 = 3d); (38a) is ill-formed, whereas (38b) is well-formed (cf. 34a–b).

Given the assumptions in this paper, syntax parses the first part of the string of words in (38a–b) in the same way as below:

(39) a. [$_{?VP\ or\ ?NP}$ John-no [$_{?V\ or\ ?N}$ *e*]]
b. [$_{?VP\ or\ ?NP}$ John-no [$_{?V'\ or\ ?N'}$ nihongo-no [$_{?V\ or\ ?N}$ *e*]]]
c. [$_{?VP\ or\ ?NP}$ John-no [$_{?V'\ or\ ?N'}$ nihongo-no [$_{?V'}$ kanpeki-ni [$_{?V}$ *e*]]] (for 38a–b)

As in (39a), first, the genitive case marked NP, *John-no*, is generated as the first argument within the fuzzy [?VP or ?NP] projection by (6b). As in (39b), next, the genitive case marked NP, *nihongo-no*, is generated as the second highest argument within the same fuzzy projection, also by (6b). As shown in (39c), syntax then parses the adverbial form of the predicate, *kanpeki-ni*, and accommodates it within the ?V projection.

Given the string of words in (38a), on the one hand, syntax parses the final word, *wakar-i-kata.* As in (40a),

(40) a. [$_{?VP\ or\ ?NP}$ John-no [$_{?V'\ or\ ?N'}$ nihongo-no [$_{?V'}$ kanpeki-ni [$_{?V}$ wakar]]]
b.* [$_{NP}$ [$_{NP}$ John-no [$_{N'}$ nihongo-no [$*_{V'}$ kanpeki-ni [$*_{V}$ wakar]]] [$_{N}$ kata]] (for 38a)

given representation (39c) with (7b), syntax chooses the ?V label for the predicate *wakar*, and inserts [$_{?V}$ *wakar*] into the empty ?V head position in (40a). Finally, the nominal suffix *-kata* c-selects and validates the N projection in (40b) by (8b); the V projection in (40b) is, however, unlicensed, causing the unacceptability. (The two genitive cases in (40b) are licensed within the N projection created by [$_{N}$ *kata*] by means of (9c).)

Given the string of words in (38b), on the other, syntax parses the remaining words, *wakar-u koto*, one by one. As in (41a),

(41) a. [$_{?VP\ or\ ?NP}$ John-no [$_{?V'\ or\ ?N'}$ nihongo-no [$_{?V'}$ kanpeki-ni [$_{?V}$ wakar]]]
b. [$_{TP(?ADN)}$ [$_{VP}$ John-no [$_{V}$ nihongo-no [$_{V'}$ kanpeki-ni [$_{V}$ wakar]]] [$_{T(?ADN)}$ u]]
c. [$_{NP}$ [$_{TP(ADN)}$ [$_{VP}$ John-no [$_{V}$ nihongo-no [$_{V'}$ kanpeki-ni [$_{V}$ wakar]]] [$_{T(ADN)}$ u]][$_{N}$ koto]] (for 38b)

given structure (39c) together with (7b), syntax selects the syntactic ?V label for *wakar*, and inserts the fuzzy predicate, [$_{?V}$ *wakar*], into the empty ?V head position in

10 In an earlier version of this paper, I used the adnomial form of *sugo*, i.e. *sugo-i* 'fantastic' in (34a–b); the adverbial form of *sugo*, i.e. *sugo-ku* 'fantastically' in (38a–b). Yoko Sugioka, however, points out in personal communication that in colloquial Japanese, native speakers could use *sugo-i* adverbially as below:

(i) *e* sore sugo -i wakar-u.
it fantastic-ADV understand-PRES
'I understand it very well.'

Furthermore, Yoko Sugioka suggests that to avoid this complication, I should use the adnominal form of *kanpeki*, i.e. *kanpeki-na* 'perfect' in (34a–b); the adverbial form of *kanpeki*, i.e. *kanpeki-ni* 'perfectly' in (38a–b). I am very grateful to Yoko Sugioka for this advice.

(41a). Subsequently, as in (41b), the adnominal form of the present tense marker successfully c-selects and validates the V projection by means of (8a). Furthermore, the two genitive cases in (41b) are also successfully licensed by the adnominal feature of T by (9b) (cf. Saito 2001, p. 271). Finally, as in (41c), the adnominal feature on T is selected and validated by the following N, *koto*, by (8c).

As desired, in this manner, the sharp contrasts between syntactic nominalization and nominative-genitive conversion in (34a–b) and (38a–b) are both accounted for naturally under the proposed incremental categorial labeling analysis, where the fuzzy categorial label [?V or ?N] in (7b) plays a key role.[11]

## 4. Conclusion: weak and flexible predicates in a head-final language

As in Hoshi (2021a–b), here, I have attempted to argue that in Japanese, a typical head-final language, a predicate like *wakar* 'understand' has a disjunction of two categorial features, i.e. [?V or N?] (see 7a–d). Furthermore, based on the data in (1a–d), (2a–d) and (3a–d), I have claimed that in the course of left to right parsing a string of words one by one, syntax may first form a head-less projection like [$_{?VP}$ …-*ga* [$_{?V}$ *e*]] or [$_{?VP\ or\ ?NP}$ …-*no* [$_{?V\ or\ ?N}$ *e*]]] on the basis of case information (Kempson and Kiaer 2010; see 5 and 6a–b; e.g. 11a–b, 13a–b, 15a–b, 17a–b, 19a–b, 21a–b, 23a–b, 25a–b, 27a–b, 29a–b, 31a–b, 33a–b, 35a–c, and 39a–c; cf. Koizumi 1995, Takano 2002). Given such a predicate-less projection initially constructed, syntax then chooses an appropriate categorial label for a predicate like *wakar*, e.g. [?V] or [?V or ?N], and inserts the hypothesized head into the structure that there is already (e.g. 11c, 13c, 15c, 17c, 19c, 21c, 23c, 25c, 27c, 29c, 31c, 33c, 36a, 37a, 40a, and 41a). Hence, significantly, under the proposed incremental categorial labeling analysis, such a predicate head in Japanese may be WEAK, and does not have to create its syntactic domain on its own. Syntax may simply insert a predicate head with a hypothesized label into an empty head position, already constructed. Furthermore, such a weak predicate head waits for the hypothesized categorial label, i.e. [?V] or [?V or ?N], to be c-selected and validated by the following heads (see 8a–c; e.g. 11d, *13d, *15d, *17d, *19d, *21d, *23d, 25d, 27d–e, 29d–e, 31d–e, 33d–e, 36b, *37b–c, *40b, 41b–c; Sugioka 2009, p. 92, 27b–d).

Technically, there are a number of differences between the proposed categorial labeling analysis and the strict version of Dynamic Syntax (Kempson et al. 2001, Cann et al. 2005, Kempson et al. 2011, Kempson 2015, 2017, among others). 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, p. 32, (2.1) vs. (2.2), etc.); whereas I propose that syntax constructs representations which necessarily include *syntactic features* such as categorial labels or case features, besides semantic features. Nonetheless, the vision of FUZZY SYNTAX proposed in this paper, I believe, adheres to the very spirit of Dynamic Syntax: while parsing a string of words one by one from left to right, syntax keeps hypothesizing upcoming linguistic representations together with their labels, which must subsequently be licensed (see 4). If correct, the proposed incremental categorial labeling analysis thus provides further support for the foundational ideas of Dynamic Syntax (cf. Kempson et al. 2001, etc.).

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11 Kishimoto's (2006) analysis of *-kata* 'way' nominalization and Miyagawa's (1993, 2013) analysis of *ga/no* conversion are important; however, they are totally different. Here, I have tried to explain the nature of syntactic nominalization and nominative-genitive conversion in a uniform way.

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