

Capturing how our mind builds and enriches phrase structure in a head-final language: Dynamic syntax with [V], [N] & [V or N]¹

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1. INTRODUCTION

In this paper, I argue that (i) in the course of left to right producing/parsing of a string of words in head-final languages such as Japanese, our mind builds and enriches phrase structure step by step, based on case information, etc.; (ii) as a consequence, our mind largely determines the nature of phrase structure, before producing/parsing a phrase-final head. To capture this property of our mind directly, I propose a DYNAMIC SYNTACTIC COMPETENCE MODEL which makes crucial use of formal features such as cases and categories (cf. Kempson et al. 2001, Cann et al. 2005, etc.; cf. Chomsky 1965, 1981, 1986, 1995, among others).

Observe that (1a–b) involve the verb *wakar-* ‘understand.’

- (1) a. John-no nihongo-no wakar-i-kata
 John-GEN Japanese-GEN understand- -way
 ‘the way of John’s understanding of Japanese’
- b. John-no nihongo-no wakar-u
 John-GEN Japanese-GEN understand-PRES(ADN)
 wake
 reason
 ‘the reason why John understands Japanese’

In (1a), *wakar-* is attached by the nominal suffix *-kata* ‘way.’ (To avoid a consonant cluster, *i* is inserted between *wakar-* and *-kata* in (1a).) In (1b), on the other hand, the verb *wakar-* is attached by the adnominal, present tense marker *-u*. (1a–b) look quite similar, because the external argument of *wakar-*, i.e. *John*, and the internal argument of the predicate, i.e. *nihongo* ‘Japanese,’ are both marked with the genitive case *-no* in the same way. (1a–b), however, have a significant difference.

Consider first the contrast between (2a–b). (2a) is acceptable, whereas (2b) is unacceptable. (2a) shows

the adnominal modifier, *kanpeki-na* ‘perfect,’ is compatible with *-kata* nominalization.

- (2) a. John-no nihongo-no kanpeki-na
 John-GEN Japanese-GEN perfect-ADN
 wakar-i-kata
 understand- -way
 ‘the way of John’s perfect understanding of Japanese’
- b. *John-no nihongo-no kanpeki-ni
 John-GEN Japanese-GEN perfect-ADV
 wakar-i-kata
 understand- -way

(2b), however, illustrates that the adverbial modifier, *kanpeki-ni* ‘perfectly,’ is incompatible with *-kata* nominalization.

Examine next the contrast between (3a–b). The contrast between (2a–b) is reversed in (3a–b); (3a) shows that the adnominal modifier, *kanpeki-na*, is not compatible with the adnominal clause (cf. 2a).

- (3) a. *John-no nihongo-no kanpeki-na
 John-GEN Japanese-GEN perfect-ADN
 wakar-u wake
 understand-PRES(ADN) reason
 ‘the reason why John understands Japanese perfect’
- b. John-no nihongo-no kanpeki-ni
 John-GEN Japanese-GEN perfect-ADV
 wakar-u wake
 understand-PRES(ADN) reason

(3b), on the other hand, illustrates that the adverbial modifier, *kanpeki-ni*, is compatible with the relative clause (cf. 2b).²

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² In an earlier version of this paper, I used an adnominal modifier, *sugo-i* ‘great,’ and an adverbial modifier, *sugo-ku* ‘greatly,’ in (2a–b) and (3a–b). Since, however, some native speakers use *sugo-i* adverbially in colloquial Japanese, Yoko Sugioka advised me to use instead the adnominal modifier, *kanpeki-na*, and the adverbial modifier, *kanpeki-ni*, in (2a–b) and (3a–b). I thank her for this advice.

The contrasts in (2a–b) and (3a–b) are certainly important. It is, however, also very important to observe how our mind produces/parses a string of words in (2a–b) and (3a–b) in head-final languages such as Japanese. As in (4), native speakers of Japanese produce/parse from left to right the first part of the string of words in (2a) and (3a), i.e. *John-no nihongo-no kanpeki-na*, with no problem, getting ready to keep producing/parsing.

(4) John-no nihongo-no kanpeki-na
----->>>

As in (5a), if the native speakers then produce/parse the word, *wakar-i-kata* ‘understand- way,’ they judge the string of words to be well-formed instantaneously.

(5) a. John-no nihongo-no kanpeki-na wakar-i-kata
----->ok
(= 2a)

b. John-no nihongo-no kanpeki-na wakar-u (= 3a)
----->*

As in (5b), however, if the native speakers produce/parse subsequently the word, *wakar-u* ‘understand-PRES,’ they reject the string of words at once.

Similarly, as in (6), native speakers of Japanese produce/parse from left to right the first part of the string of words in (2b) and (3b), i.e. *John-no nihongo-no kanpeki-ni*, without any problem, anticipating further production/parse.

(6) John-no nihongo-no kanpeki-ni
----->>>

As in (7a), if the native speakers produce/parse then the word, *wakar-i-kata* ‘understand- way,’ they judge instantly that the string of words is unacceptable (cf. 5a).

(7) a. John-no nihongo-no kanpeki-ni wakar-i-kata
----->*
(= 2b)

b. John-no nihongo-no kanpeki-ni wakar-u [_N ...]
----->>>
(= 3b)

As in (7b), on the other hand, if the native speakers produce/parse next the word, i.e. the adnominal present tense form of *wakar-u* ‘understand,’ they parse it without any problem, getting ready to keep producing/parsing (cf. 5b).³

An important question thus arises as to why native speakers of Japanese make such judgements for the contrasts in (2a–b) and (3a–b) in the course of left to right sentence processing, as illustrated in (4), (5a–b), (6) and (7a–b). Many syntacticians might tell us that the nature of such acceptability judgements is captured by their generator/parser, not by their competence grammar, i.e. syntax. If so, however, those syntacticians must explain the following with respect to the differences in (2a–b) and (3a–b): first, how their syntax builds up phrase structure by means of merge in a BOTTOM-UP fashion; second, exactly how native speakers produce/parse a string of words from LEFT TO RIGHT; finally and most importantly, how their bottom-up syntax interacts with their left-to-right generator/parser, capturing the opposite contrasts in (2a–b) and (3a–b), and explicating at the same time why native speakers make judgements for (2a–b) and (3a–b), as demonstrated in (4), (5a–b), (6) and (7a–b).

Although it appears quite complex, the above mentioned BOTTOM-UP SYNTAX-PLUS-LEFT-TO-RIGHT GENERATOR & PARSER THEORY might indeed be correct (cf. Chomsky 1965, 1981, 1986, 1995, etc.).⁴ In this paper, however, I dare to propose a simpler approach, i.e. a LEFT-TO-RIGHT DYNAMIC SYNTACTIC COMPETENCE MODEL, to capture directly in syntax the nature of native speakers’ judgements for examples such as (2a–b) and (3a–b). To do so, here, I adopt some basic ideas of Dynamic Syntax, assuming that syntax is indeed a dynamic system in our mind for INTERACTIVE COMMUNICATION between the speaker and the hearer, which produces/parses a string of words from left to right strictly in an incremental manner (Kempson et al. 2001, Cann et al. 2005, cf. Phillips 1996, 2003, among others).⁵ In so doing, I attempt to argue that also in the case of head-

³ As shown in (7b), the adnominal present tense marker of Japanese verb, i.e. *-(r)u*, forecasts a following nominal expression. (The adnominal and conclusive present tense markers of Japanese verb are the same morpheme, i.e. *-(r)u*. If native speakers of Japanese interpret *wakar-u* in (7b) as the conclusive present tense form of *wakar* ‘understand,’ they immediately reject the string of words. Here, we thus observe a significant difference between the adnominal tense and the conclusive tense in Japanese (see Hiraiwa 2001, etc. for relevant discussion).

⁴ There are a number of important generative grammatical analyses of *-kata* nominalization in (1a) and (2a–b) (e.g. Sugioka 1992, Kageyama 1993, Ito & Sugioka 2002, Kishimoto 2006, among others). There are also numerous important analyses of nominative-genitive conversion in (1b) and (3a–b) (e.g. Harada 1971, Miyagawa 1993, 2013, Watanabe 1996, Hiraiwa 2001, Saito 2001, etc.). Significantly, however, none of these analyses attempts to explain why native speakers of Japanese make acceptability judgements as shown in (4), (5a–b), (6) and (7a–b). As mentioned in the text, the linguists mentioned above might consider implicitly such acceptability judgements to be explained by their generator/parser; unfortunately, however, the exact nature of their generator/parser has never been revealed.

⁵ Following the lead by Kempson et al. (2001), Cann et al. (2005, p. 29, Chapter 9), among others, I assume in this paper that both the speaker (generator) and the hearer (parser) use the identical dynamic system in our mind, i.e. syntax, for interactive communication. Under this dynamic syntactic view, the difference between the speaker (generator) and the hearer (parser) is minimal as follows: (i) the

final languages such as Japanese, while producing/parsing a string of words from left to right, syntax builds phrase structure incrementally, and in most cases⁶, waits for the structure already so constructed to be licensed by an appropriate head. Hence, at the time when syntax produces/parses a phrase-final head, syntax is capable of judging instantaneously (i) whether or not it should keep producing/parsing (see 4, 6 and 7b), or (ii) whether or not the structure already almost fully developed is well-formed (see 5a–b and 7a). Consequently, if the proposal in this paper is correct, it provides further evidence for a left-to-right incremental structure building account for head-final languages such as Japanese, where in most cases, syntax largely determines the nature of phrase structure, before producing/parsing a phrase-final head (cf. Hoshi 2021b, 2022a–b, 2023a, etc.).

In the following section, I spell out some basic ideas of my version of Dynamic Syntax with three major categories, [V], [N], and [V or N] (Hoshi 2023a; cf. Hoshi 2021b, 2022a–b, etc.). Then, I propose a dynamic syntactic, i.e. NON-TRANSFORMATIONAL, analysis of a variety of constructions which involve adjectival noun (AN) (see §3), adjective (A) (see §4), verbal noun (VN) (see §5), and verb (V) (see §6). In section 7, I conclude the discussion in this paper.

2. DYNAMIC SYNTAX WITH [V], [N] AND [V OR N]⁷

It is very often assumed that HEADS play significant roles in language: (i) PREDICATIVE HEADS provide syntax with important information as to how syntax should construct phrase structure for semantic interpretation; (ii) FUNCTIONAL HEADS such as tense markers, on the other hand, search for their targets for syntactic licensing. In a strictly head-final language like Japanese, however, such heads necessarily come last. A question thus arises as to how for such head-final languages, syntax produces/parses a string of words, building phrase structure for semantics and carrying out syntactic licensing step by step.

To answer this question, here, as in Hoshi (2021a–b, 2022a–b, 2023a, etc.), I adopt (8) as a guiding principle under DYNAMIC SYNTAX (Kempson et al. 2001, Cann et al. 2005, etc.; cf. Phillips 1996, 2003, etc.):

- (8) In the course of left to right producing/parsing a string of words one by one, the speaker and the hearer employ the same dynamic devices in our mind, i.e. syntax, first building much underspecified representation, and then, updating and enriching it step by step, ultimately constructing the final semantic representation.

To be concrete, for Japanese, i.e. a typical head-final language, I adopt the hypotheses in (9a–b), where CASE MARKERS have the following dual characteristics: first, as in (9a), case markers BUILD underspecified phrase structure in syntax (Kempson & Kiaer 2010, etc.; cf. Saito 1985);

- (9) a. Japanese case markers such as *-ga*, *-o*, or *-no* construct in syntax, underspecified phrase structures together with their categorial labels, which must subsequently be updated;
b. Such case markers themselves must also be licensed later by a variety of phrase-final heads such as FUNCTIONAL HEADS.

second, as in (9b), such structure building case markers MUST BE LICENSED by a series of phrase final (functional) heads as well. To put it differently, under the proposed dynamic syntactic analysis, case markers in Japanese drive production/parsing, by BUILDING much underspecified structure first and then, WAITING to be licensed by phrase final heads such as functional categories.

To be more precise, as in Hoshi (2022a–b, 2023a; cf. Hoshi 2021a–b), I adopt (10a–e) for INCREMENTAL STRUCTURE BUILDING and CATEGORIAL LABELING (see 9a):

- (10) a. A nominative case marked NP, NP-*ga*, an accusative case marked NP, NP-*o*, etc. construct a fuzzy (HEADLESS) [?V] projection immediately above them.⁸
b. A genitive case marked PP and CP, PP-*no* and CP-*no*, construct a fuzzy (HEADLESS) [?N] projection immediately above them..
c. A genitive case marked NP, NP-*no*, constructs a

hearer (parser), on the one hand, constructs and enriches step by step linguistic representation by parsing a string of words provided by the speaker, aiming to gain the final linguistic representation, e.g. LF, in the speaker's mind; (ii) the speaker (generator), on the other hand, produces step by step a string of words for the hearer, helping the hearer build the final linguistic structure, e.g. LF, in the speaker's mind. In other words, the hearer (parser) and the speaker (generator) employ the very same dynamic devices, i.e. syntax, and use the system minimally differently. Consequently, this tight coordination between parsing and production provides a straightforward way to account for the nature of linguistic interactions, e.g. dialogues, between the hearer and the speaker (see Cann et al. 2005, Chapter 9, etc.).

⁶ This qualification is necessary, because Japanese is a *pro* drop language, and quite often, there is no case-marked phrase, etc., preceding a predicative head. In such cases, of course, syntax does not project any phrase structure, until it produces/parses a predicative head.

⁷ Under the strict version of Dynamic Syntax (Kempson et al. 2001, Cann et al. 2005, etc.), syntax produces/parses a string of words from left to right incrementally, directly constructing semantic representation without any case or categorial feature. In this paper, I argue instead that syntax builds linguistic representation with not only semantic features, but also syntactic features such as cases and categories like [V], [N] or [V or N]. Here as well, I assume that (i) syntactic features are deleted, once they are licensed properly by phrase final (functional) heads; hence, (ii) only semantic features remain in the final representation, e.g. LF.

⁸ Kempson & Kiaer (2010) claim that the nominative case maker *-ga* in Japanese always marks the external argument within a predicate phrase. I disagree with this claim, and I adopt (10a), whereby not only an external argument, but also an internal argument can be attached by the nominative case *-ga* in Japanese (see 17a–c, 25a–c, 35a–d, and 45a–d).

- fuzzy (HEADLESS) [?V or ?N] projection immediately above it.⁹
- d. Adverbial modifiers such as *kanpeki-ni* ‘perfectly’ construct a fuzzy (HEADLESS) [?V] projection immediately above them.
- e. Adnominal modifiers such as *kanpeki-na* ‘perfect’ construct a fuzzy (HEADLESS) [?N] projection immediately above them.
- etc.

For INCREMENTAL CASE LICENSING (see 9b), I adopt (11a–d):

- (11) The nominative case *-ga* and the genitive case *-no* are structural Cases in Japanese, whereas (in most cases,¹⁰ the accusative case *-o* and the dative case *-ni* are inherent cases:
- a. a nominative case marked NP, NP-*ga*, is licensed, once it is c-commanded by T or temporal nouns such as [_N *ori*] ‘occasion’;
- b. a genitive case marked phrase, XP-*no*, is licensed, once it is immediately dominated by an N projection¹¹;
- c. either a nominative case marked NP, NP-*ga*, or a genitive case marked NP, NP-*no*, is licensed, once it is c-commanded by adnominal T (cf. Saito 2001, p. 271);¹²
- d. the accusative case *-o* and the dative case *-ni* are inherent cases linked to particular semantic arguments of a predicate.¹³

In this paper, as in Hoshi (2023a; cf. 2021a–b, 2022a–b, etc.), I dissociate morphology from syntax, adopting the proposal below:^{14 15 16}

	MORPHOLOGICAL LABELS	<u>NON-DETERMINISTIC</u> <u>SYNTACTIC LABEL</u>
(12) a. adjectival noun (<i>kirei</i> ‘beautiful’):	AN	[V or N]
b. adjective (<i>utukusi</i> ‘beautiful’):	A	[V or N]
c. verbal noun (<i>syokuzi</i> ‘eat’):	VN	[V or N]
d. verb (<i>tabe</i> ‘eat’):	V	[V or N]

(Hoshi 2023a; cf. Hoshi 2021a–b, 2022a–b, etc.)

Under the proposal in (12a–d), the four predicates in Japanese, i.e. adjectival noun, adjective, verbal noun, and verb, have distinct morphological labels, viz. AN, A, VN and V (cf. Kageyama 1982, 1993, Ito & Sugioka 2002, etc.). Importantly, however, all these predicates have the identical, NON-DETERMINISTIC syntactic label, [V or N]. The proposals in (10a–e) and (12a–d) thus imply: for example, (i) initially, a case marker in Japanese builds in syntax a fuzzy [?V], [?N] or [?V or ?N] projection without its predicative head (see 10a–e); (ii) at a later point of left to right sentence production/parsing, the flexible predicate comes and enriches such weak phrase structure, by providing a syntactic label, i.e. [V], [N] or [V or N], in accordance with structural context (see 12a–d). In other words, under the proposal, first, headless [?V], [?N], or [?V or ?N] projections are built in syntax by Japanese case markers, etc. based on (10a–e); later, the non-deterministic syntactic category, [V or N], in (12a–d) enters the empty head position of such a fuzzy projection, by choosing an appropriate syntactic label, i.e. [V], [N], or [V or N], in accordance with structural environments.¹⁷

Hence, under the proposed dynamic syntactic

⁹ The assumption in (10c) is adopted, because in Japanese, a genitive case marked NP can be licensed either by a N projection (see 11b) or adnominal T (see 11c).

¹⁰ The reader is referred to Abe (2015) for this qualification.

¹¹ As well known, however, relative clauses are not marked by the genitive case marker *-no* in Japanese. I put this complication aside in this paper.

¹² In this paper, I adopt (11c). It might, however, be the case that T licenses the nominative case *-ga* optionally; and 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.).

¹³ Given Chomsky (1995) type ‘Configurational Theta Theory,’ (11d) implies that the semantics of a predicate forces an accusative case marked NP and a dative case marked NP to appear at their fixed structural positions by the end of left to right sentence processing (cf. Saito’s (1985, 1989) analysis of scrambling in Japanese).

¹⁴ In Hoshi (2021a–b, 2022a–b, etc.), I suggest that the four predicates in (12a–d) all have a fuzzier (weaker) syntactic label [?V or ?N], and assume both ‘c-selection’ and ‘c-validation.’ As in Hoshi (2023a), here, I adopt the more explicit (enriched) syntactic label [V or N] for all these predicates in Japanese, assuming only ‘c-selection,’ consequently eliminating ‘c-validation.’ 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.

¹⁵ I assume that noun in Japanese is categorially unambiguous, i.e. N, in both morphology and syntax.

¹⁶ The proposal in (12a–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.).

¹⁷ It must be stressed here that theoretically, the proposed non-deterministic syntactic category with a disjunction of two choices, i.e. [V or N], in (12a–d) is totally different from a ‘categoryless root’ proposed by Distributed Morphology (Halle & Marantz 1993, Harley & Noyer 1999, Harley & Noyer 2000, etc.), by Exo-skeltal Model (Borer 2003, etc.) or by Asymmetrical Morphology (Di Sciullo 2005) (cf. Lieber 2006). Under the proposal, unlike a categoryless root, (i) the four predicates in Japanese are stored with the syntactically specified categorial label [V or N] in the lexicon; (ii) the final nature of the syntactic category in (12a–d) is not determined by invisible functional categories, *v* or *n*, by means of merge, but is determined by the non-deterministic [V or N] category itself in accordance with structural context.

analysis, significantly, if case marked phrases are present in a clause, a predicate in Japanese does not build phrase structure for semantic interpretation for itself; but, a predicate enters phrase structure already constructed by case marked arguments, etc., and establishes semantic relationships with such case marked arguments already present in the structure (Kempson et al. 2001, Cann et al. 2005, Kempson & Kiaer 2010, etc.; cf. Koizumi 1995, Tanako 2002).

Finally, in this paper, I assume the following three types of SYNTACTIC C-SELECTION such as the ones in (13a–c).^{18 19}

(13) In the syntactic component,

- a. Lexical items which c-select [V] are:
tense markers such as [_T *i*] or [_T *ru*], light verbs such as [_V *su*] ‘do’ or [_V *deki*] ‘can,’ verbs like [_V (*r*)*are*] ‘can,’ temporal nouns such as [_N *ori*] ‘occasion’ or [_N *ue*] ‘upon,’ [_V or _N *tari*] ‘and also,’ [_V *gati*] ‘tending,’ [_V *sugi*] ‘over,’ [_N *koto*] ‘fact [+IMPERATIVE],’ [_{V+T} *da*](, which morphologically c-selects AN), etc.
- b. Lexical items which c-select [N] are:
nominal suffixes such as [_N *kata*] ‘way’ or [_N *sa*] ‘-ness’, case markers, [_{V+T} *da*](, which morphologically c-selects N), etc.
- c. Lexical items which c-select [V or N] are:
temporal affixes such as (-)[_N *tyuu*] ‘middle/during,’ [_N *gati*] ‘tending,’ [_N *sugi*] ‘over,’ etc. (cf. Hoshi 2021a–c, 2022a–b, 2023a; cf. Sugioka 2009, p. 92, 27b–d)

In the following sections, I try to demonstrate that as predicted by (10a–e), (11a–d), (12a–d), and (13a–c), the three major categories, i.e. [V], [N] and [V or N], play significant roles in Japanese syntax. More specifically, I propose a dynamic syntactic, i.e. non-transformational, analysis of a variety of constructions which involve adjectival noun (AN) (see §3), adjective (A) (see §4), verbal noun (VN) (see §5), and verb (V) (see §6). By doing so, I attempt to show the following: (i) syntax produces/parses a string of words from left to right strictly in an incremental manner; (ii) in most cases, syntax largely determines the nature of phrase structure, before producing/parsing a phrase-final head; (iii) in so doing, syntax waits for the phrase structure almost fully developed to be properly licensed by a phrase-final head.

3. THE SYNTAX OF ADJECTIVAL NOUN (AN)

As is well known,

- (14) [_{AN} *nigate*]-[_V *na*]
weak-COP

the adnominal copula *-na* ‘be’ morphologically c-selects only adjectival nouns (ANs) such as *nigate* ‘weak’ (Kageyama 1982, 1993, Ito & Sugioka 2002, among others).

Observe now (15a–b), which are both well-formed.

- (15) a. *suugaku-no* [_{AN} *nigate*]-**o** (kaisyoo-si-yoo).
math-GEN weakness-ACC (overcome-let’s)
‘(Let’s overcome) (our) weak spots of math.’
- b. *suugaku-ga* [_{AN} *nigate*]-**da**.
math-NOM weak-COP
‘(I’m) poor at math.’

In (15a), the AN *nigate* is attached by the accusative case marker *-o*, whereas in (15b), the AN is attached by the conclusive present tense form of the copula, *-da*. The complement of the AN is *suugaku* ‘math,’ which is marked by the genitive case *-no* in (15a), but by the nominative case *-ga* in (15b). A question thus arises as to why the complement of the adjectival noun *nigate* must be case-marked significantly differently in (15a–b). The dynamic syntactic competence model proposed in this paper accounts for the properties of (15a–b) straightforwardly as follows:

In (15a), *suugaku* ‘math’ comes first, which is attached by the genitive case marker *-no*. Hence, as in (16a),

- (16) a. [_{?VP or ?NP} *suugaku-?no* [*e*]]
b. [_{VP or NP} *suugaku-?no* [_{V or N} *nigate*]]
c. [_{NP} *suugaku-no* [_N ***nigate***]]-**o**
----->ok

the genitive case marked NP, *suugaku-?no* ‘math-?GEN,’ builds the fuzzy [_{?V or ?N}] projection without its head, accommodating *suugaku-?no* within the [_{?VP or ?NP}] shell structure (see 10c; cf. Larson 1988; cf. Koizumi 1995, Takano 2002, etc.). Then, the predicate *nigate* comes; as in (16b), given the fuzzy [_{?V or ?N}] projection, *nigate* chooses its non-deterministic [V or N] label, entering the empty head position (see 12a). Finally, as in (16c), the accusative case marker *-o*

¹⁸ Sugioka (2009, p. 92, 27b–d) first proposes that a temporal affix in Japanese, i.e. *-tyuu* ‘middle/during,’ turns any part of the projection of a verbal noun into an N projection by means of its c-selection. The proposal based on (10a–e), (12a–d) and (13a–c) thus heavily relies on her SELECTION-BASED LABELING analysis.

¹⁹ I assume that various types of c-selection like the ones in (13a–c) are stored in the lexicon, and that such requirements play important roles in Japanese syntax. The lexical specifications in (13a–c), however, appear quite complex, and a question arises as to whether we can derive such c-selective restrictions from something deep in language. (The reader is referred to Sugioka (2009) for her valuable attempt to derive them from semantics.) At this stage, however, I have no idea if it is possible at all to derive all those lexical complexities from semantics. The lexicon might indeed be a component where we store such complex information in some intriguing ways (cf. Jackendoff 1997, 2003, Culicover & Jackendoff 2005, etc.). I leave this very important question for future research.

c-selects the N projection, consequently licensing the genitive case *-no*, as desired (see 13b & 11b).

In (15b), on the other hand, *suugaku* ‘math’ comes first, which is attached by the nominative case marker *-ga*. Hence, as in (17a),

- (17) a. [_{?VP} *suugaku-?ga* [*e*]]
 b. [_{VP} *suugaku-?ga* [_V **nigate**]]
 c. [_{(V+T)P} [_{VP} *suugaku-ga* [_V **nigate**]] [_{V+T} **da**]]
 ----->ok

the nominative case marked NP, *suugaku-?ga* ‘math-?NOM,’ constructs the fuzzy ?V projection with the empty head position (see 10a). As in (17b), the adjectival noun *nigate* comes next, selecting the syntactic label V for the structure, initially created by the nominative case *-ga* (see 12a). Last, as illustrated in (17c), there emerges the fused V+T head, i.e. the conclusive present tense copula *-da* ‘is,’ and the copula syntactically c-selects the syntactic V feature of the AN *nigate* (see 13a). Consequently, as in (17c), the nominative case *-ga* is licensed by the tense feature of the copula (see 11a).

Finally, observe the contrast in (18a–b). (18a) is unacceptable, whereas (18b) is acceptable. In (18a), the AN *nigate* is attached by the conclusive form of the copula *-da*; the complement of the AN, i.e. *suugaku* ‘math,’ is by the genitive case *-no*.

- (18) a. **suugaku-no* [_{AN} *nigate*]-**da**.
 math-GEN poor-COP(CONCL)
 ‘(I’m) poor at math.’
- b. *suugaku-no* [_{AN} *nigate*]-**na** *gakusee*
 math-GEN poor-COP(ADN) student
 ‘a student who is poor at math.’

In (18b), on the other hand, the adjectival noun, *nigate*, is attached by the adnominal form of the copula *-na*; *suugaku* is by the genitive case *-no*.

For (18a–b), native speakers of Japanese produce/parse the first part of the string of words, *suugaku-no nigate*, without any problem, anticipating further production/parse. Recall that the same string of words is acceptable in (15a) and (16a–b). As in (19a), however, if the native speakers produce/parse subsequently the conclusive form of the copula, i.e. *da*, they reject the string of words instantly.

- (19) a. *suugaku-no negate-da*. (= 18a)
 ----->*

- b. *suugaku-no negate-na*²⁰ [_N ...] (= 18b)
 ----->>>

As in (19b), on the other hand, if the native speakers produce/parse next the adnominal form of the copula, i.e. *na*, they are ready to continue to produce/parse. The contrast between (18a–b) and native speakers’ acceptability judgements in (19a–b) are directly captured in syntax by the proposed dynamic competence model as below:

In (18a), [_{NP} *suugaku*]-*no* ‘math-GEN’ comes first. Hence, as in (20a),

- (20) a. [_{?VP or ?NP} *suugaku-?no* [*e*]]
 b. [_{VP or NP} *suugaku-?no* [_{V or N} **nigate**]]
 c. [_{(V+T)P} [_{VP} *suugaku-?no* [_V **nigate**]] [_{V+T} **da**]]
 ----->*

the genitive case-marked NP, *suugaku-?no*, creates the fuzzy [?V or ?N] projection without its head, accommodating *suugaku-?no* as one of its arguments (see 10c). Then, in accordance with the structure built in (20a), the AN *nigate* chooses its non-deterministic syntactic label [V or N], and enters the empty head position in (20b) (see 12a). Finally, as in (20c), the conclusive present tense form of the copula, [_{V+T} *da*], syntactically c-selects the V projection (see 13a). In (20c), however, there is no way for the genitive case *-no* on the complement *suugaku* ‘math’ to be licensed (see 11b–c). (18a) thus results in ungrammaticality exactly at this very end of the production/parsing process in (20c).

The first part of the string of words in (18a–b) is the same, i.e. *suugaku-no nigate*. So, for (18b), (i) syntax first produces/parses the genitive case marked NP, *suugaku-?no*, as in (21a=20a); (ii) syntax then produces/parses the adjectival noun *nigate*, as in (21b=20b).

- (21) a. [_{?VP or ?NP} *suugaku-?no* [*e*]] (= 20a)
 b. [_{VP or NP} *suugaku-?no* [_{V or N} **nigate**]] (= 20b)
 c. [_{(V+T)P} [_{VP} *suugaku-no* [_V **nigate**]] [_{V+T(?ADN)} **na**]]
 (cf. 20c)
 d. [_{NP} [_{(V+T)P} [_{VP} *suugaku-no* [_V **nigate**]] [_{V+T(ADN)} **na**]]

 [_{NP} *gakusee*]]²¹
 ----->ok

For (18b), as in (21c), syntax produces/parses subsequently the adnominal present tense form of the copula, i.e. [_{V+T(?ADN)} *na*], which syntactically c-selects the V projection (see 13a). Furthermore, the adnominal copula [_{V+T(?ADN)} *na*] licenses the genitive case *-no* on the complement *suugaku-no* ‘math-GEN’ (see 11c).

²⁰ The adnominal form of the copula, i.e. *na*, waits for a following nominal expression.

²¹ Notice that under the proposed dynamic syntactic analysis, the adjectival noun (AN), *nigate* ‘weak,’ is a non-deterministic category with the flexible syntactic label, [V or N] (see 12a); therefore, depending on its structural context in syntax, *nigate* turns out to be V (see 17b–c, 20c and 21c–d), whereas the same lexical item, *nigate*, turns out to be N (see 16c).

Finally, there comes the relative head, [_{NP} *gakusee*], successfully licensing the adnominal feature on the copula, i.e. [_{V+T(?ADN)} *na*], as desired. Thus, based on (10a–e), (11a–d), (12a–d), and (13a–c), the contrast between (18a–b) and why native speakers produce/parse the strings of words as in (19a–b) are straightforwardly accounted for in syntax by the proposed dynamic syntactic model (see 20a–c and 21a–d).

4. THE SYNTAX OF ADJECTIVE (A)

As below,

- (22) [_A *hosi*]-[_T *i*]
want-PRES

one of the present tense markers in Japanese, i.e. *-i*, morphologically c-selects only adjectives (As) such as *hosi* ‘want’ (Kageyama 1982, 1993, Ito & Sugioka 2002, among others).

Observe now (23a–b), which are both acceptable.

- (23) a. *mizu-no* [_A *hosi*]-*sa*
water-GEN want-ness
‘the degree of wanting of water’
- b. *mizu-ga* [_A *hosi*]-*i*.
water-NOM want-PRES
‘(I) want water.’

In (23a), the adjective *hosi* is attached by the nominal suffix *-sa* ‘-ness’ (Kageyama 1982, 1993, Ito & Sugioka 2002, etc.); however, in (23b), *hosi* is by the present tense marker *-i*. The complement of the adjective, i.e. *mizu* ‘water,’ is marked by the genitive case *-no* in (23a), but is attached by the nominative case *-ga* in (23b). Under the competence model proposed in this paper, these properties of (23a–b) are accounted for as below:

In (23a), *mizu* ‘water’ comes first, which is attached by the genitive case marker *-no*. Hence, as in (24a),

- (24) a. [_{?VP or ?NP} *mizu-?no* [*e*]]
b. [_{VP or NP} *mizu-?no* [_{V or N} *hosi*]]
c. [_{NP} [_{NP} *mizu-no* [_N *hosi*]] [_N *sa*]]
----->ok

syntax builds the headless [_{?V or ?N}] projection, accommodating *mizu-?no* within the [_{?VP or ?NP}] shell structure (see 10c). There, then, comes the flexible predicate *hosi*; as in (24b), given the fuzzy [_{?VP or ?NP}]

projection, *hosi* chooses its non-deterministic [V or N] label, moving itself into the empty head position (see 12b). Last, as in (24c), the nominal suffix *-sa* syntactically c-selects the N projection, consequently licensing the genitive case *-no* (see 13b & 11b). If correct, the proposed analysis thus implies that the nominal suffix *-sa* ‘-ness’ in Japanese displays an important mismatch between morphological and syntactic selection: nominal suffix *-sa* c-selects adjective (A) in morphology (see 23a),²² but the suffix *-sa* c-selects noun (N) in syntax (see 24c).

On the other hand, in (23b), *mizu* ‘water’ comes first, being attached by the nominative case *-ga*. Hence, as in (25a),

- (25) a. [_{?VP} *mizu-?ga* [*e*]]
b. [_{VP} *mizu-?ga* [_V *hosi*]]
c. [_{TP} [_{VP} *mizu-ga* [_V *hosi*]] [_T *i*]]
----->ok

syntax builds the fuzzy ?V projection with the empty head position (see 10a). As in (25b), the adjective *hosi* comes next, (i) choosing the syntactic label V for the structure, built by the nominative case *-ga*; and (ii) entering the empty head position (see 12b). Last, as illustrated in (25c), there comes the present tense marker, i.e. *-i*; and the functional head [_T *i*] c-selects the V projection, consequently licensing the nominative case *-ga* on the complement *mizu* ‘water’ by c-command (see 13a and 11a).

Consider now the contrast between (26a–b) (cf. 18a–b). (26a) is ill-formed, whereas (26b) is well-formed. Notice that in (26a), the adjective (A) *hosi* is attached by the conclusive present tense marker *-i*; and the complement of the adjective, i.e. *mizu*, by the genitive case *-no*.

- (26) a. **mizu-no* [_A *hosi*]-*i*.
water-GEN want-PRES(CONCL)
‘(I) want water.’
- b. *mizu-no* [_A *hosi*]-*i* *gakusee*
water-GEN want-PRES(ADN) student
‘a student who wants water.’

In (26b), on the other hand, the adjective, *hosi*, is attached by the adnominal present tense marker *-i*;²³ and *mizu* by the genitive case *-no*.

For (26a–b), native speakers of Japanese produce/

²² The nominal suffix *-sa* in Japanese morphologically c-selects not only adjectives (As) (see 23a), but also adjectival nouns (ANs) such as *nigate* ‘weak’ (see (i) below); the nominal suffix *-sa* c-selects only N in syntax (see 24c and (ii) below; cf. 16c in §3).

(i) *suugaku-no* [_{AN} *nigate*]-*sa* (cf. 23a)
math-GEN weak-ness
‘the degree of being poor at math’

(ii) [_{NP} *suugaku-no* [_N *nigate*]]-*sa* (cf. 16c)

²³ The conclusive and adnominal forms of the present tense marker for Japanese adjective are phonologically identical, i.e. *-i*.

parse the first part of the string of words, i.e. *mizu-no hosi*, without any problem, getting ready to produce/parse further. Remember that the same string of words is acceptable in (23a) and (24a–b). Notice, however, as in (27a), if the native speakers produce/parse subsequently the conclusive present tense form, i.e. *i*, they reject the string of words instantaneously.

(27) a. *mizu-no hosi-i*. (= 26a)
 ----->*

b. *mizu-no hosi-i*²⁴ [N ...] (= 26b)
 ----->>>

On the other hand, as in (27b), if the native speakers produce/parse next the adnominal present tense form, i.e. *i*, they anticipate further production/parse. The contrast between (26a–b) and the significant difference in (27a–b) are accounted for by the proposed dynamic syntactic analysis as below:

In (26a), [NP *mizu*]-*no* ‘water-GEN’ comes first. Hence, as in (28a),

(28) a. [_{?VP or ?NP} *mizu-?no* [*e*]]
 b. [_{VP or NP} *mizu-?no* [_{V or N} **hosi**]]
 c. [_{TP} [_{VP} *mizu-?no* [_V **hosi**]] [_T *i*]]
 ----->*

syntax creates the fuzzy [_{?V or ?N}] projection without its head, accommodating *mizu-?no* as one of its arguments (see 10c). Then, in accordance with the structure built in (28a), the A *hosi* chooses its non-deterministic syntactic label [V or N], and moves into the empty head position in (28b) (see 12b). Finally, as in (28c), the conclusive present tense marker, [_T *i*], syntactically c-selects the V projection (see 13a). In (28c), however, the genitive case *-no* on the complement *mizu* cannot be licensed in any proper way (see 11b–c). (26a) thus necessarily results in unacceptability; therefore, as shown in (28c), native speakers of Japanese reject (26a) precisely at this last production/processing point.

The first part of the string of words in (26a–b) is identical, i.e. *mizu-no hosi*. So, for (26b), (i) syntax first produces/parses the genitive case marked NP, *mizu-?no*, as in (29a=28a); (ii) syntax then produces/parses the adjective *hosi*, as in (29b=28b).

(29) a. [_{?VP or ?NP} *mizu-?no* [*e*]] (= 28a)
 b. [_{VP or NP} *mizu-?no* [_{V or N} **hosi**]] (= 28b)
 c. [_{TP} [_{VP} *mizu-no* [_V **hosi**]] [_{T(?ADN)} *i*]] (cf. 28c)
 d. [_{NP} [_{TP} [_{VP} *mizu-no* [_V **hosi**]] [_{T(ADN)} *i*]]

[_{NP} *gakusee*]]²⁵
 ----->ok

For (26b), as in (29c), syntax produces/parses next the adnominal present tense marker, i.e. [_{T(?ADN)} *i*], which syntactically c-selects the V projection (see 13a); furthermore, the adnominal feature on the tense marker [_{T(?ADN)} *i*] licenses the genitive case *-no* on the complement *mizu* ‘water’ (see 11c). As in (29d), the adnominal feature on the present tense marker, i.e. *-i*, is then licensed by the following relative head, [_{NP} *gakusee*] ‘student.’ Here as well, the contrast between (26a–b) and why native speakers of Japanese process the strings of words as in (27a–b) are directly captured by the proposed dynamic competence model.

5. THE SYNTAX OF VERBAL NOUN (VN)

As in (30a–b),

(30) a. [_{VN} *zyooto*]-[_V *deki*]-[_T *ru*]
 giving-can(-PRES)
 b. [_{VN} *zyooto*]-[_V *su*]-[_T *ru*]
 giving-do(-PRES)

the verbs, i.e. *deki* ‘can’ and *su* ‘do,’ morphologically c-select only verbal nouns (VNs) such as *zyooto* ‘giving’ (Kageyama 1982, 1993, Ito & Sugioka 2002, among others).

Observe now (31a–b), which are both well-formed.

(31) a. *toti-no* [_{VN} *zyooto*]-**ga** (*syuuryoo-si-ta*.)
 land-GEN giving-NOM (finishing-do-PST.)
 ‘The giving of land (has finished).’
 b. *toti-o* [_{VN} *zyooto*]-**deki-ru**.
 land-ACC giving-can-PRES
 ‘(We can) give land (to them).’

In (31a), the VN *zyooto* is attached by the nominative case *-ga*, and the internal argument *toti* ‘land’ by the genitive case marker *-no*. In (31b), on the other hand, the verbal noun *zyooto* is followed by [_V *deki*]-[_T *ru*] ‘can-PRES;’ and the internal argument *toti* is attached by the accusative case *-o*. The dynamic syntactic analysis proposed in this paper accounts for the nature of (31a–b) as follows:

For (31a), syntax first produces/parses the genitive case marked NP, i.e. *toti-no* ‘land-GEN.’ Hence, as in (32a),

(32) a. [_{?VP or ?NP} *toti-?no* [*e*]]
 b. [_{VP or NP} *toti-?no* [_{V or N} **zyooto**]]

²⁴ The adnominal form of the tense marker for Japanese adjective, i.e. *i*, predicts a following nominal expression.

²⁵ Notice that under the proposed dynamic syntactic analysis, the adjective (A), *hosi* ‘want,’ is another non-deterministic category with the flexible syntactic label, [V or N] (see 12b): *hosi* in (25b–c), (28c) and (29c–d) turns out to be V, while the same morpheme *hosi* in (24c) turns out to be N.

- c. [NP *toti-no* [_N *zyooto*]]-ga
----->ok

syntax constructs the headless, fuzzy [?V or ?N] projection (see 10c). Then, as in (32b), there emerges the flexible predicate, i.e. the verbal noun *zyooto* ‘giving’; and in accordance with the structural context, *zyooto* chooses the non-deterministic [V or N] syntactic label, entering the empty head position (see 12c). As in (32c), finally, the nominative case marker *-ga* c-selects the N projection (see 13b), consequently licensing the genitive case marked NP, *toti-no* (see 11b).

For (31b), on the other hand, initially, syntax produces/parses the accusative case marked NP, *toti-o* ‘land-ACC.’ Thus, as in (33a),

- (33) a. [_{?VP} *toti-o* [*e*]]
b. [_{VP} *toti-o* [_V *zyooto*]]
 (agent(theme-ACC^{OK}))
c. [_{VP} [_{VP} *toti-o* [_V *zyooto*]] [_V *deki*]]
 (agent(theme-ACC^{OK}))
d. [_{TP} [_{VP} [_{VP} *toti-o* [_V *zyooto*]] [_V *deki*]] [_T *ru*]]
 (agent(theme-ACC^{OK}))
----->ok

syntax builds the headless [?V] projection (see 10a). Next, as in (33b), there emerges the non-deterministic category, i.e. the VN *zyooto* ‘giving’; and in accordance with the structure constructed, *zyooto* chooses for itself the syntactic label [V], (i) entering the empty head position (see 12c), and (ii) licensing the accusative case marked NP, *toti-o* (see 11d). Then, the second flexible predicate, i.e. the potential verb [_{V or N} *deki*] ‘can,’ comes. Due to a type of uniformity condition on the categorial nature of complex predicates that a predicate categorially selects the same type of predicate, as shown in (33c), the potential predicate, i.e. *deki*, chooses its V label, consequently c-selecting the V projection, i.e. [_{VP} *toti-o* [_V *zyooto*]] (see 13a). Last, as in (33d), the present tense marker *-ru* c-selects the V projection (see 13a). The acceptability of (31b) is thus also accounted for.²⁶

Observe next well-formed example (34). In (34),

- (34) *toti-ga* [_{VN} *zyooto*]-*deki-ru*.
land-NOM giving-can-PRES
‘(We can) give land (to them).’

the internal argument of the VN, *zyooto*, i.e. *toti* ‘land,’ is marked by the nominative case *-ga*, not by the

accusative case *-o* (cf. 31b). Nonetheless, like (31b), example (34) is fully acceptable. Under the proposed dynamic syntactic competence model, the acceptability of (34) is captured as below:

Given the string of words in (34), syntax first produces/parses the nominative case marked NP, i.e. [_{NP} *toti*]-ga ‘land-NOM.’ Hence, as in (35a),

- (35) a. [_{?VP} *toti-?ga* [*e*]]
b. [_{VP} *toti-?ga* [_V *zyooto*]]
 (agent(theme-ACC))
c. [_{VP} [_{VP} *toti-?ga* [_V *zyooto*]] [_V *deki*]]
 (agent(theme-ACC))
d. [_{TP} [_{VP} [_{VP} *toti-ga* [_V *zyooto*]] [_V *deki*]]
 (agent(theme-ACC))

 [_{T(CONCL)} *ru*]]
----->ok

syntax builds the headless, fuzzy [?V] projection, accommodating *toti-ga* within the ?VP shell (see 10a). Next, as in (35b), the verbal noun *zyooto* ‘giving’ comes, and in accordance with the structural context, the non-deterministic category chooses the syntactic V label, moving itself into the empty head position (see 12c). Then, there comes the next non-deterministic category, [_{V or N} *deki*] ‘can.’ As illustrated in (35c), because of the uniformity condition imposed upon the categorial nature of complex predicates, the potential predicate *deki* selects its V label, syntactically c-selecting the complement V projection in (35b) (see 13a); at the same time, the potential verb, i.e. [_V *deki*], deletes the unnecessary inherent accusative case of the lower verb, i.e. [_V *zyooto*]. Finally, as shown in (35d), the conclusive present tense form, i.e. [_{T(CONCL)} *ru*], c-selects the whole V projection in (35c), successfully licensing the nominative case *-ga* on the internal argument of the VN [_V *zyooto*], i.e. *toti-ga* (see 11a).

Examine now the contrast between (36a–b) (cf. 18a–b and 26a–b). (36a) is unacceptable, whereas (36b) is acceptable. In both of these examples, the internal argument of the verbal noun (VN), *zyooto*, i.e. *toti* ‘land,’ is attached by the genitive case *-no*; the VN is selected by the light verb, *deki* ‘can.’

- (36) a. * *toti-no* [_{VN} *zyooto*]-*deki-ru*.
land-GEN giving-can-PRES(CONCL)
‘(We can) give land (to them).’

- b. *toti-no* [_{VN} *zyooto*]-*deki-ru* hito

²⁶ The construction like the one in (31b) is often called the ‘light verb construction,’ and it has been considered to involve a special type of complex predicate formation like argument transfer, abstract incorporation, LF incorporation, etc. (cf. Grimshaw & Mester 1988, Kageyama 1993, Saito & Hoshi 2000, among others). The proposed dynamic syntactic, non-transformational, analysis is unique in that (i) it does not appeal to any of such special lexical or syntactic operation; furthermore, (ii) unlike the complex predicate formation analyses mentioned above, it attempts to reveal directly how the speaker and the hearer construct linguistic representation for Japanese light verb construction incrementally in the course of left to right sentence processing.

land-GEN giving-can-PRES(ADN) person
'a person who can give land (to them).'

In (36a), the light verb, *deki*, is attached by the conclusive present tense marker, *-ru* 'PRES(CONCL)'; in (36b), however, the light verb by the adnominal present tense marker, *-ru* 'PRES(ADN).'²⁷

For both (36a–b), native speakers of Japanese produce/parse the first part of the string of words, i.e. *toti-no zyooto*, with no problem, getting ready to keep producing/parsing. Recall that the same string of words is acceptable in (31a) and (32a–b). Notice, however, as in (37a), if the native speakers produce/parse next the conclusive present tense form of the light verb, i.e. [_V *deki*]-*ru* 'can-PRES(CONCL),' they reject the string of words instantly.

- (37) a. *toti-no zyooto-deki-ru.* (= 36a)
----->*
- b. *toti-no zyooto-deki-ru*²⁸ [_N ...] (= 36b)
----->>>

On the other hand, as illustrated in (37b), if the native speakers produce/parse the adnominal present tense form of the light verb, i.e. [_V *deki*]-*ru* 'can-PRES(ADN),' they get themselves ready to keep producing/parsing. The contrast between (36a–b) and why native speakers produce/parse the strings of words in (36a–b) as in (37a–b) are captured by the proposed dynamic syntactic competence model as below:

For (36a), syntax first produces/parses the genitive case marked NP, *toti-no* 'land-GEN.' Hence, as in (38a),

- (38) a. [_{?VP or ?NP} *toti-?no* [*e*]]
b. [_{VP or NP} *toti-?no* [_{V or N} **zyooto**]]
(agent(theme-ACC))
c. [_{VP or NP} [_{VP or NP} *toti-?no* [_{V or N} **zyooto**]]]
(agent(theme-ACC))
[_{V or N} **deki**]]
d. [_{TP} [_{VP} [_{VP} *toti-?no* [_V **zyooto**]]] [_V **deki**]]
(agent(theme-ACC))

[_{T(CONCL)} **ru**]]
----->*

syntax builds the fuzzy [_{?V or ?N}] projection without its head, accommodating the genitive case marked NP, *toti-no*, within the headless structure (see 10c). Next, as in (38b), checking the phrase structure already constructed, the first non-deterministic category, i.e. *zyooto* 'giving,' chooses the flexible syntactic label, [V or N], entering the empty head position (see 12c). There then emerges the second non-deterministic predicate, i.e. the potential verb [_{V or N} *deki*] 'can.' As shown in (38c), due to the uniformity condition on the categorial nature of complex predicates, the potential verb [*deki*] chooses its non-deterministic [V or N] label, c-selecting the [_{?VP or ?NP}] complement, i.e. [_{VP or NP} *toti-?no* [_{V or N} *zyooto*]]. Last, as illustrated in (38d), the conclusive present tense marker [_{T(CONCL)} *ru*] c-selects the higher VP complement based on [_V *deki*], and [_V *deki*] then c-selects the lower VP complement based on [_V *zyooto*] (see 13a). Furthermore, at the production/parsing stage of (38d), the stative predicate [_V *deki*] deletes the unnecessary accusative case of the transitive verb [_V *zyooto*] (cf. 35c). In (38d), however, there is no way for the genitive case on the complement, [_{NP} *toti-?no*], to be properly licensed (see 11b & 11c). (36a) thus turns out to be unacceptable, exactly at this last production/parsing stage in (38d), as desired (see 37a).

The first part of the string of words in (36a–b) is the same, i.e. *toti-no zyooto deki*. Hence, for (36b), (i) syntax first produces/parses the genitive case marked NP, *toti-no* 'land-GEN,' as in (39a=38a); (ii) syntax then produces/parses the verbal noun, *zyooto* 'land,' as in (39b=38b); (iii) subsequently, syntax produces/parses the potential verb, *deki* 'can,' as in (39c=38c).

- (39) a. [_{?VP or ?NP} *toti-?no* [*e*]] (= 38a)
b. [_{VP or NP} *toti-?no* [_{V or N} **zyooto**]] (= 38b)
(agent(theme-ACC))
c. [_{VP or NP} [_{VP or NP} *toti-?no* [_{V or N} **zyooto**]]]
(agent(theme-ACC))
[_{V or N} **deki**]]²⁹
d. [_{TP} [_{VP} [_{VP} *toti-no* [_V **zyooto**]]] [_V **deki**]]
(agent(theme-ACC))
[_{T(ADN)} **ru**]] (cf. 38d)
e. [_{NP} [_{TP} [_{VP} [_{VP} *toti-no* [_V **zyooto**]]] [_V **deki**]]]
(agent(theme-ACC))

²⁷ The conclusive and adnominal forms of the present tense marker for Japanese verb are phonologically the same, i.e. *-(r)u* (see footnote 3).

²⁸ The adnominal form of the tense marker for Japanese verb, i.e. *-ru*, foresees a following nominal expression.

²⁹ Representations such as (38c) and (39c) proposed in this paper are very fuzzy in that such structures appear to contain multiple 'underspecified' [V or N] nodes. Under the strict version of Dynamic Syntax, however, there can be only one 'unfixed' tree node of a type at a time in any process of tree growth (Kempson & Kiaer 2010, p. 161, among others). Structures such as (38c) and (39c) may, however, be made compatible with this very strict restriction imposed by Dynamic Syntax, by means of the uniformity condition on complex predicates: namely, a predicate categorially selects the same type of predicate.

³⁰ Notice that under the dynamic syntactic analysis proposed in this paper, the verbal noun (VN), *zyooto* 'giving,' is another non-deterministic category with the flexible syntactic label, [V or N] (see 12c); therefore, *zyooto* 'giving' in (33b–d), (35b–d), (38d) and (39d–e) turns out to be V, whereas the same lexical item, *zyooto*, in (32c) turns out to be N. Notice, therefore, that under the proposed dynamic model, depending on its structural context, [*toti-no* [*zyooto*]] 'land-GEN [giving]' is analyzed as [_{NP} *toti-no* [_N *zyooto*]] as in (32c); exactly the same string of words is, however, considered as [_{VP} *toti-no* [_V *zyooto*]] as in (38d) and (39d–e).

[_{T(ADN)} **ru**] [_{NP} hito]]³⁰
 ----->ok

For (36b), as illustrated in (39d), syntax then produces/parses the adnominal tense marker, i.e. [_{T(?ADN)} *ru*]; the adnominal tense c-selects the higher V projection based on the potential predicate *deki*, and then, the verb [_V *deki*] then c-selects the lower V projection based on the VN *zyooto* ‘giving’ (see 13a). Furthermore, the adnominal feature on [_{T(?ADN)} *ru*] licenses successfully the genitive case marked internal argument, i.e. *toti-no* (see 11c). The adnominal form of T is subsequently licensed by the following relative head, [_{NP} *hito*] ‘person,’ as desired. The proposed dynamic syntactic competence model thus also accounts for why native speakers of Japanese produce/parse from left to right the strings of words in (36a–b), as shown in (37a–b).

6. THE SYNTAX OF VERB (V)

As shown below,

(40) [_V *tabe*]-[_T *ru*]
 eat PRES

the present tense marker, [_T *ru*], morphologically c-selects only verbs (Vs) such as [_V *tabe*] (Kageyama 1982, 1993, Ito & Sugioka 2002, among others).

Observe now grammatical examples (41a–b). In (41a),

(41) a. *pan-no* [_V *tabe*]-*kata*
 bread-GEN eat-way
 ‘the way of eating of bread’

b. *pan-o* [_V *tabe*]-*ta*.
 bread-ACC eat-PST
 ‘(I) ate bread.’

the verb [_V *tabe*] is attached by the nominal suffix, [_N *kata*] ‘-ness’; and the internal argument of *tabe* by the genitive case *-no*. In (41b), on the other hand, the verb *tabe* is attached by the past tense marker [_T *ta*]; and the internal argument of the verb by the accusative case *-o*. Under the dynamic syntactic analysis proposed in this paper, the well-formedness of these examples is accounted for as follows:

For (41a), initially, syntax produces/parses the genitive case marked NP, *pan-no* ‘bread-GEN.’ Hence, as in (42a),

(42) a. [_{?VP or ?NP} *pan-no* [*e*]]
 b. [_{VP or NP} *pan-no* [_{V or N} **tabe**]]
 c. [_{NP} [_{NP} *pan-no* [_N **tabe**]] [_N **kata**]]
 ----->ok

syntax builds the headless fuzzy [_{?VP or ?NP}] structure, accommodating *pan-no* as one of its arguments (see 10c). As in (42b), there then comes the flexible predicate *tabe* ‘eat,’ which chooses the non-deterministic [_{?V or ?N}] syntactic label on its own in accordance with the structural context (see 12d). Finally, as in (42c), the nominal suffix [_N *kata*] c-selects the syntactic label N (see 13b), consequently licensing the genitive case feature on the internal argument, *pan-no* (see 11b). If correct, the proposed dynamic model thus implies that the nominal suffix *-kata* ‘way’ in Japanese displays another radical mismatch between morphological and syntactic selection: the nominal suffix *-kata* c-selects verb (V) in morphology (see 41a; cf. 23a), but the suffix *-kata* c-selects noun (N) in syntax (see 42c; cf. 24c).³¹ In other words, under the proposal in this paper, as illustrated in (24c) and (42c), the two nominal suffixes in Japanese, i.e. *-sa* ‘-ness’ and *-kata* ‘-way,’ force all potential V projections to disappear in syntax, by c-selecting the syntactic label N (see 13b).

For (41b), syntax first produces/parses the accusative case marked NP, *pan-o* ‘bread-ACC.’ Hence, as in (43a),

(43) a. [_{?VP} *pan-o* [*e*]]
 b. [_{VP} *pan-o* [_V **tabe**]]
 (agent(theme-ACC^{OK}))
 c. [_{TP} [_{VP} *pan-o* [_V **tabe**]] [_{T(CONCL)} **ta**]]
 (agent(theme-ACC^{OK}))
 ----->ok

syntax builds the fuzzy ?V projection without its head, accepting the accusative NP, *pan-o*, within the ?VP shell (see 10a). As in (43b), there then comes the flexible predicate *tabe* ‘eat,’ which selects the syntactic label V for the structure already constructed by the accusative case marker *-o* (see 12d). At this point of the production/parsing stage in (43b), the inherent accusative case on the internal argument [_{NP} *pan*]-*o* is licensed by the argument structure of the predicate [_V *tabe*] (see 11d). Finally, the conclusive past tense marker [_{T(CONCL)} *ta*] c-selects the V projection (see 13a).

Consider next that in the following acceptable example,

(44) *pan-ga* [_V *tabe*]-*rare-ru*.
 bread-NOM eat-can-PRES
 ‘(I) can eat bread.’

the internal argument of the verb *tabe* ‘eat’ is marked by the nominative case *-ga*, not the accusative case *-o* (cf. 41b). Nonetheless, (44) is fully acceptable like (41b). The dynamic syntactic analysis proposed in this paper

³¹ The reader is referred to Sugioka (1992), Kageyama (1993), Ito & Sugioka (2002), Kishimoto (2006), etc. for their important analyses of *-kata* nominalization in Japanese.

accounts for the well-formedness of (44) as follows:

Given the string of words in (44), initially, syntax produces/parses the nominative case marked NP, i.e. *pan-ga* ‘bread-NOM.’ Hence, as in (45a),

- (45) a. [_{?VP} pan-?ga [*e*]
 b. [_{VP} pan-?ga [_V **tabe**]]
 (agent(theme-ACC))
 c. [_{VP} [_{VP} pan-?ga [_V **tabe**]] [_V **rare**]]
 (agent(theme-ACC))
 d. [_{TP} [_{VP} [_{VP} pan-ga [_V **tabe**]] [_V **rare**]]
 (agent(theme-ACC))

 [_{T(CONCL)} **ru**]]
 ----->ok

syntax builds the headless [_{?V}] projection for the nominative case marked NP, *pan-ga* (see 10a). Then, as in (45b), the flexible predicate *tabe* ‘eat’ chooses the syntactic V label in accordance with the structural environments, subsequently moving into the empty head position (see 12d). Next, as in (45c), due to the uniformity condition on the categorial nature of complex predicate, the stative potential predicate, i.e. *rare* ‘can,’ chooses its V label, c-selecting the VP complement based on [_V *tabe*] (see 13a). At this stage, the stative predicate [_V *rare*] deletes the unnecessary accusative case of the lower predicate [_V *tabe*]. Last, as shown in (45d), the conclusive present tense marker [_{T(CONCL)} *ru*] c-selects the whole V projection based on [_V *rare*] in (45c), consequently licensing the nominative case marked internal argument, i.e. *pan-ga* (see 13a & 11a).

Examine now the contrast between (46a–b) (cf. 18a–b, 26a–b and 36a–b). (46a) is ungrammatical, whereas (46b) is grammatical.

- (46) a. *pan-no [_V **tabe**]-**rare-ru**.
 bread-GEN eat-can-PRES(CONCL)
 b. pan-no [_V **tabe**]-**rare-ru** hito
 bread-GEN eat-can-PRES(ADN) person

In (46a–b), the internal argument of the verb, *tabe*, i.e. *pan* ‘bread,’ is marked by the genitive case *-no*. In (46a), the verb, *tabe* ‘eat,’ is selected by the potential verb, *rare*, which is then selected by the conclusive present tense marker *-ru*. In (46b), *tabe* is also selected by the potential verb, but here, the potential verb is selected by the adnominal present tense marker *-ru*.³²

For both (46a–b), native speakers of Japanese

produce/parse the first part of the string of words, i.e. *pan-no tabe*, smoothly without any problem, anticipating further production/parse. Remember that the identical string of words is acceptable in (41a) and (42a–b). Notice, however, as in (47a), if the native speakers produce/parse subsequently the conclusive present tense form of the potential verb, i.e. *rare-ru* ‘can-PRES(CONCL),’ they reject the string of words instantaneously.

- (47) a. pan-no tabe-rare-ru. (= 46a)
 ----->*
 b. pan-no tabe-rare-ru³³ [_N ...] (= 46b)
 ----->>>

On the other hand, as in (47b), if the native speakers produce/parse next the adnominal present tense form of the potential verb, i.e. *rare-ru* ‘can-PRES(ADN),’ they get themselves ready to keep producing/parsing. Both the contrast between (46a–b) and the important difference in (47a–b) are captured directly by the proposed dynamic syntactic analysis as below:

For (46a), syntax first produces/parses the genitive case marked NP, *pan-no* ‘bread-GEN.’ Hence, as in (48a),

- (48) a. [_{?VP or ?NP} pan-?no [*e*]
 b. [_{VP or NP} pan-?no [_{V or N} **tabe**]]
 (agent(theme-ACC))
 c. [_{VP or NP} [_{VP or NP} pan-?no [_{V or N} **tabe**]]
 (agent(theme-ACC))
 [_{V or N} **rare**]]
 d. [_{TP} [_{VP} [_{VP} pan-*no [_V **tabe**]] [_V **rare**]]
 (agent(theme-ACC))

 [_{T(CONCL)} **ru**]]³⁴
 ----->*

syntax constructs the headless fuzzy [_{?V or ?N}] projection for the genitive case marked NP, *pan-no* (see 10c). As in (48b), the flexible predicate, *tabe*, then chooses the non-deterministic syntactic label [V or N] in accordance with the structure built in (48a), moving into the empty head position (see 12d). As shown in (48c), due to the uniformity condition on the categorial nature of complex predicates, the potential predicate, [*rare*] ‘can,’ chooses its non-deterministic [V or N] label, c-selecting the [V or N] projection based on the lower predicate [_{V or N} *tabe*]. Last, as shown in (48d), the conclusive present tense marker [_{T(CONCL)} *ru*]

³² Recall that the conclusive and adnominal forms of the present tense marker for Japanese verb are phonologically the same, i.e. *-(r)u* (see footnotes 3 & 27).

³³ The adnominal form of the tense marker for Japanese verb, i.e. *ru*, waits for a following nominal expression.

³⁴ Notice that under the proposed dynamic syntactic competence model, the verb (V), *tabe* ‘eat,’ is another non-deterministic syntactic category with the flexible syntactic label, [V or N] (see 12d); therefore, depending on structural context, *tabe* ‘eat’ turns out to be V (see 43b–c, 45b–d and 49c–e), while the same morpheme, *tabe*, turns out to be N (see 42c).

syntactically c-selects the V projection based on [_V rare] ‘can,’ and then, the potential verb [_V rare] c-selects the V projection based on [_V tabe] (see 13a). At this stage, the potential predicate [_V rare] deletes the unnecessary inherent accusative case of the predicate [_V tabe] ‘eat.’ In (48d), however, it is impossible for the genitive case *-no* on the internal argument, *pan-no*, to be licensed properly (see 11b–c). As a result, we correctly predict that native speakers of Japanese reject (46a) exactly at this last production/parsing point in (48d) in an instantaneous manner.

The first part of the strings of words in (46a–b) is identical, i.e. *pan-no tabe-rare*. Hence, for (46b), (i) initially, syntax produces/parses the genitive case marked NP, *pan-no* ‘bread-GEN,’ as in (49a=48a); (ii) syntax then produces/parses the verb, *tabe* ‘eat,’ as in (49b=48b); (iii) syntax produces/parses subsequently the potential verb, *rare* ‘can,’ as in (49c=48c).

- (49) a. [_{?VP or ?NP} pan-?no [e]] (= 48a)
 b. [_{VP or NP} pan-?no [_{V or N} **tabe**]] (= 48b)
 (agent(theme-ACC))
 c. [_{VP or NP} [_{VP or NP} pan-?no [_{V or N} **tabe**]]]
 (agent(theme-ACC))
 [_{V or N} **rare**]] (= 48c)
 d. [_{TP} [_{VP} [_{VP} pan-**no** [_V **tabe**]]] [_V **rare**]]
 (agent(theme-ACC))
 [_{T(?ADN)} **ru**]] (cf. 48d)
 e. [_{NP} [_{TP} [_{VP} [_{VP} pan-**no** [_V **tabe**]]] [_V **rare**]]]
 (agent(theme-ACC))

 [_{T(ADN)} **ru**]] [_{NP} hito]]
 ----->ok

For (46b), as in (49d), not the conclusive present tense marker, but the adnominal present tense marker [_{T(?ADN)} ru] c-selects the V projection based on [_V rare], which then c-selects the V projection based on [_V tabe] (see 13a). Furthermore, in (49d), the adnominal feature on the present tense marker [_{T(?ADN)} ru] licenses successfully the genitive case *-no* on the internal argument, i.e. *pan-no*, by means of (11c). Finally, as in (49e), the adnominal feature on the tense marker, i.e. [_{T(?ADN)} ru], is licensed by the following relative head, [_{NP} hito] ‘person,’ as desired.³⁵ Thus, why native speakers produce/parse from left to right the strings of words in (46a–b) as illustrated in (47a–b) is successfully accounted for by the proposed dynamic syntactic

analysis.

Let us now come back to the contrasts in (2a–b) and (3a–b). The contrast in (2a–b) is repeated in (50a–b).

- (50) a. John-no nihongo-no kanpeki-na
 John-GEN Japanese-GEN perfect-ADN
 wakar-i-kata (= 2a)
 understand- -way
 ‘the way of John’s perfect understanding of Japanese’
 b. *John-no nihongo-no kanpeki-ni
 John-GEN Japanese-GEN perfect-ADV
 wakar-i-kata (= 2b)
 understand- -way

The well-formedness of (50a) shows that adnominal modifiers such as *kanpeki-na* ‘perfect’ are compatible with *-kata* nominalization. The ill-formedness of (50b), on the other hand, implies that adverbial modifiers such as *kanpeki-ni* ‘perfectly’ are not compatible with *-kata* nominalization.

Recall also that as shown in (51a),

- (51) a. John-no nihongo-no kanpeki-na wakar-i-kata
 ----->ok
 (= 50a, 5a)
 b. John-no nihongo-no kanpeki-ni wakar-i-kata
 ----->*
 (= 50b, 7a)

native speakers of Japanese accept (50a) instantaneously at the very end of their production/parse; also, as seen in (51b), native speakers reject (50b) instantly at the very last point of their production/parse.

Significantly, the observation above with respect to (50a–b) and (51a–b) is now captured directly by the dynamic syntactic competence model in this paper. Consider first example (50a). For (50a), syntax first produces/parses the genitive case marked NP, *John-no* ‘John-GEN.’ Hence, as in (52a),

- (52) a. [_{?VP or ?NP} John-?no [e]]
 b. [_{?VP or ?NP} John-?no [_{?V’ or ?N’} nihongo-?no [e]]]
 c. [_{?VP or ?NP} John-?no [_{?V’ or ?N’} nihongo-?no
 [_{?N’} kanpeki-na [e]]]]³⁶
 d. [_{VP or NP} John-?no [_{V’ or N’} nihongo-?no
 [_{N’} kanpeki-na [_N wakar]]]]

³⁵ Examples (18b), (26b), (36b), (46b) are instances of ‘nominative-genitive conversion’ in Japanese. The reader is referred to Harada (1971), Miyagawa (1993, 2013), Watanabe (1996), Hiraiwa (2001), Saito (2001), etc. for their important analyses of the case conversion phenomenon. Unlike the dynamic syntactic analysis proposed in this paper, however, it is not clear how such generative grammatical analyses can be made compatible with the actual flow of language production/understanding.

³⁶ Representations such as (52c) and (53c) proposed in this paper are radically fuzzy in that such structures contain multiple ‘underspecified’ nodes; furthermore, as explained in the following footnote, mixed category projections such as (52c) and (53c) are necessary for some constructions in Japanese. Under the strict version of Dynamic Syntax, however, there can be only one ‘unfixed’ tree node of a type at a time in any process of tree growth (Kempson & Kiaer 2010, p. 161, among others). I leave this theoretical problem for future research (see footnote 29 as well).

- e. [NP [NP John-no [N, nihongo-no [N, kanpeki-na

[N *wakar*]]]] [N *kata*]]
----->ok

syntax builds the fuzzy [$?V$ or $?N$] projection without its head, accommodating the genitive case marked NP, *John-no*, as the highest argument within the [V or N] shell structure (see 10c). As in (52b), syntax then produces/parses the second genitive case marked NP, *nihongo-no* ‘Japanese-GEN,’ and inserts it into the [$?VP$ or $?NP$] shell as the second highest argument (see 10c). Subsequently, as in (52c), syntax produces/parses the adnominal modifier, *kanpeki-na* ‘perfect,’ and places it immediately below the N projection (see 10e). As in (52d), there then comes the flexible predicate, [V or N *wakar*] ‘understand,’ and given the phrase structure already constructed, *wakar* enters the empty head position, providing the non-deterministic syntactic [V or N] label for the higher projection and the syntactic N label for the lower projection (see 12d).³⁷ Finally, as in (52e), syntax produces/parses the nominal suffix *kata*, which c-selects the N projection, consequently licensing the two genitive case marked NPs, i.e. *John-no* and *nihongo-no* (see 13b and 11b). Importantly, all the requirements indicated by $?$ disappear at the end of the production/parsing process in (52e), and thus, native speakers accept (50a) exactly at this very end stage of their production/parsing (see 51a).

Consider next unacceptable example (50b). For (50b) also, syntax first produces/parses *John-no*, and then produces/parses *nihongo-no*. Hence, as in (53a–b),

- (53) a. [$?VP$ or $?NP$ John-?no [e]] (=52a)
b. [$?VP$ or $?NP$ John-?no [$?V$, or $?N$, nihongo-?no [e]]]
(=52b)
c. [$?VP$ or $?NP$ John-?no [$?V$, or $?N$, nihongo-?no
[$?V$, kanpeki-ni [e]]]]
d. [VP or NP John-?no [V , or N , nihongo-?no
[V , kanpeki-ni [V *wakar*]]]]
e. [NP [NP John-no [N, nihongo-no [$*V$, kanpeki-ni

[$*V$ *wakar*]]]] [N *kata*]]
----->*

syntax constructs the [$?V$ or $?N$] projection, accommodating *John-no* as the highest argument first, and then, *nihongo-no* as the second highest argument within the [V or N] shell structure (see 10c). As in (53c), syntax then produces/parses the adverbial modifier, *kanpeki-ni* ‘perfectly,’ and puts it immediately below the V projection (see 10d). Then, as in (53d), the

flexible predicate, [$?V$ or $?N$ *wakar*], comes and enters the empty head position, giving the non-deterministic [V or N] label to the higher projection and the V label to the lower projection (see 12d). Last, as in (53e), syntax processes/parses the nominal suffix *kata*, which c-selects the N projection, consequently licensing the two genitive case marked NPs (see 13b and 11b). However, the syntactic c-selection by *kata* is incompatible with the V projection constructed by the adverbial, *kanpeki-ni*, in (53e), as indicated by $*$. Native speakers, therefore, reject (50b) at this very last production/parsing point in (53e).

Examine next the contrast in (3a–b), repeated in (54a–b); recall that the contrast in (50a–b) is reversed in (54a–b).

- (54) a. *John-no nihongo-no kanpeki-na
John-GEN Japanese-GEN perfect-ADN
wakar-u wake
understand-PRES(ADN) reason
‘the reason why John understands Japanese
perfect’ (=3a)
b. John-no nihongo-no kanpeki-ni
John-GEN Japanese-GEN perfect-ADV
wakar-u wake
understand-PRES(ADN) reason (=3b)

The ungrammaticality of (54a) shows that adnominal modifiers such as *kanpeki-na* ‘perfect’ are not compatible with the relative clause (cf. 50a). The grammaticality of (54b) implies that adverbial modifiers such as *kanpeki-ni* ‘perfectly’ are compatible with the adnominal clause (cf. 50b).

Importantly, as illustrated in (55a),

- (55) a. John-no nihongo-no kanpeki-na wakar-u
----->*
(= 54a, 5b)
b. John-no nihongo-no kanpeki-ni wakar-u wake
----->ok
(= 54b; cf. 7b)

native speakers of Japanese reject (54a) instantly, when they produce/parsing the word, [V *wakar*]-[T u] ‘understand-PRES.’ On the other hand, as shown in (55b), native speakers produce/parsing successfully the entire string of words in (54b).

This observation concerning (54a–b) and (55a–b) is also captured directly by the proposed dynamic syntactic analysis as follows: first, consider

³⁷ The reader is referred to Sugioka (2009, p. 92, 27b–d), Hoshi (2014, 2019a–b, 2020a–b, 2021a–c, 2022a–b, 2023a–b, etc.), among others, for arguments for MIXED CATEGORY PROJECTIONS such as the ones in (52c), (53c), (56c) and (57c). Sugioka first proposes a mixed category projection analysis for *-tyuu* ‘middle/while’ construction in Japanese, and following her lead, Hoshi does so for Japanese light verb construction, etc. Importantly, all these constructions in Japanese involve verbal nouns (VNs), and probably, it is VNs that make mixed category projections visible.

unacceptable example (54a). For (54a) as well, syntax produces/parses the two genitive case marked NPs, i.e. *John-no* and *nihongo-no*, consecutively. Hence, as in (56a–b),

- (56) a. [_{?VP or ?NP} John-?no [e]]
 b. [_{?VP or ?NP} John-?no [_{?V' or ?N'} nihongo-?no [e]]]
 c. [_{?VP or ?NP} John-?no [_{?V' or ?N'} nihongo-?no
 [_{?N'} kanpeki-na [e]]]]
 d. [_{VP or NP} John-?no [_{V' or N'} nihongo-?no
 [_{N'} kanpeki-na [_N **wakar**]]]]
 e. [_{TP} [_{VP} John-**no** [_{V'} nihongo-**no**

 [_{*N'} kanpeki-na [_{*N} **wakar**]]]]] [_T u]
 ----->*

syntax builds the headless [_{?VP or ?NP}] structure, where *John-no* is generated as the highest argument first, and then *nihongo-no* as the second highest argument (see 10c). Then, as in (56c), syntax produces/parses the adnominal modifier *kanpeki-na* ‘perfect,’ placing it immediately below the N projection (see 10e). As in (56d), subsequently, there comes the flexible predicate [_{V or N} *wakar*], which enters the empty head position, providing the non-deterministic [V or N] label for the upper projection and the N label for the lower projection (see 12d). As in (56e), finally, the present tense marker [_{T(?ADN)} *u*] c-selects the V projection, licensing the two genitive case marked NPs, i.e. *John-no* and *nihongo-no* (see 13a and 11c). Significantly, however, as indicated by *, the syntactic c-selection by the present tense marker is incompatible with the N projection created by the adnominal modifier, *kanpeki-na* (see 13a & 10e). Native speakers therefore reject (54a) exactly at this production/parsing point in (56e).

Examine finally example (54b). For (54b) as well, syntax produces/parses *John-no* and *nihongo-no* consecutively. Hence, as in (57a–b), initially,

- (57) a. [_{?VP or ?NP} John-?no [e]] (=56a)
 b. [_{?VP or ?NP} John-?no [_{?V' or ?N'} nihongo-?no
 [e]]] (=56b)
 c. [_{?VP or ?NP} John-?no [_{?V' or ?N'} nihongo-?no
 [_{?V'} kanpeki-ni [e]]]]
 d. [_{VP or NP} John-?no [_{V' or N'} nihongo-?no
 [_{V'} kanpeki-ni [_V **wakar**]]]]
 e. [_{TP} [_{VP} John-**no** [_{V'} nihongo-**no** [_{V'} kanpeki-ni
 [_V **wakar**]]]]] [_{T(?ADN)} u]
 f. [_{NP} [_{TP} [_{VP} John-**no** [_{V'} nihongo-**no**

 [_{V'} kanpeki-ni [_V **wakar**]]]]] [_{T(AND)} u]] [_{NP} wake]
 ----->ok

the first genitive case marked NP, *John-no*, is placed as the highest argument, and the second genitive case marked NP, *nihongo-no*, is inserted as the second highest argument within the fuzzy [_{?V or ?N}] projection

(see 10c). As in (57c), syntax then produces/parses the adverbial modifier, *kanpeki-ni* ‘perfectly,’ putting it immediately below the V projection (see 10d). As in (57d), then, the flexible predicate [_{V or N} *wakar*] enters the empty head position, giving the non-deterministic [V or N] label to the upper projection and the V label to the lower projection (see 12d). As in (57e), if syntax then produces/parses the adnominal present tense marker [_{T(?ADN)} *u*], which c-selects the V projection, licensing at the same time the two genitive case marked NPs, *John-no* and *nihongo-no* (see 13a and 11c). Finally, as in (57f), the relative head, *wake* ‘reason,’ comes, and licenses the adnominal feature on the present tense marker, [_{T(?ADN)} *u*]. The proposed dynamic syntactic competence model thus also explains how and why native speakers succeed in producing/parsing the entire string of words in (54b), as desired.

7. CONCLUSION

In this paper, I have attempted to reveal how our mind builds and enriches phrase structure step by step in the course of left to right producing/parsing a string of words in head-final languages such as Japanese. To capture the property of our mind directly, I have proposed my version of dynamic syntactic analysis, which makes use of syntactic features such as cases, categories, etc. in a crucial manner (cf. Kempson et al. 2001, Cann et al. 2005, among others).

More specifically, here, I have argued for the following: first, in the course of left to right sentence production/parsing, if case marked phrases are present in a clause, such case marked phrases initially construct fuzzy phrase structures such as [_{?VP}], [_{?NP}], and [_{?VP or ?NP}] without their predicative heads (see 10a–e; cf. Kempson & Kiaer 2010; cf. Larson 1988, Koizumi 1995, Takano 2002, etc.). Second, four predicates in Japanese, viz. adjectival noun (AN), adjective (A), verbal noun (VN), and verb (V), are the identical, non-deterministic category, i.e. [V or N], in syntax (see 12a–d). Hence, when any of these flexible categories enters the empty head position of the fuzzy structure already constructed by a case marker, etc., the non-deterministic predicate chooses for the structure any one of the THREE OPTIONS provided by the categorial label [V or N], namely, (i) [V], (ii) [N] or (iii) [V or N] (see §3–§6). Third, the final nature of the [V or N] projection so constructed is determined by a following head through its syntactic c-selection (see 13a–c; see §3–§6; cf. Sugioka 2009, p. 92, 27b–d, Hoshi 2014, etc.). Fourth, case markers used for initial headless structure building wait to be licensed by a series of phrase final (functional) heads in the course of left to right information processing (see 11a–d).

If correct, the proposed analysis implies that syntax largely determines the nature of phrase structure before producing/parsing a phrase-final head; hence, native speakers can make acceptability judgements in an

instantaneous manner, when they produce/parse each of such phrase-final heads (cf. Phillips 1996, 2003, Kempson et al. 2001, Culicover & Nowak 2003, Cann et al. 2005, Kempson et al. 2011, Kempson 2015, 2017, etc.; cf. Chomsky 1965, 1981, 1986, 1995, Hawkins 1990, 1994, 2004, 2014, among others).

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