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MIXED CATEGORIES IN JAPANESE

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MIXED CATEGORIES IN JAPANESE

by

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To my wife and parents

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MIXED CATEGORIES IN JAPANESE

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The purpose of this dissertation is to explain the syntax and morphology associated with mixed categories in which both verbal and nominal projections are apparently headed by a single word. Though the mixed categories seem incompatible with a linguistic generalization about categorial identity between heads and projections (i.e., X-bar theory), I claim that the linguistic generalization is tenable at the level of constituent structure. Rather, following head sharing analysis (Bresnan 1997), I argue that the mixture of verbal and nominal properties arises as a consequence of mapping a constituent structure of a head and that of its sister to the same functional structure, within a framework of Lexical Functional Grammar.

This dissertation focuses on mixed categories in Japanese. In this language, mixed categories involve mixed case marking in which both a nominal case (i.e., genitive) and a verbal case (e.g., nominative or accusative) are assigned to arguments of a single predicate. They are problematic regarding a generalization such that the nominal case is licensed only within a nominal projection, while the verbal case is licensed only within a verbal projection. I argue that the mixed case marking is allowed only in a verbal projection. Assuming a phrase structure rule, which enables a sister of a predicate to bear a nominal case even in a verbal projection, I show that a head sharing analysis fits well with Japanese mixed categories.

This dissertation also discusses morphology in Japanese mixed categories. I carefully examine lexical integrity of head elements in mixed category constructions from both a

phonological and morphological viewpoint. The result suggests that the head of Japanese mixed categories is a single verb, which is derived from the concatenation of an argument-taking noun and a verbalizing suffix.

I chiefly deal with Temporal Morpheme Constructions in which a Temporal Morpheme such as *tyuu* 'during' is combined by a preceding argument-taking noun to form a single predicate. I also extend my analysis to other mixed categories such as Purpose Expressions and Nominalized Adjective Constructions, which involve control structures. In addition, I reexamine the so-called post-syntactic compounds, regarding them as a variant of mixed categories.

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List of Abbreviation

V: verb

N: noun

VP: verb phrase

NP: noun phrase

IP: inflectional phrase

DP: determiner phrase

AP: adjective phrase

P: postposition

PP: postpositional phrase

S: sentence

HON: honorific

NONFIN: nonfinite

PL: plural

DIR: directional

LOC: locative

COMP: complementizer

Q: question marker

CONJ: conjunction

NEG: negative

NPI: negative polarity item

VC: verbal case

NC: nominal case

MC: mixed case

CEN: complex event nominal

TM: temporal morpheme

TMC: temporal morpheme construction

PE: purpose expression

NAC: nominalized adjective construction

GF: grammatical function

PRED: predicate

SUBJ: subject

OBJ: object

OBL: oblique

XCOMP: open complement

XADJ: open adjunct

POSS: possession

NOM: nominative

ACC: accusative

DAT: dative

GEN: genitive

NPST: non-past

COP: copula

PURP: purpose marker

NML: nominalizer

Chapter 1

Introduction

1.1 What are Mixed Categories?

In this thesis, I examine mixed categories in Japanese. I will reserve the term, **mixed categories**, for the constructions in which a single word appears to head both a verbal and a nominal projection simultaneously (Bresnan 1997). For example, verbal gerunds in English can be counted as one of the mixed categories in which gerundive forms of verbs, V-*ing*, head both external nominal projections and internal verbal projections. The mixed categories can be associated with the following schematic structures.[1]

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[1] Throughout this thesis, functional categories, IP and DP, are taken as categorially non-distinct from VP and NP, respectively, following the idea of extended projections (Grimshaw 1991) or of LFG coheads (Bresnan 2001). Thus, we will use VP and NP instead of the corresponding functional categories.

(1)a.　　　　NP　　　　　　　　　b.　　　　VP

　　　Mary's　　　VP　　　　　　　　　　NP

　　　　　[$_X$ singing] the aria　　　　　　　…X…
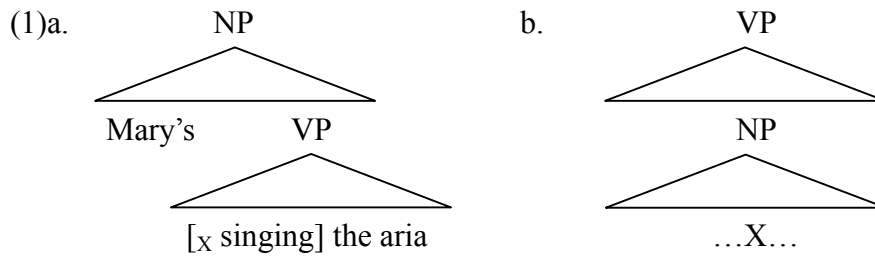
In (1a), a gerundive form, *singing*, heads an internal verbal projection just like a verb, while it also heads an external nominal projection just like a noun. The categorially indeterminate status of the gerundive form is represented as an uncertain category X. Like English verbal gerunds, mixed categories in many languages seem to involve nominalization and are associated with an external nominal projection and an internal verbal projection as in (1a). Nevertheless, it is possible to assume mixed categories which involve verbalization and are associated with an external verbal projection and an internal nominal projection as in (1b). As I will discuss later, mixed categories in Japanese can be associated with the verbalization type of mixed categories.

　　The mixed categories pose a problem for the following generalization about categorial consistency between heads and their projections, which is a basic

assumption within an X-bar theoretic or endocentric view of phrase structure.

(2) Heads (X_0) and their projections (X', X", etc.) are categorially identical.

The generalization (2) captures the following facts. If V_0 is a head, it heads a verbal projection such as V' or VP rather than a nominal projection such as N' or NP, as shown in (3). If N_0 is a head, it heads a nominal projection rather than a verbal projection, as shown in (4).

(3)a. [$_{VP}$ John [$_{V'}$[$_V$ ate] pizza]]].

   b. *[$_{NP}$ John's [$_{N'}$[$_V$ ate] of pizza]]].

(4)a. [$_{NP}$ Mary's [$_{N'}$ consistent [$_N$ opinion]]]

   b. *[$_{VP}$ Mary [$_{V'}$ consistently [$_N$ opinion]]]

The linguistically significant generalization (2) is imperiled by mixed categories such

as an English verbal gerund (1a), since the mixed categories are categorially inconsistent in that a single word heads (more than) two categorially non-identical projections.

1.2 The Problem of Mixed Case Marking

This thesis focuses on mixed categories in Japanese. In particular, I deal with constructions which involve **mixed case marking** in the following sense (cf. Sells 1990, Manning 1993).

Case-marking in Japanese is, in general, correlated to the category of the case-assigner and its projection. **Verbal Case** (**VC**) such as Nominative and Accusative is licensed under a verbal projection such as VP, which is headed by V, whereas it is not licensed under a nominal projection such as NP, which is headed by N. **Nominal Case** (**NC**) such as Genitive is, in contrast, licensed under the nominal projection, whereas it is not licensed under the verbal projection.

(5)a. [$_{VP}$ John-ga/*-no   [$_{V'}$ ainugo-o/*-no   [$_V$ kenkyuu-si-ta]]]

      John-NOM/*-GEN   Ainu-ACC/*-GEN   research-do-PAST

      'John studied Ainu.'

  b. [$_{NP}$ John-no/*-ga   [$_{N'}$ ainugo-no/*-o   [$_N$ kenkyuu]]](-wa   omosirokatta).

      John-GEN/*-NOM   Ainu-GEN/*-ACC   research(-TOP was.interesting)

      'John's research on Ainu (was interesting).'

In (5a), a nominative case-particle *-ga* and an accusative case-particle *–o* are licensed

under a VP, which is headed by a verb *kenkyuu-si-ta* 'studied.'[2] The verbal projection

does not allow a genitive case-particle *–no* to appear. In contrast, (5b) shows that the

genitive particle is licensed under a NP, which is headed by a noun *kenkyuu* 'research',

while the nominal projection does not allow the nominative and accusative

case-particles to appear.

    However, the **Temporal Morpheme Construction (TMC)**, which is headed by a

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[2] Here, we assume a lexical treatment of inflectional morphology (Sells 1995), so that the past-tense
morpheme *–ta* in (5a) is attached to the base verb in the lexicon as a part of verb.

sequence of an argument-taking noun or a **complex event nominal** (**CEN**; cf.

Grimshaw 1990) such as *kenkyuu* 'research' and a **temporal morpheme** (**TM**) such as

tyuu 'mid', allows either NC- or VC-marking. It also allows a mixture of both VC and

NC (i.e. **Mixed Case: MC**) under the same projection.[3]

(6)a. [$_{NP}$ John-no   [$_{N'}$ ainugo-no   [$_{N}$ kenkyuu tyuu]]]   <NC>

    John-GEN   Ainu-GEN   research mid

    'during John's research on Ainu'

  b. [$_{VP}$ John-ga   [$_{V'}$ ainugo-o   [$_{V}$ kenkyuu-tyuu]]]   <VC>

    John-NOM   Ainu-ACC   research-mid

  c. [$_{VP}$ John-ga   [$_{N'}$ ainugo-no   [$_{X}$ kenkyuu-tyuu]]]   <MC>

    John-NOM   Ainu-GEN   research-mid

In (6), the TMC headed by the sequence of CEN + TM, *kenkyuu(-)tyuu* 'during

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[3] Complex Event Nominals include not only a Sino-Japanese Verbal Noun like *kenkyuu* 'research' in (6) but also a native V-V compound like *uke-tori* 'receipt' and a Western loanword like *kopii* 'copy' (cf. Iida 1987, Tsujimura 1991).

research' allows either NC-marking (6a) or VC-marking (6b).[4] It also allows

MC-marking, that is, co-occurrence of both a VC (i.e. Nominative) particle and a NC

(i.e. Genitive) particle, as in (6c). The NC- and VC-marking in (2a, b) do not pose a

serious problem for the general case-marking pattern as in (5), if either NC is licensed

under a nominal projection (6a) or VC under a verbal projection (6b). However, the

serious problem is that the MC-marking in (6c) does not fall into the general

case-marking patterns in (5), because it suggests that a single word of an uncertain

category X appears to head both a VC and a NC within the projection. The problem of

MC-marking can be regarded as the problem of **mixed categories** (Bresnan 1997,

Malouf 2000) in that a single word appears to head both verbal and nominal

projections, which licenses VCs and NCs, respectively. Even a verbal gerund in

English such as (1a), *Mary's singing the aria*, can be taken as involving the problem of

mixed case marking in that the subject, *Mary*, receives a NC (i.e., Genitive) while the

object, *the aria*, a VC (i.e., Accusative). Schematically, the mixed case marking in

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[4] Whether a morpheme follows a hyphen or a space stands for whether it is a bound morpheme or a free morpheme. What hyphenation in (6) suggests will become clear in the next Chapter.

English requires the same structural analysis as (1a), as in (7a), while the mixed case

marking in Japanese the analysis (1b), as in (7b).

(7)a.   NP   b.   VP

      NP-nc   VP   NP-vc   NP

               X …NP-vc   NP-nc…X
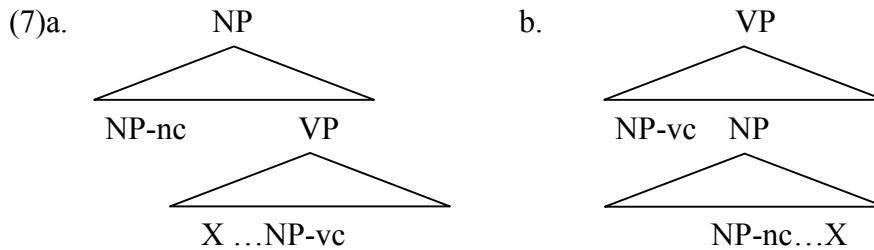
  N.B. −nc and −vc stand for nominal and verbal case particle, respectively.

      The primary goal of this thesis is to provide a theoretical account for the

MC-marking, particularly, in the TMC, a representative mixed-category construction in

Japanese. A theory that can handle the MC-marking should also be compatible with the

general case-marking patterns in (5). In Chapter 2, 3, and 4, I will concentrate on the

examination of TMC.

      Nevertheless, the scope of this thesis is not limited to the MC-marking in TMC

but can be extended to similar case-marking phenomena, which can be observed in the

following constructions.

(8) Purpose Expressions (Miyagawa 1987, Matsumoto 1996)

   a. John-ga   [Hokudai-de ainugo-o   kenkyuu-ni]   Nihon-ni kita. <VC>

     John-NOM Hokkaido.Univ-at Ainu-ACC research-PURP Japan-to came

     'John came to Japan to study Ainu.at Hokkaido University'

   b. John-ga   [Hokudai-de ainugo-no kenkyuu-ni] Nihon-ni   kita <MC>

      John-NOM Hokkaido.Univ-at Ainu-GEN research-PURP Japan-to came

   c. John-ga   [Hokudai-de-no ainugo-no kenkyuu-ni] Nihon-ni   kita <NC>

      John-NOM Hokkaido.Univ-at-GEN Ainu-GEN research-PURP Japan-to came

(9) Nominalized Adjective Constructions (Morimoto 1996)

   a. John-ga   [Mary-to   sono   eega-ga/o   mi-ta-sa-ni], <VC>

     John-NOM Mary-with   the   movie-NOM/ACC   watch-want.to-NML-for

     (gakkoo-o sabot-te simatta.)

     school-ACC cut-TE finished

'(John cut school) for he wanted to watch the movie with Mary.'

b. John-ga   [Mary-to sono eega-no   mitasa-ni], …   <MC>

John-NOM   Mary-with the movie-GEN   watch-want.to-NML-for

c. John-ga   [Mary-to-no sono eega-no   mitasa-ni], … <NC>

John-NOM   Mary-with-GEN   the movie-GEN   watch-want.to-NML-for

Purpose Expressions in (8) are headed by a class of motion verb such as *kuru* 'come' or *iku* 'go' that follow a sequence of CEN and purpose marker *ni*. They involve control structures. In their controlled clauses (i.e., bracketed parts in 8 and 9), an unexpressed subject (i.e. a controlled element) is controlled by or co-referential with an overt matrix subject (i.e. a controller). Though the unexpressed subject cannot be marked with a grammatical case, other complements in the controlled clauses can be case-marked. In (8a), the controlled clause allows a case-marking pattern similar to VC-marking in that it licenses a VC-marked Locative complement (i.e. *Hokudai-de*) as well as a VC-marked object NP. In (8b), the controlled clause allows a case-marking

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pattern similar to MC-marking in that it licenses a VC-marked Locative complement as well as a NC-marked object NP. In (8c), the controlled clause allows a case-marking pattern similar to NC-marking in that it licenses a NC-marked Locative complement as well as a NC-marked object NP. Likewise, one can observe case-marking variations in Nominalized Adjective Constructions (9), grammatical constructions headed by a class of adjective such as V-*tai* 'want to V' or *hosii* 'want (something)', which is nominalized by a suffix *–sa* and followed by a morpheme such as *–ni* or *–no amari(-ni)* that is used to express a reason or motivation. In their controlled clauses, case marking patterns similar to VC-marking (9a), MC-marking (9b), or NC-marking (9c) are allowed. In Chapter 7, I will carefully examine case marking in these constructions and claim that the same account for case marking as in Temporal Morpheme Constructions is possible.[5]

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[5] Light Verb Constructions (Grimshaw and Mester 1988, among others), Copula Constructions (Sells 1996, Yoon 2003), and Noun Modifying Clauses (Kikuta 2000) might be taken as mixed categories in that they apparently involve mixed case marking, though this thesis does not deal with them.

1.2.1 On the Observation of Mixed Case Marking

Although I deal with mixed case marking as a central problem to be explained in this thesis, I will observe the data carefully, keeping the following points in mind. First, since a mixed category such as a Temporal Morpheme Construction is a modifier, I will observe a larger context (i.e., a whole sentence) that embeds the mixed category as a part. Otherwise, one cannot tell whether the case-marking patterns are in fact licensed under the given mixed category or under a main clause. For example, when I observe the data in (6b, c), repeated below, I will take a larger context in consideration.

(6)b. [VP John-ga   [V' ainugo-o   [V kenkyuu-tyuu]]]   <VC>

    John-NOM   Ainu-ACC   research-mid

    'while John studies Ainu'

  c. [VP John-ga   [N' ainugo-no   [X kenkyuu-tyuu]]]   <MC>

    John-NOM   Ainu-GEN   research-mid

The Temporal Morpheme Constructions in (6b) and (6c) can be regarded as licensing

VC- and MC-marking, respectively, if they occur in a larger context as follows.

(10)a. [_VP John-ga   [_V' ainugo-o   [_V kenkyuu-tyuu]]],

John-NOM   Ainu-ACC   research-mid

sono ziko-ga okotta.   <VC>

the accident-NOM   happened

'The accident happened while John was studying Ainu."

b. [_VP John-ga   [_N' ainugo-no   [_X kenkyuu-tyuu]]],

John-NOM   Ainu-GEN   research-mid

sono ziko-ga okotta.   <MC>

the accident-NOM   happened

In (10a, b), the Temporal Morpheme Constructions in question serve as subordinate

clauses that do not share their grammatical subject (i.e. *John*) with main clauses. Thus,

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the Nominative case on the subject *John* in (10a, b) is licensed under the subordinate clause (i.e. the Temporal Morpheme Construction) but not under the main clause. In contrast, it is not obvious that the Temporal Morpheme Constructions (6b) and (6c) can license VC- and MC-marking, respectively, in the following environments.

(11)a. John-ga   [_{VP} ainugo-o   [_V kenkyuu-tyuu]]],

     John-NOM   Ainu-ACC   research-mid

     aru juuyoona zizitu-o hakken-sita.

     certain important fact-ACC discovered

     'John discovered a certain important fact while he was studying Ainu."

  b. John-ga   [_{VP} [_{N'} ainugo-no   [_X kenkyuu-tyuu]]],

     John-NOM   Ainu-GEN   research-mid

     aru juuyoona zizitu-o hakken-sita.

     certain important fact-ACC discovered

In (11a, b), the Temporal Morpheme Constructions in question serve as subordinate clauses (or controlled clauses) that share their grammatical subject (i.e. *John*) with main clauses. Thus, the Nominative case on the subject *John* in (11a, b) is licensed under the main clause but not under the Temporal Morpheme Constructions. In particular, one cannot tell whether the Temporal Morpheme Construction in (11b) is a clause that has an unexpressed subject or a noun phrase that does not license a VC-marked subject. In the latter case, I cannot take the Temporal Morpheme Construction in (11b) as a mixed category that allows MC-marking.

Since the source of case for a controlled subject as in (11a, b) is probably the matrix verb rather than the subordinate construction, a controlled structure must have at least two non-controlled (i.e. non-subject) arguments in order for us to tell whether it has MC marking or not. Purpose Expressions in (8) and Nominalized Adjective Constructions in (9) are always controlled, so we need at least two non-controlled (non-subject) arguments in order to test for MC marking:

(8) Purpose Expressions (Miyagawa 1987, Matsumoto 1996)

   a. John-ga   [Hokudai-de ainugo-o   kenkyuu-ni]   Nihon-ni kita. <VC>

      John-NOM Hokkaido.Univ-at Ainu-ACC research-PURP Japan-to came

      'John came to Japan to study Ainu.at Hokkaido University'

   b. John-ga   [Hokudai-de ainugo-no kenkyuu-ni] Nihon-ni   kita. <MC>

      John-NOM Hokkaido.Univ-at Ainu-GEN research-PURP Japan-to came

   c. John-ga   [Hokudai-de-no ainugo-no kenkyuu-ni] Nihon-ni   kita. <NC>

      John-NOM Hokkaido.Univ-at-GEN Ainu-GEN research-PURP Japan-to came

(9) Nominalized Adjective Constructions (Morimoto 1996)

   a. John-ga   [Mary-to   sono   eega-ga/o   mi-ta-sa-ni],   <VC>

      John-NOM Mary-with   the   movie-NOM/ACC   watch-want.to-NML-for

      (gakkoo-o sabot-te simatta.)

      school-ACC cut-TE finished

      '(John cut school) for he wanted to watch the movie with Mary.'

b. John-ga   [Mary-to sono eega-no   mitasa-ni], … <MC>

John-NOM   Mary-with the movie-GEN   watch-want.to-NML-for

c. John-ga   [Mary-to-no sono eega-no   mitasa-ni], … <NC>

John-NOM   Mary-with-GEN   the movie-GEN   watch-want.to-NML-for

It is important for our discussion not to exclude control structures but to find an unambiguous context where a mixed case marking (or a mixed category) is allowed. For the same reason that I avoid (11a, b), I will NOT observe the following kind of data.

(12)a. John-ga   [ainugo-o   kenkyuu-ni]   kita.

John-NOM Ainu-ACC research-PURP came

'John came to study Ainu.'

b. John-ga   [ainugo-no kenkyuu-ni]   kita

John-NOM Ainu-GEN research-PURP came

(13)a. John-ga　[sono　eega-ga/o　　　mi-ta-sa-ni],

　　　John-NOM the　　movie-NOM/ACC　watch-want.to-NML-for

　　　(gakkoo-o sabot-te simatta.)

　　　school-ACC cut-TE finished

　　　'(John cut school) for he wanted to watch the movie.'

　 b. John-ga　　[sono eega-no　　mitasa-ni], …

　　　John-NOM　the movie-GEN　watch-want.to-NML-for

In (12a, b) and (13a, b), the controlled clause has only one argument, so we cannot tell

whether (12a), for example, is an instance of VC or MC.

　　Another point to keep in mind is that there are dialectal variations (or differences

in acceptability) among native speakers of Japanese language, regarding the data that

show case-marking patterns in Japanese mixed category constructions. For example,

Matsumoto (1996) reports that the following example of MC-marked TMC is not fully

acceptable to him.

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(14) John-ga   musen-de   kokumusyoo-to   angoobun-no

John-NOM radio-INST State.Dept-with   coded.message-GEN

koosin-tyuu-ni,   denpa-boogai-ga   okotta.

communication-middle-in, radio-inference-NOM   happened

"Radio inference occurred while John was in the midst of exchanging coded

messages with the State Department by radio."

Also, he reports that a MC-marked TMC becomes less acceptable, when it contains a

temporal morpheme like –*go* 'after'.[6]

(15) Karera-ga Koobe-koo-kara-no syukkoo-go(-ni), John-wa….

They-NOM Kobe-port-from-GEN departure-after(-in) John-TOP

"After they departed from the port of Kobe, John …."

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[6] See our discussion in 2.4.2. Another native speaker reports a different acceptability judgment, which depends on sub-types of Temporal Morphemes.

In spite of these dialectal variations, I accept (14) and (15) equally as grammatical.

Moreover, my observation of the data is not solely dependent on intuition but is also

supported empirically. Taking the first point above into consideration, too, I found the

following data on the internet with the GOOGLE search engine.

(16)a. X-ga Y-o CEN-tyuu (VC-marking):

…"Kamiigusa   hureai-no   ie (…)"-no   syokuin-ga   kuruma-de

  Kamiigusa   contact-GEN   house-GEN   staff-NOM   car-by

haisyoku   saabisu-no   syokuzi-o   haitatu-tyuu,

meal.delivery service-GEN   meal-ACC   delivery-mid,

riyoosya 201-meibun-no   Meibo-ga   haitteita   baggu-ga

user 201-for-GEN   name.list-NOM   was.packed   bag-NOM

toonan-niyori   hunsitu-sita   koto-ga   hanmei-simasita.

robbery-by   disappeared   NML-NOM   turned.out

'While a staff member of the Kamiigusa Contact House delivered meals for the

meal delivery service, it turned out that a bag in which a name list for the 201

users was packed disappeared.'

→http://64.233.161.104/search?q=cache:Qhyd7I8zjlgJ:www2.city.suginami.tokyo.jp/li

brary/file/180508meibohunnsitu.pdf+%E3%82%92%E9%85%8D%E9%81%94%E4%

B8%AD&hl=ja&gl=us&ct=clnk&cd=48

b. X-no Y-no CEN-tyuu (NC-marking):

Osanai   onna-no-ko   Ponetto-ga

Young   girl   Ponett-NOM

hahaoya-no   kuruma-no   unten tyuu-ni   ziko-ni au.

mother-GEN   car-GEN   drive during   accident-DAT meet

'A young girl, Ponett, met an accident, while her mother drove a car.'

→http://www.geocities.jp/aimiyume/eiga.html

c. X-ga Y-no CEN-tyuu (MC-marking):

Watasi-ga   kimuti-no   haitatu-tyuu-ni

I-NOM   kimchee-GEN   delivery-mid-in

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BUNBUN-Radio-no   syuzai-moosikomi-ga   arimasita.

Bunbun-radio-GEN   coverage-request-NOM   exist.past

'While I delivered kimchee, there was a request for coverage from BUNBUN

Radio.'

→http://torakim.com/bunbun.html

(17)a. X-ga Y-o CEN-go (VC-marking):

…Nihon-keidanren-ga   2003-nen 7-gatu-ni   teigen

JFEO-NOM   2003-year July-in   proposal

"Kosodate kankyoo-seibi-ni mukete"-o

"child-raising environment-improvement-toward"-ACC

happyoo-go,   2-nen amari-ga   keika-sita….

announcement-after,   2-year odd-NOM   passed...

"More than two years have passed, since the Japan Federation of Economic

Organization announced a proposal "Toward improvement of the environment

for child raising."

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b. X-no Y-no CEN-go (NC-marking):

Miki-niyoru   Metasequoia-no   syokubutu-kaseki-no

Miki-by   Metasequoia-GEN   plant-fossil-GEN

hakken go,   mamonaku   tyuugoku-no   okuti-ni

discovery after,   soon   China-GEN   backwoods-in

  sono Metasequoia-ga   gensei-siteita   toiu

  the Metasequoia-NOM   existed   that

  sin-zizitu-ga   hanmei-si, …

  new-fact-NOM   came-to-light, …

"Soon after the discovery of a plant fossil of Metasequoia by Miki, a new fact

that the Metasequoia existed in the backwoods of China came to light, …."

The empirical data (16, 17) suggest that it is possible for Temporal Morpheme

Constructions to license VC-, NC-, and MC-marking, without regard to the kind of Temporal Morpheme involved. Accordingly, they support the significance of our investigation of mixed categories in Japanese, in spite of the alleged difference in acceptability or dialectal variation.

1.3 Two Related Issues

In the course of our examination of mixed categories in Japanese, I will discuss two related issues. One issue concerns the single-word status of heads in mixed categories. In this thesis, my primary concept for 'word' is a linguistic unit which is formed in the lexicon according to morphological principles (i.e., morphological object: Di Sciullo and Williams 1987) and which can serve as an atomic element in the syntax (i.e., syntactic atom: ibid.), though I do not exclude other possible concepts for 'word'. This characterization of the notion 'word' is compatible with the principle of lexical integrity, which I will adopt in 1.4. On the basis of the principle of lexical

integrity, I carefully examine wordhood of heads in TMCs from not only a syntactic

viewpoint (Chapter 2) but also a phonological viewpoint (Chapter 5).

Another issue pertains to the phenomenon of case-particle omission, which is

observed in TMCs. I will find that the phenomenon can be predicted from a structural

property of TMC, which is compatible with our proposed analysis. I examine the

phenomenon in Chapter 6.

1.4 Framework

In this thesis, I adopt a LFG framework (Bresnan 2001, Darlymple 2001) for our

analysis of mixed categories in Japanese. Let us take a look at the framework briefly.

Lexical Functional Grammar (LFG) is a constraint-based grammatical

architecture. It is made up of multiple levels of grammatical representations, which are

parallel and can be linked through mapping. In particular, in addition to **constituent**

structure (**c-structure**), which is generated by a set of annotated context-free phrase

structure rules, LFG assumes **functional structure** (**f-structure**), which is made up of

attribute-value pairs (i.e. Attribute-Value Matrix: AVM) encoding a predicate's

subcategorization frame and a set of grammatical functions (GFs) associated with the

complements of the predicate.

1.4.1 Mapping from C- to F-structure

Every c-structure node is mapped to a corresponding f-structure. For instance,

given an appropriate set of phrase structure rules and lexical entries, a sentence like

John-ga hasit-ta 'John ran' can be associated with the c-structure (18a).

(18)a.
```
                          S
                         ↑ = ↓
                        /      \
                  NP              VP
            (↑ SUBJ) = ↓         ↑ = ↓
                 |                 |
                 N                 V
               ↑ = ↓             ↑ = ↓
             John-ga            hasit-ta.
        (↑ PRED) = 'John'   (↑ PRED) = 'run <(↑ SUBJ)>'
        (↑ CASE) = NOM       (↑ TENSE) = PAST
```
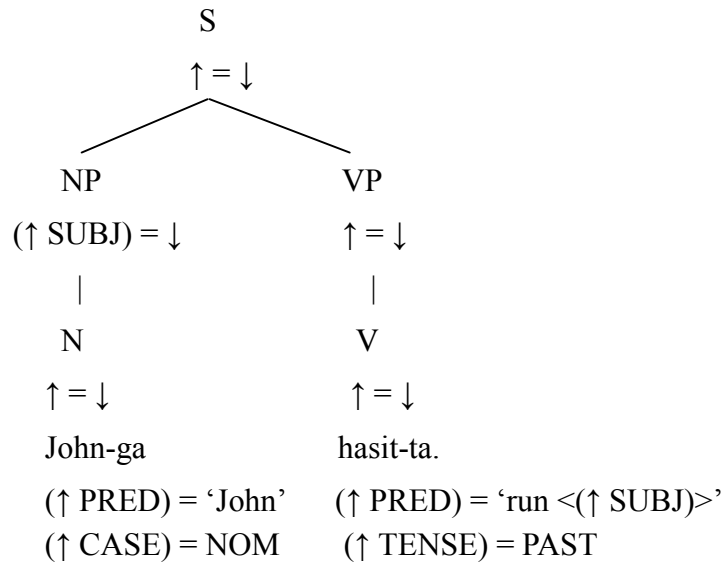
The up-arrow (↑) and the down-arrow (↓) indicate a mother's f-structure and a self's

f-structure, respectively. In (18a), a lexical entry for a verb *hasit-ta* 'ran' requires the

verb's f-structure to have an attribute PRED(icate) that has a value 'run <(↑ SUBJ)>',

which indicates that the PRED describes an event of running and subcategorizes for a

complement associated with a SUBJ(ect). The verb's f-structure also involves

information on TENSE that is encoded by a past-tense suffix *–ta*, which is

concatenated with the verb base in the lexicon. The annotation, ↑ = ↓, under V, VP, and

S allows these nodes to be mapped to the same f-structure for the verb *hasit-ta*, since it

indicates that a mother's f-structure is identical to a self's f-structure. Consequently,

the following f-structure for V, VP, and S can be obtained.

(18)b.

$$
\begin{bmatrix}
\text{PRED} & \text{'run} <(\uparrow\text{SUBJ})>\text{'} \\
\\
\text{TENSE} & \text{PAST} \\
\\
\text{SUBJ} & [\ldots]
\end{bmatrix}
$$

As for a lexical entry for a noun *John-ga* (John-Nom), it requires the noun's

f-structure to have an attribute PRED that has a value 'John', which indicates that the

PRED denotes an entity whose name is John. The noun's f-structure also involves

information on CASE that is encoded by a Nominative case-particle –*ga*, which is

concatenated with the noun base in the lexicon. The annotation, ↑ = ↓, under N, allows

the f-structure corresponding to the mother NP to be identical with the f-structure for

the noun *John-ga*. The mother NP is annotated as (↑ SUBJ) = ↓, which indicates that a

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f-structure for the subject of the sentence is the f-structure for the NP. Thus, the value

for the SUBJ in (18b) can be associated with the f-structure for the noun *John-ga*, as

follows.

(18)c.

$$
\begin{bmatrix}
\text{PRED} & \text{'run <(↑SUBJ)>'} \\
\text{TENSE} & \text{PAST} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'John'} \\ \text{CASE} & \text{NOM} \end{bmatrix}
\end{bmatrix}
$$

Consequently, the f-structure (18c) corresponds to the c-structure (18a).

1.4.2 Well-formedness Conditions on F-structures

Next, let us introduce three well-formedness conditions on f-structures.

Completeness requires that every function designated by a PRED be present in the

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f-structure of that PRED (Bresnan 2001: 63). It excludes an ungrammatical sentence, as follows.

(19)   *John-ga   ake-ta.

    John-NOM   open-PAST

   'John opened.'

The sentence (19) is ungrammatical because it violates the Completeness in that a f-structure for the OBJ(ect) of the PRED, *ake-ta* 'opened,' is not present in the f-structure of that PRED.

(20)a.

$$
\begin{bmatrix}
\text{PRED} & \text{'open} <(\uparrow \text{SUBJ}) (\uparrow \text{OBJ})>\text{'} \\
\\
\text{TENSE} & \text{PAST} \\
\\
\text{SUBJ} & [\ldots] \\
\\
\text{OBJ} & [\ldots.]
\end{bmatrix}
$$

The f-structure for the verb *ake-ta* (20a) indicates that the verb subcategorizes for the

subject and the object. By Completeness, f-structures for the subject and the object

must be present in the f-structure of the verb. In (19), the subject *John-ga* (John-Nom)

is realized but the object is not. That is, the f-structure for the subject is present in the

verb's f-structure while that for the object is not. Thus, the f-structure (20b) for the

sentence (19) is not complete.

(20)b.

$$
\begin{bmatrix}
\text{PRED} & \text{'open} <(\uparrow \text{SUBJ}) (\uparrow \text{OBJ})>\text{'} \\
\\
\text{TENSE} & \text{PAST} \\
\\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'John'} \\ \\ \text{CASE} & \text{NOM} \end{bmatrix} \\
\\
\text{OBJ} & [\ldots.]
\end{bmatrix}
$$
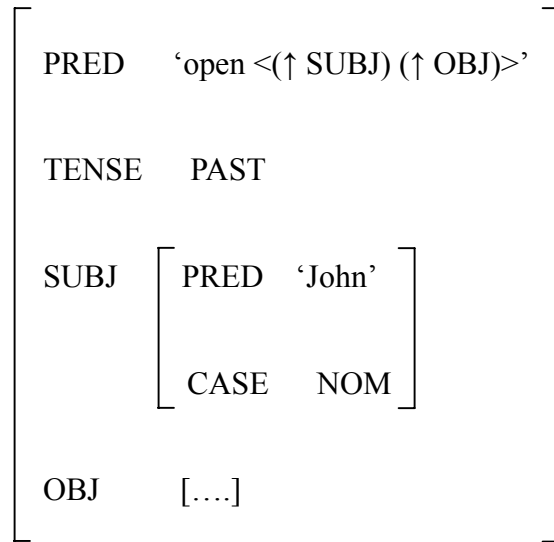
Coherence requires that every argument function such as SUBJ or OBJ in an f-structure be designated by a PRED (Bresnan 2001: 63). It excludes an ungrammatical sentence, as follows.

(21)   * John-ga   Mary-o   hasit-ta.

John-NOM   Mary-ACC   run-PAST

'John ran Mary.'

The sentence (21) is ungrammatical because it violates the Coherence in that a

f-structure for the OBJ(ect) is not supposed to be designated by the PRED *hasit-ta*

'ran'. The f-structure for the PRED (18b) is repeated below.

(18)b.

$$
\begin{bmatrix}
\text{PRED} & \text{'run} <(\uparrow\text{SUBJ})>\text{'} \\
\text{TENSE} & \text{PAST} \\
\text{SUBJ} & […] \\
\end{bmatrix}
$$

Since the verb *hasit-ta* subcategorizes for the subject but not for the object.

Nevertheless, the sentence (21) involves not only the subject *John-ga* (John-Nom) but

also the object *Mary-o* (Mary-Acc), and lead to the following f-structure.

(22)

$$
\begin{bmatrix}
\text{PRED} & \text{'run <(↑SUBJ)>'} \\
\text{TENSE} & \text{PAST} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'John'} \\ \text{CASE} & \text{NOM} \end{bmatrix} \\
\text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'Mary'} \\ \text{CASE} & \text{ACC} \end{bmatrix}
\end{bmatrix}
$$

The f-structure (22) is incoherent in that it involves a f-structure that the PRED does

not subcategorize for.

Uniqueness (or **Consistency**) requires every attribute to have a unique value

(Bresnan 2001: 47). It excludes an ungrammatical sentence, as follows.

(23)   *John-ga   irassyat-ta.

       John-NOM   come.HON-PAST

       'John came.'

The sentence (23) is ungrammatical because it violates the Uniqueness in that a

f-structure for the SUBJ is associated with two distinctive values. The lexical entry and

the f-structure for the PRED, *irassyat-ta* 'came (Hon),' are shown respectively below.

(24)a. irassyat-ta, V   (↑PRED) = 'come <(↑SUBJ   PROPERTY   HONORABLE)>'

                              (↑TENSE) = PAST

b.

$$
\left[
\begin{array}{ll}
\text{PRED} & \text{'come <(↑SUBJ)>'} \\
\\
\text{TENSE} & \text{PAST} \\
\\
\text{SUBJ} & \left[
\begin{array}{ll}
\text{PRED} & \text{'...'} \\
\\
\text{PROPERTY} & \text{HONORABLE}
\end{array}
\right]
\end{array}
\right]
$$
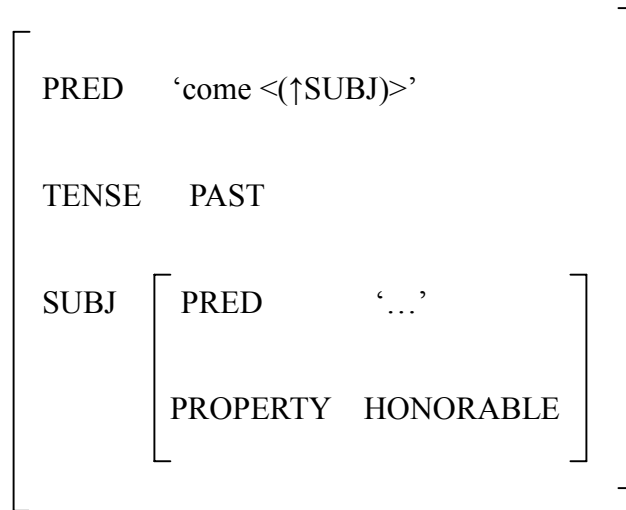
In the lexical entry (24a), the verb *irassyat-ta* subcategorizes for the subject whose

honorable property is respected by the speaker. Thus, the subject for the verb must

refer to an honorable person. The property requirement for the subject is represented

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by the f-structure (24b). However, the sentence (23) has a subject *John(-ga)*, which

refers to a non-honorable person. The lexical entry for the subject and the f-structure

for the sentence (23) can be represented as follows.

(25)a. John-ga, N   (↑PRED) = 'John'

                         (↑CASE) = NOM

                         (↑PROPERTY) = NON-HONORABLE

   b.

$$\begin{bmatrix} \text{PRED} & \text{'come} <(\uparrow\text{SUBJ})>\text{'} \\ \\ \text{TENSE} & \text{PAST} \\ \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'John'} \\ \\ \text{PROPERTY} & \text{HONORABLE/NON-HONORABLE} \end{bmatrix} \end{bmatrix}$$
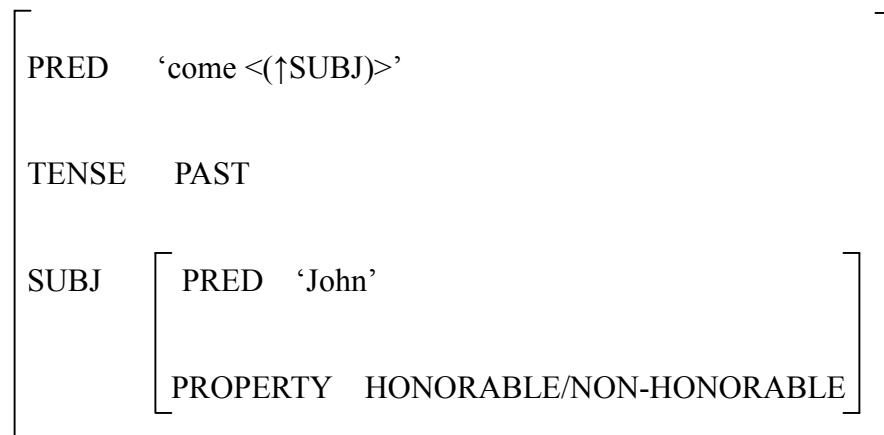
The f-structure (25b) is not unique (or consistent) in that the attribute PROPERTY of

the SUBJ is associated with more than one inconsistent value.

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1.4.3 Other Relevant Principles

Lastly, let us introduce three principles concerning possible c-structures. The first

one pertains to possible phrasal nodes.

(26) **Economy of Expression** (Bresnan 2001: 91): All syntactic phrase structure nodes

are optional and are not used unless required by independent principles

(completeness, coherence, semantic expressivity[7]).

The Economy of Expression serves to exclude a syntactic phrase structure node which

is redundant with respect to its contribution to independent syntactic principles. In

particular, it serves to exclude empty categories. The syntactic phrase structure node

includes phrasal nodes such as XP or X' but does not include terminal nodes (i.e. word

forms) and preterminal nodes such as X.

---

[7] The "Semantic Expressivity" can, for example, serve to license adjuncts, which are not required by f-structure well-formed conditions such as Completeness or Coherence.

Next principle pertains to possible terminal nodes.

(27) **Lexical Integrity** (Bresnan 2001: 92): Morphologically complete words are

leaves of the c-structure tree and each leaf corresponds to one and only one

c-structure node.

This principle guarantees the unique correspondence between words and terminal

nodes. It implies a distinction between morphological formation of words and syntactic

formation of phrases. Nevertheless, as Bresnan (2001: 93) points out, the concept of

lexical integrity in LFG differs from that in other frameworks in that the former allows

a single 'functional word' which is made up of more than one morphologically

complete syntactic word. The standard view of lexical integrity in LFG is challenged

by another view. I will discuss the issue in the Chapter 3.

The last principle pertains to the possible phrase structures.

(28) **Endocentricity** (Bresnan 2001: 134): Every lexical category has an extended

head.

Like other versions of X-bar theories, this principle subsumes the generalization of

categorial consistency between heads and projection such as (2) in lexical categories,

L^n. However, unlike other versions of X-bar theories, this principle allows phrases that

appear to lack their heads if and only if the heads of the phrases can be recovered by an

inverse function, ϕ^{-1}, which takes each f-structure f into the set of nodes that

correspond to f under ϕ. The notion of extended head in (28) can be defined as follows.

(29) Definition of Extended Head (Bresnan 2001: 132): Given a c-structure containing

nodes N, C, and c- to f-structure correspondence mapping ϕ, N is an **extended**

head of C if N is the minimal node in $\phi^{-1}(\phi(C))$ that c-commands C without

dominating C.

The principle of endocentricity (28) and the notion of extended head (29) are very

important to our discussion. I will discuss them more in detail in Chapter 4.

Chapter 2

The Temporal Morpheme: Word or Suffix?

2.1 Introduction

The Temporal Morpheme Construction (TMC) is counted as one of the representative mixed categories in Japanese, as its variant case-marking patterns suggest. Recall the TMC from examples in (1.6), repeated below.

(1.6)a. [NP John-no [N' ainugo-no [N kenkyuu tyuu]]] <NC>

      John-GEN Ainu-GEN research mid

      'during John's research of Ainu'

  b. [VP John-ga [V' ainugo-o [V kenkyuu-tyuu]]] <VC>

      John-NOM Ainu-ACC research-mid

c. [$_{VP}$ John-ga   [$_{N'}$ ainugo-no   [$_X$ kenkyuu-tyuu]]]   <MC>

John-NOM   Ainu-GEN   research-mid

The TMC allows its arguments to be marked with nominal case (NC) alone, as in

(1.6a), verbal case (VC) alone, as in (1.6b), and both NC and VC (i.e. mixed case: MC),

as in (1.6c). In this chapter, I will show that in order to understand this case variation, I

will carefully consider whether the temporal morpheme (TM) is an independent word

or a bound morpheme suffixed to a complex event nominal (CEN). And then, I will

discuss other grammatical properties associated with TMCs.

2.2 Why It Matters whether the TM is a Word or Affix

A derivational affix can change the category of its host word, thereby affecting

the internal syntax of the phrase headed by that word. However, a separate word cannot

do so. To illustrate the point, compare the following examples in English.

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(1)a. celebration (of X)

  b. process of celebrating (X)

A suffix *–tion* in *celebration* (1a) changes the category of the verb stem *celebrate* to

derive a noun. The suffix *–tion* adds roughly the meaning 'process (or event) of' to the

meaning of the V stem. That is, V-*tion* means roughly 'process/event of V-ing'.

Accordingly, the meaning of *celebration* roughly corresponds to 'process (or event) of

celebrating'. In that sense, the derived noun *celebration* can be taken as being

equivalent to the expression like *process of celebrating* (1b). However, the latter

expression is a phrase in which the noun *process* is combined with its PP complement,

of celebrating. The noun *process* does not change the category of the verb *celebrating*.

  The category-changing function of the suffix *–tion* can affect the internal syntax

of the phrase headed by the verbal stem *celebrate*; the category-preserving function of

the separate noun *process* cannot affect the internal syntax of the phrase headed by the

verb *celebrating*. For example, the suffix *–tion* can affect the category of the

complements which are selected by the verbal stem. That is, the verb *celebrate* selects

a NP complement but not a PP complement, as in (2), whereas, the noun *celebration*

takes a PP complement but not a NP complement, as in (3).

(2)a. We are celebrating [NP John's birthday].

   b. *We are celebrating [PP of John's birthday].

(3)a. the celebration [PP of John's birthday]

   b. * the celebration [NP John's birthday]

Unlike the suffix *–tion*, the separate noun process does not affect the category of the

complements which are selected by the verb *celebrate*.

(4)a. the process of celebrating [NP John's birthday]

   b. *the process of celebrating [PP of John's birthday]

The difference between derivational suffix and word in category-changing function can also be observed between a derivational suffix –*kata* and a noun *hoohoo* in Japanese. The suffix –*kata* is used to derive a noun from the stem verb, adding the meaning 'how to (V), way of (V-ing)' to the meaning of the stem verb. In contrast, a noun *hoohoo* can be followed by a verb, adding the meaning 'how to (V), way of (V-ing)' to the meaning of the verb, but it cannot change the category of the preceding verb.[8] For example, a verb, *yomu* 'read', can take VC-marked complements but not NC-marked complements, like verbs in general (1.5a), as in (5a). If the verb is suffixed by –*kata*, it cannot select the VC-marked complements as in (5b), but can take NC-marked complements as in (5c), like nouns in general (1.5b).

(5)a. John-ga hon-o yomu.

John-NOM book-ACC read.NPST

'John reads books'

---

[8] The nominalizer –*kata* 'how to' follows a non-finite form (i.e. *renyookei*) of verb as represented by NONFIN in the gloss. In contrast, a noun, *hoohoo* 'way', follows a non-past, pre-nominal form of verb as the gloss, NPST, indicates.

b. *John-ga   hon-o   yomi-kata

   John-NOM book-ACC read.NONFIN-way

   'John's way of reading books'

c. John-no   hon-no   yomi-kata

   John-GEN book-GEN read.NONFIN-way

In contrast, if the verb follows the noun *hoohoo*, it can select the VC-marked

complements as in (5'a), but cannot take NC-marked complements as in (5'b), like

verbs in general.

(5')a. John-ga   hon-o   yomu   hoohoo

    John-NOM book-ACC read.NONFIN   way

    'John's way of reading books'

b. *John-no   hon-no   yomu   hoohoo

    John-GEN   book-GEN   read.NONFIN   way

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Turning now to TMCs. CENs such as *kenkyuu* are nouns, so that they head a nominal projection which allows NC-marked rather than VC-marked complements as in (6a) and that they can be followed by a case-particle as in (6b).

(6)a. John-no/*ga   ainugo-no/*o   kenkyuu

   John-GEN/NOM Ainu-GEN/ACC   research

   'John's research on Ainu'

  b. kenkyuu-ga/o/ni/….

    research-NOM/ACC/DAT/

Given the various case-marking patterns of TMCs in (1.6), the fact that CENs are nouns, which head nominal projections, suggests a possibility that NC-marking in a TMC (1.6a) is licensed if a subsequent TM is a separate noun and does not affect the internal syntax of the phrase headed by the CEN, on one hand. On the other hand, the same fact also suggests a possibility that VC-marking in a TMC (1.6b) is licensed if a

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TM following a CEN is a derivational suffix, which affects the internal syntax of the

phrase headed by the CEN.

I will argue that TMs such as *tyuu* 'during' and *sai* 'case' can behave as either

suffixes or independent words. That is, Japanese has both a denominal verbalizing

suffix like *–tyuu* or *(-no)-sai* and a noun like *tyuu* or *sai*.

2.3 Preview: Our Analysis of the TMC

The hypothesis that TMs are both words and suffixes leads to the following

analysis of the TMC. When the word *tyuu* combines with *kenkyuu*, it lacks the power

to affect the internal syntax of its complement phrase (i.e., an NP headed by *kenkyuu*).

Thus, *kenkyuu* projects an NP as usual, and the complements of *kenkyuu* receive NC,

giving a structure (7a). When the suffix *–tyuu* combines with *kenkyuu*, then it changes

the category from N to V. Then, there are two possibilities. The one is that the V

kenkyuu-tyuu projects a VP/IP, which licenses VC, giving a structure (7b). The other is

that the V *kenkyuu-tyuu* projects a VP/IP, which licenses NOM on the subject, but a NP

is projected internally by a missing head noun in phrase structure, as shown in (7c).

Arguments within this headless NP get NC. So, GEN case is licensed on the object,

within this headless NP. The result is MC.

(7)   a.

b.

c.

```
                        VP
          _____
         /            |                    \
     …Nom…           NP                      V
                   __/\__                    |
                  /      \                   |
               …Gen… (N)..................    |
                                        kenkyuu-tyuu
```

The dotted line in (7c) represents f-structure head sharing (Bresnan 1997), as discussed

in Chapter 3 and 4 below.

2.4 An Apparent Problem: Subtypes of TMs

2.4.1 Dependent and Independent TMs

Though our analysis of the TMC seems to be reasonable from a syntactic

viewpoint, it is not unproblematic when I consider the following two types of TMs

One type of TM (e.g. *tyuu* 'mid', *go* 'after', *izen* 'before') is directly concatenated with

a preceding CEN. The other type of TM requires a CEN to be followed by a morpheme

no, which is homophonous with a genitive particle.

(8)a. CEN + TM   (e.g. *kenkyuu + tyuu/go/izen/…* 'during/after/before research')

   b. CEN + *no* + TM (e.g. *kenkyuu + no + sai/ori/…* 'in/on the occasion of

      research')

The TMs in (8a) seem to be morphologically dependent on their host CENs, since they

always require a direct concatenation with their preceding CENs and do not allow an

intervening morpheme (e.g. *kenkyuu no tyuu). In contrast, the TMs in (8b) seem to be

morphologically independent from their host CENs, since they require an intervening

morpheme *no* whenever they are combined with their preceding CENs. Following the

bound-free distinction, I call the former **dependent TMs** and the latter **independent**

TMs for convenience.

   Since the distinction between dependent and independent morphemes roughly

corresponds to the one between affixes and words, the dependent TM is sometimes

referred to as temporal affix (Sells 1990, Hoshi 1997) or phrasal affix (Kageyama 1993) and the independent TM as (temporal) noun (Shibatani and Kageyama 1988, Kageyama 1993). Nevertheless, our hypothesis that TMs can serve as both words and suffixes does not reflect the (in)dependency distinction between TMs. That is, I assume that both types of TMs can equally serve as word (i.e. noun) in one syntactic context and as suffix in the other syntactic context.

However, my treatment of TM faces the following apparent problem. In Japanese, when nouns take a NP complement, the NP complement is followed by a genitive particle *no* or a pre-nominal form of copula *no*.

(9)a. [_{NP} John-no ronbun]-<u>no</u> taitoru

John-GEN paper-GEN title

'the title of John's paper'

b. [_{NP} sono kaisya-no syatyoo]-<u>no</u> John

the company-GEN president-COP John

'John, (who is) the president of the company',

However, the morpheme *no* requirement is not imposed by a dependent TM, even if it

is a noun, which takes a NP complement, in NC-marked TMCs, as in (10a).

(10)a. [NP [NP [N kenkyuu]][N tyuu]]   (CEN + TM$_{dependent}$)

             research   during   'during research'

      b. [NP [NP [N kenkyuu]]-no [N sai]]   (CEN + *no* + TM$_{independent}$)

             research NO case   'in research'

In contrast, an independent TM is subject to the morpheme *no* requirement, when it

serves as a noun, as in (10b).

As for word-internal elements such as affixes or members of compounds in

Japanese, they tend to require a direct concatenation with their hosts and exclude an

intervening element.

(11)a. kenkyuu-sya 　　　'researcher'

　　　research-person

　b. ainugo-kenkyuu 　'Ainu study'

　　　Ainu-research

However, the direct concatenation requirement is not imposed by an independent TM,

even if it is a verbalizing suffix, in VC- or MC-marked TMCs, as in (12a).

(12)a. [$_{VP}$ [$_V$ [$_N$ kenkyuu]-no-[$_{SUFF}$ sai]]]] 　　(CEN + *no* + TM$_{independent}$)

　b. [$_{VP}$ [$_V$ [$_N$ kenkyuu]-[$_{SUFF}$ tyuu]]]] 　　(CEN + TM$_{dependent}$)

In contrast, a dependent TM is subject to the direct concatenation requirement, when it

serves as a verbalizing suffix, as in (12b).

　　As above, the two types of TMs are apparently problematic to my unified

treatment of TMs. Nevertheless, I would like to maintain the treatment on the basis of

the following consideration and the subsequent discussions in the next section. First,

regarding the requirement that a nominal head take *no*-marked NP complements, there

are some environments where the requirement is weakened. For example, the genitive

particle *no* can be omitted when a Sino-Japanese Verbal Noun takes its internal

argument as a complement within a nominal projection (cf. Kageyama and Shibatani

1989, Kageyama 1993), as in (13a).[9] The pre-nominal form of copula *no* can also be

omitted if a head noun licenses its relative clause as an appositive, as in (13b).

(13)a. [sin-kuukoo]-(no) kensetu

     new-airport-(GEN) construction

     'construction of a new airport'

  b. [sono kaisya-no syatyoo]-(no), John

     the company-GEN president-(GEN) John

      'John, (who is) the president of the company',

---

[9] Kageyama and Shibatani (1989) and Kageyama (1993) claim that a particle-less variant of N1 (*no*) N2 NP should be taken as an instance of (post-)syntactic compound or noun incorporation. Nevertheless, I take it as a noun phrase in which a genitive particle is omitted. I discuss the relevant constructions in Chapter 6, defending my phrasal analysis.

These examples show that the morpheme *no* requirement is not always imposed by a

head nominal within a nominal projection. Given this fact, it is not surprising if a

dependent TM does not mark its complement NP morphologically when it serves as a

noun, as in (10a). Here, I simply assume that the dependent TM preserves a property of

affix (or bound morpheme) even if it serves as a noun, with respect to its combination

with a preceding CEN.

Next, as for the direct concatenation requirement on word-internal elements, it

can also be relaxed in some environments. In particular, genitive compounds allow a

genitive case-marker to be intervened within a single word (Shimamura 2001,

Kageyama 1999).

(14) a. ko/ki-no-ha   'leaves of trees'

    tree-GEN-leaf

  b. nomi-no-iti   'flea market'

    flea-GEN-market

c. haha-no-hi   'Mother's day'

mother-GEN-day

These examples show that the direct concatenation requirement is not always imposed

by word-internal elements such as affixes or members of compounds. This fact allows

a possibility that an independent TM follows the morpheme *no* when it is combined

with a preceding CEN, even if it serves as a suffix, as in (12a). Here, I simply assume

that an independent TM requires an epenthetic morpheme *no* when it is concatenated

with a preceding CEN, when it serves as a suffix.

2.4.2 Morphologically Simple and Complex TMs

In addition to the dependent-independent distinction among TMs, one can find

another difference as to whether they are morphologically simple or complex.

(15)a. morphologically simple TM: e.g., *tyuu/go/sai/ori…* 'during/after/in/on

the occasion of'

b. morphologically complex TM: e.g., *izen/igo/tyokuzen/tyokugo/(no)*

saityuu… 'before/after/right before/right after/in the middle of'.

Unlike morphologically simple TMs in (15a), morphologically complex TMs in (15b)

consist of more than one simple Sino-Japanese morpheme. For example, *izen* can be

decomposed into two parts, *i* and *zen*. The former part is associated with a temporal

reference point; the latter part indicates a temporal precedence. The compositional

meaning adds up to a time prior to a temporal reference point (or now by default).

The morphological complexity in TMs does not make any difference in their

syntax.[10] Though there might be a subtle dialectal difference (see Footnote 10), there

seems to be no difference among the morphologically complex TMs in their syntactic

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[10] Chiyo Nishida (personal communication) pointed out to me that the morphologically complex TMs tend to disallow VC-marking, showing her judgment as follows.

(i) Sono ziken-wa John-ga/-no Ainugo-no/*-o kenkyuu izen-ni okotta.
   The event-TOP John-NOM/-GEN Ainu-GEN/-ACC research before-on happened
   'The event took place before John's research on Ainu.'

behavior. In particular, these TMs can occur in VC-marked, NC-marked, and

MC-marked constructions in the same way as the morphologically simple TMs. In

Chapter 1.2.1, I provided the empirical data to illustrate the case marking patterns in

TMCs, which contain morphologically simple TMs like *tyuu*, as repeated in (16). Here,

I can compare them with the data to illustrate the case marking patterns in TMCs,

which contain a morphologically complex TM like *izen* in (17) The latter data were

also found by using the search engine GOOGLE.

(16)a. X-ga Y-o CEN-tyuu (VC-marking):

    …"Kamiigusa   hureai-no   ie (…)"-no   syokuin-ga   kuruma-de

        Kamiigusa   contact-GEN   house-GEN   staff-NOM   car-by

    haisyoku   saabisu-no   syokuzi-o   haitatu-tyuu,

    meal.delivery service-GEN   meal-ACC   delivery-mid,

    riyoosya 201-meibun-no   Meibo-ga   haitteita   baggu-ga

    user 201-for-GEN   name.list-NOM   was.packed   bag-NOM

toonan-niyori hunsitu-sita koto-ga hanmei-simasita.

robbery-by disappeared NML-NOM turned.out

'While a staff member of the Kamiigusa Contact House delivered meals for the

meal delivery service, it turned out that a bag in which a name list for the 201

users was packed disappeared.'

→http://64.233.161.104/search?q=cache:Qhyd7I8zjlgJ:www2.city.suginami.tokyo.jp/li

brary/file/180508meibohunnsitu.pdf+%E3%82%92%E9%85%8D%E9%81%94%E4%

B8%AD&hl=ja&gl=us&ct=clnk&cd=48

b. X-no Y-no CEN-tyuu (NC-marking):

Osanai onna-no-ko Ponetto-ga

Young girl Ponett-NOM

hahaoya-no kuruma-no unten tyuu-ni ziko-ni au.

mother-GEN car-GEN drive during accident-DAT meet

'A young girl, Ponett, met an accident, while her mother drove a car.'

→http://www.geocities.jp/aimiyume/eiga.html

c. X-ga Y-no CEN-tyuu (MC-marking):

Watasi-ga   kimuti-no   haitatu-tyuu-ni

I-NOM   kimchee-GEN   delivery-mid-in

BUNBUN-Radio-no   syuzai-moosikomi-ga   arimasita.

Bunbun-radio-GEN   coverage-request-NOM   existed

'While I delivered kimchee, there was a request for coverage from BUNBUN

Radio.'

→http://torakim.com/bunbun.html

(17)a. X-ga Y-o CEN-izen (VC-marking):

Kore-wa   genzai   siyoo-siteiru   kamera-o

This-TOP   at.present   using   camera-ACC

koonyuu-izen-ni   satuei-sareta   mono-de,…

purchace-before-at   was.shot   one-COP

This (photograph) is the one that was taken, before (I) bought the camera that

(I) am using now.

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→http://www.masdf.com/blue/index.html

b. X-no Y-no CEN izen (NC-marking):

Edo-no aikooka-tati-wa, Mendel-no

Edo.period-GEN amateur-PL-TOP Mendel-GEN

iden-hoosoku-no hakken izen-ni, idenkeisitu-ga

inheritence-law-GEN discovery before-at, heredity-NOM

dokurituni insi-noyoona katati-de tutawaru koto-o

independently factor-like shape-in descend that-ACC

sitteita…

knew…

"Amateur scientists in the Edo period knew that hereditary characters

descend independently in the shape like a factor, before Mendel discovered a

law of inheritance."

→http://www.brh.co.jp/experience/seimeisi/24/ex_1.html

c. X-ga Y-no CEN-izen (MC-marking):

62

Kono koto-wa   hon ronbun-no   happyoo-izen-ni

This thing-TOP   this paper-GEN   publication-before-at

sirareteita.

was.known

"This fact was already known before (I) presented this paper."

→http://wwwsoc.nii.ac.jp/jps/jps/guide/ronbunsyo/ronbun4_99.html

The data shown above show that not only a morphologically simple TM like *tyuu* but also a morphologically complex TM like *izen* can occur in VC-, NC-, and MC-marked TMCs.

In sum, my investigation presented in this section indicates that case marking properties of TMCs can be dissociated from the bound-free distinction and the differences in morphological complexity among TMs.

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2.5 Arguments for TMs as either Words or Suffixes

Now, let us examine the grammatical wordhood of TMs to argue for the hypothesis for the morphological status of TM and my analysis of TMC. For the examination, I use several criteria (or tests) for the grammatical wordhood, most of which are proposed by Bresnan and Mchombo (1995: hereafter, B&M), to determine whether the result of the wordhood of TM is correctly predicted from my hypothesis and analysis.

2.5.1 Words are Inbound Anaphoric Islands

One of the criteria, **inbound anaphoric island**, is used to show that a part of a word does not allow an anaphoric use (Postal 1969). For example, a complex noun, *McCarthyism*, cannot replace its part with a pronominal form like **himism*. As for the CEN + TM sequence, this criterion predicts that the CEN alone can be replaced by a

pronoun if the TM is a word, but it cannot if the TM is a smaller part of a word.

(18)a. [CEN][TM] → [Pronoun][TM]

 b. [CEN – TM] → *[Pronoun – TM]

   N.B. Brackets show word boundaries.

The TM-as-word analysis predicts that the TM appears in a TMC where only NC marking is licensed. This prediction is borne out.

(19) Mary-wa iroirona gengo-no   kenkyuu$_i$-o sita.

  Mary-TOP various language-GEN research-ACC did

  'Mary studied various languages.'

  a. (?)John-wa [kanojo-no ainugo-no sore$_i$ {tyuu/izen}(-ni)], <NC>

     John-TOP her-GEN Ainu-GEN it {mid/before}(-at)]

ronbun-o   happyoo-sita.

paper-ACC   presentation-did

'During/Before her research (lit. it) of Ainu, John presented his paper.'

b. *John-wa [kanojo-ga ainugo-o sore$_i${-tyuu/-izen}(-ni)], … <VC>

John-TOP she-NOM Ainu-ACC it{-mid/-before}(-at)

c. *John-wa [kanojo-ga ainugo-no sore$_i${-tyuu/-izen}(-ni)], … <MC>

John-TOP she-NOM Ainu-GEN   it{-mid/-before}(-at)

(20) Mary-wa   iroirona   gengo-no   kenkyuu$_i$-o   sita.

Mary-TOP   various   language-GEN   research-ACC   did

'Mary studied various languages.'

a. (?)John-wa [kanojo-no ainugo-no sore$_i$ {no-sai/no-ori}(-ni)],   <NC>

John-TOP her-GEN   Ainu-GEN it {NO-case/NO-occasion} (-at)]

ronbun-o   happyoo-sita.

paper-ACC   presentation-did

'In/On the occasion of her research (lit. it) of Ainu, John presented

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his paper.'

b. *John-wa [kanojo-ga ainugo-o sore$_i${-no-ori/-no-sai}(-ni)], …   <VC>

John-TOP she-NOM Ainu-ACC it{-NO-case/-NO-occasion}(-at)

c. *John-wa [kanojo-ga ainugo-no sore$_i${-no-ori/-no-sai}(-ni)], … <MC>

John-TOP she-NOM Ainu-GEN   it{-NO-case/-NO-occasion}(-at)

If a given TM is a word, it allows only NC marking in TMCs, as in (19a, 20a); otherwise (i.e., if the TM is a smaller part of word), it allows VC-marking or MC-marking, as in (19b, 20b) or (19c, 20c). Both TM1s and TM2s equally behave as either words or suffixes, as the parallel between (19) and (20) suggests.

I fully accept a datum that involves a TM like *izen* 'before' (or *igo* 'after') as well as *sai* 'case' or *ori* 'occasion' and marginally accept a datum that involves a TM like *tyuu* 'during' (e.g. 19a, 20a). I cannot accept a TM like *go* 'after' followed by *sore* (e.g. **sore go* '*after it') but can accept *sono go* 'then, after that', which involves a genitive form of the pronominal element. I do not discuss the exact reason for the marginality

of *sore tyuu* (and the unacceptability of *sore go*), but it seems to stem from the morphological simplicity of TM. That is, *tyuu* or *go* is a morphologically simple TM, each of which corresponds to one Chinese character in writing. Since there are only a few independent nouns that correspond to one Chinese character (Saiga 1957/1997), it is not surprising that *tyuu* or *go* tends not to behave like an independent word.

Unlike my judgment, there seem to be some native speakers of Japanese who do not fully accept the data like (19a, 20a). It seems that such a judgment can be attributed to some factors. One in particular is a dialectal variation regarding whether it is difficult to replace a CEN by a pronominal element *sore*. For those who do not allow the replacement, even a CEN, which is not followed by a TM, cannot be replaced by *sore*, as follows.[11]

(21)a. John-no Ainugo-no kenkyuu$_i$(-ga hazimatta)

John-GEN Ainu-GEN research(-NOM began)

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[11] Takane Itoh (p.c.) pointed out this kind of judgment to me.

'John's research on Ainu (began).'

b. Mary-no kankokugo-no sore$_i$(-wa …)

Mary-GEN Korean-GEN research

'Mary's research on Korean …'

Those who disallow (21b) cannot allow *sore* to refer to an event. However, even they

could accept (21b) if it refers to an object brought about by an event as a result (cf.

result nouns: Grimshaw 1990), as follows.

(22) John-no Ainugo-no kenkyuu$_i$(-o matometa)

John-GEN Ainu-GEN research(-ACC summarized)

"(someone) summarized John's research on Ainu"

However, once a noun like *kenkyuu* is followed by a TM, it must refer to an event as a

CEN. Therefore, the above-mentioned dialect speakers cannot accept the data like (19a,

20a).

Nevertheless, it seems that not a few native speakers of Japanese can accept the

following example, which was found by a Google search, and understand the

anaphoric relation.

(23)a.   osiharai$_i$ nituite: [$_{NP}$ toohoo sitei ginkoo-e-no

payment about: our assignment bank-DIR-GEN

sono$_i$ sai]-ni   kakaru   tesuuryoo-wa,…

its occasion-on   cost   commission-TOP,…

"about payment: as for a commission which is charged in your payment to the

bank we specified, ….."

→http://page7.auctions.yahoo.co.jp/jp/auction/g41635349

In (23a), a pronominal element, *sono* 'that', is co-referential with a CEN, *osiharai*

'payment', but co-reference is allowed only if the pronominal element appears within a

nominal projection rather than a verbal projection. For example, *sono* cannot appear in

the following environment.

(23)b.   *osiharai$_i$ nituite: [$_{VP}$ toohoo sitei ginkoo-e

         payment about: we assigned bank-DIR

         sono$_i$ sai]-ni   kakaru   tesuuryoo-wa,…

         its occasion-on   cost   commission-TOP,…

The contrast between (23a) and (23b) can support the grammatical wordhood of TM

within a nominal domain.

2.5.2 Phrasal Recursivity is Disallowed within Words

    Another criterion, **phrasal recursivity**, is used to show that word-internal

constituents disallow arbitrarily deep embedding of syntactic phrasal modifiers. In

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particular, part of a (complex) word cannot be modified by a phrasal modifier. For example, a complex noun, *happiness* or *sadness*, does not allow its subpart, *happi-* or *sad-*, to be modified by adverbials or adjectives, as shown in *[[_AP_ [*quite*][*happi*]]-*ness*]] and *[[_AP_ [*more happy than*][*sad*]]-*ness*]] (cf. B&M:192).

As for the CEN + TM sequence, this criterion forces the TM-as-word analysis when the CEN is modified by an adjective. Accordingly, the TM-as-word analysis predicts that the TM appears in a TMC where only NC marking is licensed. This prediction is borne out.

(24)a. John-no sono ronbun-no   kibisii   hihan go(-ni),

John-GEN the paper-GEN   severe   criticism after(-at),

Mary-ga   syohyoo-o   kaita.   [NC]

Mary-NOM review-ACC   wrote

'Mary wrote a review after John's severe criticism of the paper.'

b.　　*John-ga　sono ronbun-o　　kibisii　　hihan-go(-ni),

John-NOM　the paper-ACC　　severe　　criticism-after(-at),

Mary-ga　　　syohyoo-o　　kaita.　　[VC]

Mary-NOM　　review-ACC　　wrote

c.　*John-ga　　sono　ronbun-no　kibisii　　hihan-go(-ni),

John-NOM　　the　paper-GEN　severe　　criticism-after(-at),

Mary-ga　　　syohyoo-o　　kaita.　　[MC]

Mary-NOM　　review-ACC　　wrote

(25)a.　John-no sono ronbun-no　　kibisii　　hihan no-sai,

John-GEN the paper-GEN　　severe　　criticism NO-case,

Mary-ga　syohyoo-o　　kaita.　　[NC]

Mary-NOM review-ACC　　wrote

'Mary wrote a review in John's severe criticism of the paper.'

b.   *John-ga   sono ronbun-o   kibisii   hihan-no-sai,

John-NOM   the paper-ACC   severe   criticism-NO-case

Mary-ga   syohyoo-o   kaita.   [VC]

Mary-NOM   review-ACC   wrote

c.   *John-ga   sono ronbun-no   kibisii   hihan-no-sai,

John-NOM   the   paper-GEN   severe   criticism-NO-case,

Mary-ga   syohyoo-o   kaita.   [MC]

Mary-NOM   review-ACC   wrote

If a given TM is a word, it allows only NC marking in TMCs, as in (24a, 25a);

otherwise (i.e., if the TM is a smaller part of word), it allows VC-marking or

MC-marking, as in (24b, 25b) or (24c, 25c). Both TM1s and TM2s equally behave as

either words or suffixes, as the parallel between (24) and (25) suggests.

2.5.3 Focus Particles as Verbal Case Markers

Some researchers adopt the possibility of accommodation of focus particles as a test for morphological integrity of words (Kageyama 1999, Sells 1995). Generally, (complex) words disallow a focus particle to occur within the words. For example, focus particles such as *wa* (topic), *mo* 'also', and *sae* 'even' cannot occur within V-V compounds as in (26a'), N-V compounds as in (26b'), N-N compounds as in (26c').

(26)a. uke-toru   a'. *uke-wa/mo/sae-toru

   receive-take   receive-TOP/also/even-take

   'receive'

   b.   yama-nobori   b'. * yama-wa/mo/sae-nobori

   mountain-climbing   mountain-TOP/also/even-climbing

   'mountain climbing'

c.   yama-miti   c'. *yama-wa/mo/sae-miti

    mountain-road   mountain-TOP/also/even-road

    'mountain path/trail'

I adopt the same criterion to test not only whether a given item is morphologically

as tight as a word but also whether the given item falls within a verbal projection. That

is, a focus particle can neither appear within a single word nor appear within a nominal

projection. Thus, it can neither appear within complex words in (26) nor appear in a

NP like *John-no ronbun-no taitoru* "John's paper's title" (27a). However, it can appear

within a converb like *yon-de kita* "read and came (or have/has read)" (27b), since the

converb is morphologically not as tight as a word and appears in a verbal projection

(Shibatani 2005).

(27)a. (Sore-wa) [NP John-no ronbun{*-wa/ok -no} taitoru] (da).

    (It-TOP) John-GEN paper{-TOP/-GEN} title (COP)

b. [VP (John-wa) [VP hon-o yon-de]{ok -wa/* -no} (kita)].

John-TOP book-ACC read-CONJ{-TOP/-GEN} (came)

'John read a book and came,' or 'John has read a book.'

As for the CEN + TM sequence, this criterion predicts that a focus particle cannot appear within the sequence, regardless of case marking patterns in TMCs, since the TM heads a nominal projection, even if it serves as a word in the TMC where only NC-marking is possible. This prediction is borne out.

(28)a.　　*kenkyuu-wa/-mo/-sae　　　　　　　　tyuu/go

　　　　　research-TOP/also/even　　　　　　　　mid/after

　　　　　'during/after research'

　b.　　*kenkyuu-wa/-mo/-sae(-no)　　　　　　　sai/ori

　　　　　research-TOP/also/even(-GEN)　　　　　　case/occasion

　　　　　'in/on the occasion of research'

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Both TM1 and TM2 do not allow an intervening focus particle, as in (28a, b).

2.5.4. Other Tests: Conjoinability and Gapping

B&M's criteria include conjoinability and gapping, but they are irrelevant to my

discussion because they are sensitive to phonological wordhood rather than

grammatical wordhood, as B&M points out.[12] The **conjoinability** is used to show that

subparts of words cannot be coordinated. For example, part of a complex noun such as

joyfulness and *cheeriness* cannot be coordinated, as shown in **joyful- and cheeriness*.

The **gapping** is used to show that subparts of words cannot be gapped. For example,

part of a verb such as *dislike* cannot be gapped, as shown in **John liked the play, and*

Mary dis- it.

I will discuss the phonological relevance of conjoinability and gapping in Chapter

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[12] B&M's criteria also include extraction, which is used to show that subparts of words cannot be extracted (i.e., topicalized, relativized, etc.). However, I could not find any case where part of the CEN + TM is extracted. There seem to be several possible explanations for this, but since I cannot identify a specific reason, the test is excluded here.

5.1, but the point is summarized as follows. These criteria appear to be applicable to part of the CEN + TM sequence. The result leads to a hypothesis that TM2 is a single word but TM1 is not. However, the fact is that apparent sublexical conjoining and gapping are brought about by a phonological process (i.e. a prosodically conditioned ellipsis) rather than a syntactic process of conjoining or gapping. Therefore, I can maintain the hypothesis about lexical integrity of the CEN + TM sequence with respect to inbound anaphoric island and phrasal recursivity.

2.6 Category of Heads and Projections in TMC

So far, I have argued for TM's morphological duality: TM-as-word and TM-as-suffix. In this section, to fully support my analysis of TMC (cf. Chapter 2.3), I argue that when the TM-as-word analysis is possible, the TM is a noun that takes as a NP complement headed by the preceding CEN, while when the TM-as-suffix analysis is possible, the CEN + TM sequence is a verb that heads a verbal projection.

2.6.1 Distribution

The facts on distribution of TMCs as a whole suggest their categorial values. In Japanese, nouns and their projections can appear in pre-particle positions, as in (29a), but verbs and their projections cannot, as in (29b).

(29)a. (sono) gakusei-ga/o/ni…

     (the) student-NOM/ACC/DAT…

     'the student'

  b. *(John-ga) aruku-ga/o/ni…

     (John-NOM) walks-NOM/ACC/DAT…

     'John walks.'

Given this test, my analysis of TMC (7) predicts that NC-marked TMC (7a) can appear in a pre-particle position while VC-marked TMC (7b) or MC-marked TMC (7c) cannot.

This prediction is borne out.[13]

(30)a. Mary-wa [NP John-no ainugo-no kenkyuu {tyuu/no-sai}]-o   omoidasita.

    Mary-TOP John-GEN Ainu-GEN research {during/NO-case}-ACC remembered

  b. *Mary-wa [VP John-ga ainugo-no kenkyuu{-tyuu/-no-sai}]-o omoidasita.

    Mary-TOP John-NOM Ainu-GEN research{-during/-NO-case}-ACC remembered

  c. *Mary-wa [VP John-ga ainugo-o kenkyuu{-tyuu/-no-sai}]-o omoidasita.

    Mary-TOP John-NOM Ainu-ACC research{-during/-NO-case}-ACC remembered

    'Mary remembered something that happened during/in John's study of Ainu.'

In (30), the contrast is clear. A NC-marked TMC can appear in a position that is

followed by an accusative particle *o* as in (30a), while a VC- or MC-marked TMC

cannot as in (30b, c).

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[13] As to the distribution of TMC, Sells (1990) claims that the CEN + TM sequence is noun, based on his examples which show that even a VC-marked TMC appears in pre-particle positions. Horiuchi (2004b) argues against his claim, pointing out that his examples involve a syntactic environment which allows a non-nominal element.

2.6.2 Modification by Adjectives and Adverbs

The facts on modification by adjectives or adverbs suggest that a modified item is a noun or a verb. Given this test, my analysis of TMC (7) predicts that only NC-marked TMC can license an adjective, while both VC-marked and MC-marked TMC can license an adverb. This prediction is borne out.

In 2.5.2, I have already seen that adjectives can modify part of the CEN + TM sequence in the NC-marked TMC but cannot modify it in the VC- or MC-marked TMC. The data in (24) are repeated below.

(24)   a.   John-no   sono ronbun-no   kibisii   hihan go(-ni), <NC>

                John-GEN   the paper-GEN   severe   criticism   after(-at),

        b.   *John-ga   sono ronbun-o   kibisii   hihan-go(-ni), <VC>

                John-NOM   the paper-ACC   severe   criticism-after(-at),

c. *John-ga   sono ronbun-no   kibisii   hihan-go(-ni), \<MC\>

John-NOM   the paper-GEN   severe   criticism-after(-at),

'after John's severe criticism of the paper'

The same data can be used to show the categorial difference between NC-marked TMC and VC-/MC-marked TMC. In a NC-marked TMC (24a), an adjective, *kibisii* 'severe', is licensed and can modify a CEN, *hihan* 'criticism', alone, since the CEN is a noun and its projection is a NP. In contrast, the adjective is not licensed and cannot modify the CEN alone in a VC-marked TMC (24b), since the CEN is part of a verb, *hihan-go* 'after criticism', and its projection is a VP. For the same reason, the adjective is not licensed and cannot modify the CEN alone in a MC-marked TMC (24c). Thus, the facts on modification by adjectives suggest that NC-marked TMC is headed by a noun TM which takes a NP complement headed by a CEN. They also suggest that VC- or MC-marked TMC is headed by a verb.

As for the modification by adverbs, the CEN + TM sequence is expected to

license them in a VC- or MC-marked TMC but not expected to license them in a

NC-marked TMC. This prediction is not completely borne out.

(31) a.   *John-no   sono ronbun-no   kibisiku   hihan go(-ni),   <NC>

           John-GEN   the paper-GEN   Severely   criticism after(-at),

      b.   John-ga   sono ronbun-o   kibisiku   hihan-go(-ni),   <VC>

           John-NOM   the paper-ACC   severely   criticism-after(-at),

      c.   *John-ga   sono ronbun-no   kibisiku   hihan-go(-ni),   <MC>

           John-NOM   the paper-GEN   severely   criticism-after(-at),

           'after John criticized the paper severely'

That is, the prediction is borne out for NC-marked TMC and VC-marked TMC, since

the former TMC does not license an adverb as in (31a) and the latter TMC does as in

(31b). However, the prediction is not borne out for MC-marked TMC, since it does not

appear to license them as in (31c).

Nevertheless, I can still maintain that MC-marked TMC involves a verbal head and its external verbal projection, on the basis of the fact that it does not license an adjective but an adverb in another syntactic position.

(32) a. #John-ga   kibisii   sono ronbun-no   hihan-go(-ni),   <MC>

         John-NOM   Severe   the paper-GEN   criticism after(-at),

      b. #Kibisii   John-ga   sono ronbun-no   hihan-go(-ni),   <MC>

         severe   John-NOM   the paper-ACC   criticism-after(-at),

(33) a. John-ga   kibisiku   sono ronbun-no   hihan-go(-ni),   <MC>

         John-NOM   severely   the paper-GEN   criticism after(-at),

      b. Kibisiku   John-ga   sono ronbun-no   hihan-go(-ni),   <MC>

         Severely   John-NOM   the paper-ACC   criticism-after(-at),

Since MC-marked TMCs are verbal projections headed by a verb, they disallow adjectives not only in the position immediately before the CEN + TM sequence as in

(24c) but also elsewhere as in (32a, b). In (32a, b), the expressions are interpreted as if

the adjective *kibisii* 'severe' modifies the subsequent NP (i.e., *sono ronbun* or *John*).

However, the MC-marked TMCs can license adverbs in the positions other than

immediately before the CEN + TM sequence, as in (33a, b). Thus, my analysis of

MC-marked TMC (7c) is still tenable, though adverbs cannot be licensed in the

position immediately before the verbal head for some reason.

2.6.3 Conjoining by *To*

A conjunction, *to* 'and', in Japanese can coordinate two or more noun but cannot

conjoin more than one verbal predicate.

(34)a. John-no [N hon] to [N nooto].

     John-GEN book and notebook

   'John's book and notebook'

b. *John-ga [$_V$ warau] to [$_V$ naku].

John-NOM laugh and cry

'John laughs and cries.'

Given this fact, my analysis of TMC (7) predicts that a CEN can be conjoined with another CEN in NC-marked TMC while a CEN + TM sequence cannot be conjoined with another. This prediction is borne out.

(35)a. John-no   ainugo-no   [$_N$ kenkyuu] to [$_N$ tyoosa] no-sai   <NC>

John-GEN Ainu-GEN   research and survey NO-case

'in John's research and survey'

b. *John-ga   ainugo-o   [$_V$ kenkyuu-no-sai] to [$_V$ tyoosa-no-sai] <VC>

John-NOM Ainu-ACC   research-NO-case and survey-NO-case

c. *John-ga   ainugo-no   [$_V$ kenkyuu-no-sai] to [$_V$ tyoosa-no-sai] <MC>

John-NOM Ainu-GEN   research-NO-case and survey-NO-case

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As expected, a CEN (i.e., *kenkyuu, tyoosa*) in NC-marked TMC is conjoinable as in

(35a), while a verbal head (i.e., *kenkyuu-no-sai, tyoosa-no-sai*) in MC-marked TMC is

not as in (35b, c).

2.7 Other Syntactic Properties of TMCs

Lastly, I would like to add two more remarkable syntactic properties associated

with TMCs.

2.7.1 Adjacency between Heads and their Sisters

One of the properties is related to the positional constraint on the occurrence of

adverbs in MC-marked TMCs, what I have shown in 2.6.2. It seems to reflect a

requirement that a head be adjacent to its sister NP in this construction (or mixed

categories in general). That is, no element can occur in the position between the head

and its adjacent sister NP, including modifiers such as adverbs and adjectives. In addition, the most remarkable fact to suggest the adjacency requirement is that a unit made up of a head and its sister in MC-marked TMC can show word-like behaviors by allowing the sister to omit a genitive case-particle.

(36) John-ga　[ainugo(-no)　kenkyuu-tyuu/kenkyuu-no-sai],

　　　John-NOM Ainu(-GEN) research-mid/research-NO-case

　　　"during/in John's research on Ainu,"

I will discuss the word-like behaviors of the bracketed part of (36) in Chapter 6, arguing against a post-syntactic compound analysis (Shibatani and Kageyama 1988). I will argue that the genitive case-particle omission is possible under the adjacency condition.

2.7.2 Phrasal Coherence

Another property pertains to a regularity of phrase structure in mixed categories. A nominalization-type of mixed categories like verbal gerunds in English shows a subject-object asymmetry in category. That is, a subject appears as a complement or a modifier of a nominal head and an object appears as a complement or a modifier of a verbal head, but not vice versa.

(37)a. Pat's watching television

    b. *Pat watching of television

To explain this cross-linguistic tendency (i.e. Deverbalization Hierarchy: Croft 1991), Malouf (1998, 2000) shows a possible account based on the following hypothesis.

(38) Phrasal Coherence Hypothesis: Mixed projections must have a single point of

articulation between their nominal and verbal parts.

By this hypothesis, a verbal gerund (37a) is well-formed, since it is possible to assume

that there is a single point of articulation between an external nominal projection and

an internal verbal projection as in (39a). However, (37b) is not well-formed, since it

must be associated with more than one point of articulation between a nominal and a

verbal part (i.e. two split nominal projections, NP and N') as in (39b).

(39)a. [$_{NP}$ Pat's [$_{VP}$ watching television]]

   b. *[$_{NP}$ [$_{VP}$ Pat [$_{N'}$ watching of television]]]

   The same hypothesis can also explain a subject-object asymmetry in a

verbalization-type of mixed categories such as MC-marked TMCs. That is, in a

MC-marked TMC, a subject is VC-marked and an object is NC-marked, but not vice

versa (Miyagawa 1991).

(40)a. John-ga   ainugo-no   kenkyuu-tyuu/kenkyuu-no-sai,

John-NOM Ainu-GEN   research-mid/research-NO-case

"during/in John's research on Ainu,"

b. *John-no   ainugo-o   kenkyuu-tyuu/kenkyuu-no-sai,

John-GEN Ainu-ACC research-mid/research-NO-case

In (40), the subject, John, can be marked with a nominative case but not with a genitive case, whereas the object, ainugo, can be marked with a genitive case but not with accusative case.

By (38), (40a) is well-formed, since it can be associated with a single point of articulation between an external verbal projection and an internal nominal projection, as in (41a). However, (40b) must be associated with more than one point of articulation between a verbal and a nominal part (i.e. two split verbal projections, VP and V') as in

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(41b).

(41)a. [$_{VP}$ John-ga   [$_{NP}$ ainugo-no kenkyuu-tyuu/kenkyuu-no-sai]],

  b. *[$_{VP}$ [$_{NP}$ John-no [$_{V'}$ ainugo-o   kenkyuu-tyuu/kenkyuu-no-sai]],

As above, the phrasal coherence seems to be a general constraint of phrase

structure in mixed categories across languages without regard to the difference

between nominalization and verbalization.

2.8 Summary

In this chapter, I have demonstrated that TMs serve as both words (i.e. nouns) and

suffixes (i.e., deverbalizing suffixes) in TMCs. Corresponding to the TM-as-word

analysis and the TM-as-suffix analysis, NC-marking and VC-/MC-marking are

licensed, respectively. In particular, I have argued the following morphosyntactic

properties of the MC-marked TMCs.

(42) Morphosyntactic Properties of MC-marked TMCs

    a. MC-marked TMCs are verbal projections headed by a single verb.

       (The head verb in MC-marked TMCs is derived via a verbalization where a

       CEN is suffixed by a TM.)

    b. Heads and their sisters in MC-marked TMCs must be adjacent.

    c. MC-marked TMCs are constrained by phrasal coherence.

Chapter 3

Previous Studies on Mixed Categories in Japanese

In the last chapter, I have discussed structural properties of mixed categories in Japanese, which are summarized as (2.42). In this chapter, reviewing previously proposed analyses of mixed categories, I discuss which theory can capture the properties in (2.42).

My preference of the theory of mixed categories in Japanese is determined in the following way. First, I will cross-classify previously proposed analyses into four approaches, based on ways of capturing the two general properties of mixed categories: the single word status of heads and the amalgam of verbal and nominal properties. With respect to the single word status of heads, I can classify them into two major approaches, **syntactic word-formation approaches** and **lexical integrity approaches**. The syntactic word-formation approaches share an assumption that heads of mixed categories are two lexical items, which are concatenated in syntax or LF to

form a syntactic word, while the lexical integrity approaches share an assumption that the heads are single words formed in the lexicon.

Concerning the amalgam of verbal and nominal properties, I can sub-classify these approaches into two groups, **structural licensing approaches** and **lexical licensing approaches**. The structural licensing approaches share an assumption that categorial properties are licensed under syntactic structures, while the lexical licensing approaches share an assumption that they are licensed by lexical information. My cross-classification of approaches to mixed categories can be summarized in the following table.

(1)

Head as Single Word / Category Amalgam	Syntactic Word-formation	Lexical Integrity
Structural-licensing	(A)	(B)
Lexical-licensing	(C)	(D)

It is possible to assume four logically possible approaches (i.e. the cells, (A) – (D), in the table (1), but I ignore the cell (1C), which is crossed out, since there is no existing approach that can occupy the cell, to my knowledge.

Next, I eliminate (A) and (D) as unwanted approaches from the table (1), as follows. Lexical Integrity approaches are preferred to Syntactic Word-formation approaches, on the one hand, since the former reflect the single word status of heads in mixed categories (2.42a). On the other hand, Structural-licensing approaches are preferred to Lexical-licensing approaches, since the former can capture a structural relevance to categorial amalgam such as phrasal coherence (2.42c).

Lastly, I discuss the most preferable theory of mixed categories in Japanese, reviewing the approaches in (1B), based on the way of capturing the grammatical properties of Japanese mixed categories (2.42). In particular, it is important to capture two incompatible requirements for phrase structures in mixed categories: i.e. categorial coherence (2.42a) and categorial amalgam. I prefer a theory involving the notion of endocentricity, which can capture the incompatible requirements. This property can

also be captured by the approaches in (A) at the cost of the single word status of heads, because they share an assumption that mixed categories involve two categorially distinct heads and their categorially coherent projections, though the heads are syntactically combined to form a word. That is, the most preferable theory of mixed categories in Japanese is chosen from the cell (1B) but is similar to (1A), i.e. head movement analyses.

3.1 Syntactic Word-formation of Heads and Structural Licensing of Categorial Properties

To begin with, let us review approaches that occupy the cell (1A). These approaches share a basic assumption that two lexical items, which head a verbal and a nominal projection, respectively, form a word in (overt or covert) syntax. The merit of these approaches is to be able to provide a simple account for the amalgam of verbal and nominal properties without any special device on phrase structure. However, these

approaches face a problem if the heads of mixed categories behave like a single word, which is formed in the lexicon. That is, syntactically derived words should be distinguished from morphologically derived ones in that the former words allow syntactic rules to refer to their subparts, unlike the latter words (cf. lexical integrity principle: Lapointe 1980). Thus, the syntactic word formation should not be assumed until I find empirical evidence that the heads of mixed categories allow syntactic rules to refer to their subparts. Concerning the heads of mixed categories in Japanese, I have seen in Chapter 2.5 that there is no evidence that syntactic processes apply to their subparts. Hence, I can conclude that syntactic word formation approaches cannot capture the single word status of mixed categories, at least.

3.1.1 Baker (1985): Syntactic Affixation

To handle verbal gerunds in English, Baker (1985) proposes a syntactic affixation of *–ing*, which is base-generated in INFL, has the category feature of N, and affixes a V.

He argues that verbal gerunds behave like verbal projections or sentences at D-structure (i.e. before syntactic affixation), whereas they behave like nominal projections at S-structure (i.e. after syntactic affixation). A D-structure and a S-structure for a verbal gerund can be represented as follows.

(2)a.

```
              IP                          b.            NP
          /   |   \                                 /        \
        NP  INFL   VP                              NP         NP
        |    |    /  \                             |        /    \
        |    |   V    NP                           |       N      NP
        |    |   |    /\                           |      / \     /\
      John  -ing sing the aria                     |     V  -ing  the aria
                                                   |     |
                                                  John  sing
```
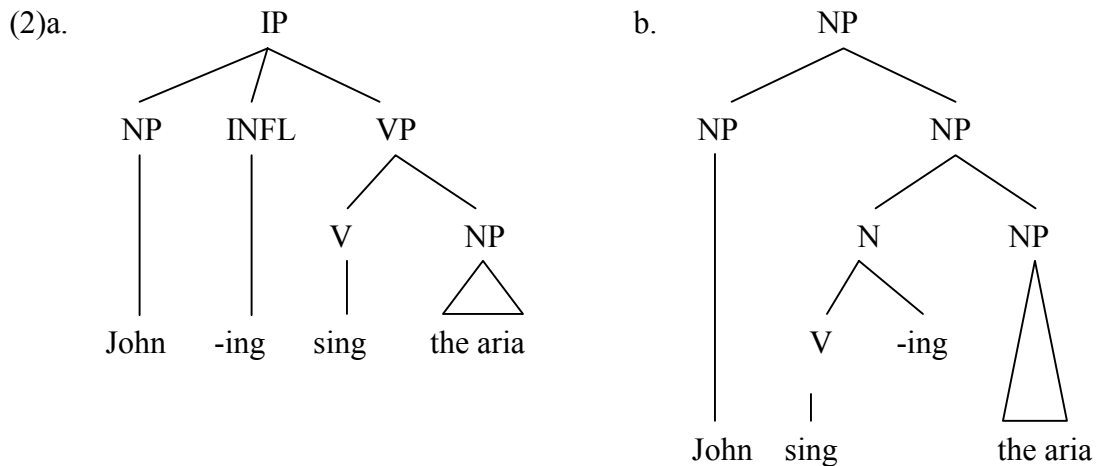
In the D-structure (2a), if syntactic affixation of *–ing* does not take place, V ('*sing*') is raised to INFL ('*-ing*'), and an ACC-ing gerund, *John singing the aria*, is generated. If the syntactic affixation is applied to the D-structure, one can obtain the S-structure (2b), which is taken as an input for a POSS-ing gerund, *John's singing the aria*.

Baker's syntactic affixation analysis faces both empirical and theoretical problems.

An empirical problem is that ACC-ing gerunds behave like NPs rather than VPs or IPs.

Like NPs, the ACC-ing gerunds can appear in argument positions, as in (3), and they

can appear as the object of a preposition, as in (4).

(3)a. Pat getting arrested alarmed Chris.

   b. Chris witnessed Pat getting arrested.   (Malouf 2000: 27)

(4) Pat is concerned about Sandy getting arrested   (ibid. :28)

These behaviors of the ACC-ing contrast with those of sentences.

(5)a. *Pat got arrested alarmed Chris.

   b. *Chris witnessed Pat got arrested.

(6) *Pat is concerned about Sandy got arrested   (Malouf 2000: 28)

A theoretical problem is that Baker's syntactic affixation requires Case assignment by a verb at D-structure (Abney 1987, Malouf 2000). To derive a POSS-ing gerund, a verb should assign Case to the object NP at D-structure. Otherwise, the object NP cannot receive Case after syntactic affixation, because the Case assigner becomes a noun. However, if the D-structure Case assignment is allowed, the object NP that received Case is in a structural position (i.e. within a NP: cf. Chomsky 1981) that can receive a Genitive case. Hence, it is theoretically possible that the object NP can receive both Accusative and Genitive, at D-structure and S-structure, respectively.

3.1.2 Abney (1987): LF-raising

Baker (1985)'s idea of syntactic affixation is modified and incorporated in Abney (1987)'s LF-raising analysis of V-ing. Abney's basic idea is that the nominalizer *–ing* affixes (= adjoins) to the maximal projections, IP, VP, and NP, deriving ACC-ing, POSS-ing, and ing-of (e.g. *John's singing of the aria*) gerunds, respectively. However,

Abney's syntactic affixation is different from Baker's in that the former assumes that

the –*ing* is not the overt morphological affix but an abstract element 'ING', in order to

avoid theoretical problems (i.e. lowering of –*ing* and D-structure Case-assignment) that

Baker's analysis leaves. In deriving a POSS-ing gerund, *John's singing the aria*, for

example, a V$_{ing}$ is raised at LF from the underlying structure (7a), yielding the LF (7b)

where a morphological –*ing* affixation is licensed by ING.

(7)a.
```
            DP
          /    \
     John's     NP
              /    \
           ING      VP
                  /    \
                 V      NP
                 |       △
              sing(ing)  the aria
```

b.
```
            DP
          /    \
     John's     NP
              /     \
           [+N]      VP
          /    \    /   \
    singing  [+N] V      NP
                  |  |    △
                ING  t   the aria
```
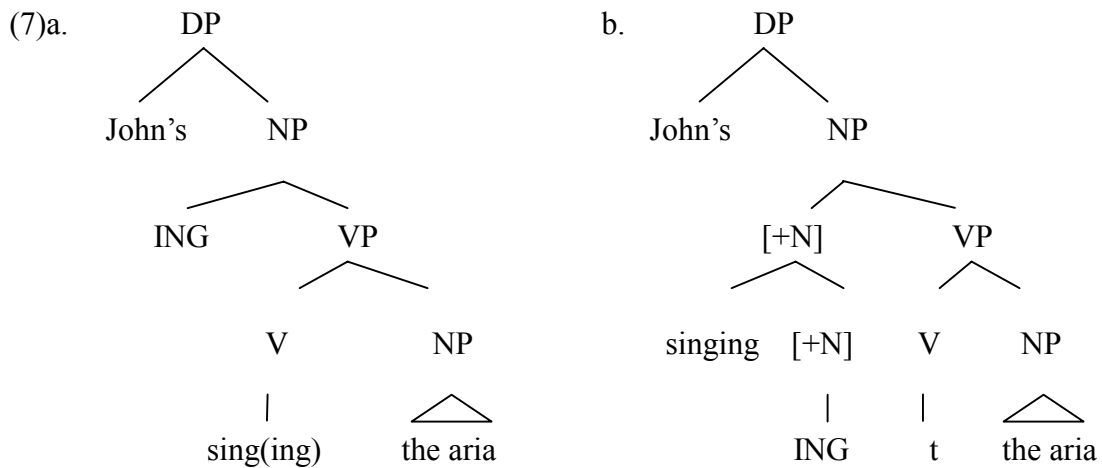
Abney's LF-raising analysis can not only solve theoretical and empirical problems for

Baker's analysis but also captures the linguistic phenomena that suggest differences in

semantic scope of *–ing* in various types of English gerunds.

Nevertheless, the LF-raising analysis leaves the following two problems, at least.

First, as Malouf (2000) points out, the LF representations for POSS-ing gerunds in (8) allow a possibility of adjoining of adjectival modifiers to the NP under DP. However, the fact is that POSS-ing gerunds do not allow adjectival modifiers, as I have already shown.

(8)a. Pat's diligently/*diligent calling the roll

    b. my quietly/*quiet leaving   (Malouf 2000)

Another problem is that LF-affixation of *–ing* allows a possibility of application of syntactic rules or processes to the verb stem until the morphological *–ing* licensing takes place at LF. That is, even Abney's LF-raising affixation faces a general problem of syntactic word formation approaches, a non-accountability of the single word status of mixed categories.

Next, I turn to syntactic word formation approaches to Japanese TMCs.

3.1.3 Miyagawa (1991)

Miyagwa (1991) claims that a TM such as *tyuu* 'during' is a functional category such as ASP(ect), and a CEN moves to the position of ASP to derive a syntactically derived word. He assumes the following underlying structure for TMCs.

(9)a.

```
              ASP-P
             /      \
         SPEC        ASP'
                    /     \
                  NP       ASP
                 /  \       |
               NP    N'     |
               |    /  \    |
               |   NP   N   |
               |   |    |   |
             John ainugo kenkyuu tyuu

             John  Ainu  research  mid
```
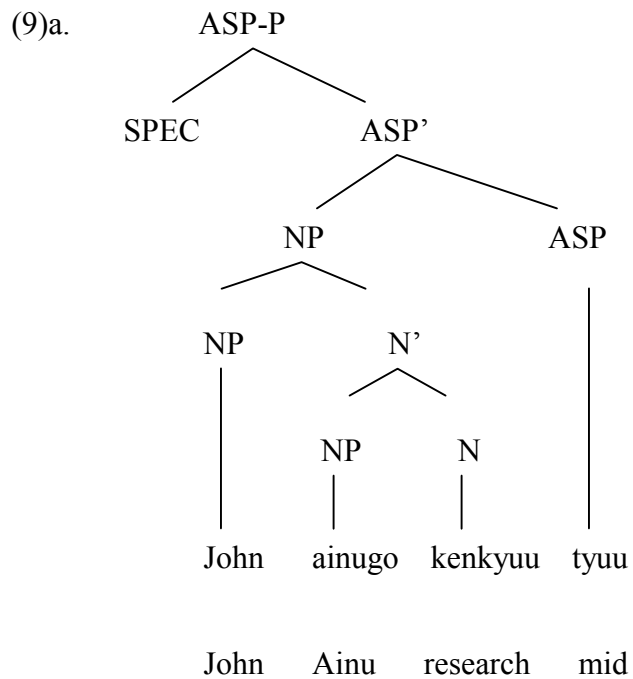
He explains case-marking patterns in TMCs on the basis of two types of Case licensing

requirements, Case-feature assignment and Case Realization. The Case-feature

assignment requires a Case feature to be assigned by a lexical head, which possesses

the feature. The Case Realization requires a Case to be licensed by a functional

category in the position governed by the functional category or immediately dominated

by a projection of the functional category. Furthermore, he assumes that Nominative

Case is realized but not assigned while Accusative Case is assigned and realized. In

addition, he assumes that Genitive Case is licensed by an N lexical head in the

environment [NP, N^n] where the superscript n represents a bar level, so that if there is a

Genitive Case, a CEN cannot raise.

Based on these requirements, Miyagawa tries to account for case-marking

patterns in TMCs. In (9a), the subject NP, *John*, is moved to the Spec of ASP-P if a

lexical N (= CEN), *kenkyuu* 'research' to have ASP realize a Nominative Case, if the

CEN does not license a Genitive Case for the subject NP. The CEN assigns an

Accusative Case feature to the object NP, *ainugo* 'Ainu language' and is raised to the

position of ASP to govern the NP and realize the Accusative Case. Accordingly, the

following VC-marked TMC is derived.

(9)b.

```
                        ASP-P
                       /      \
                  SPEC          ASP'
                    |          /      \
                    |        NP         ASP
                    |       /    \        |
                    |     NP      N'      |
                    |      |     /   \    |
                    |      |   NP     N   |
                    |      |    |     |   |
              John_i-ga    t_i  ainugo-o  t_j  kenkyuu_j-tyuu
```

John-NOM   Ainu-ACC   research-mid

‘during John studying Ainu’
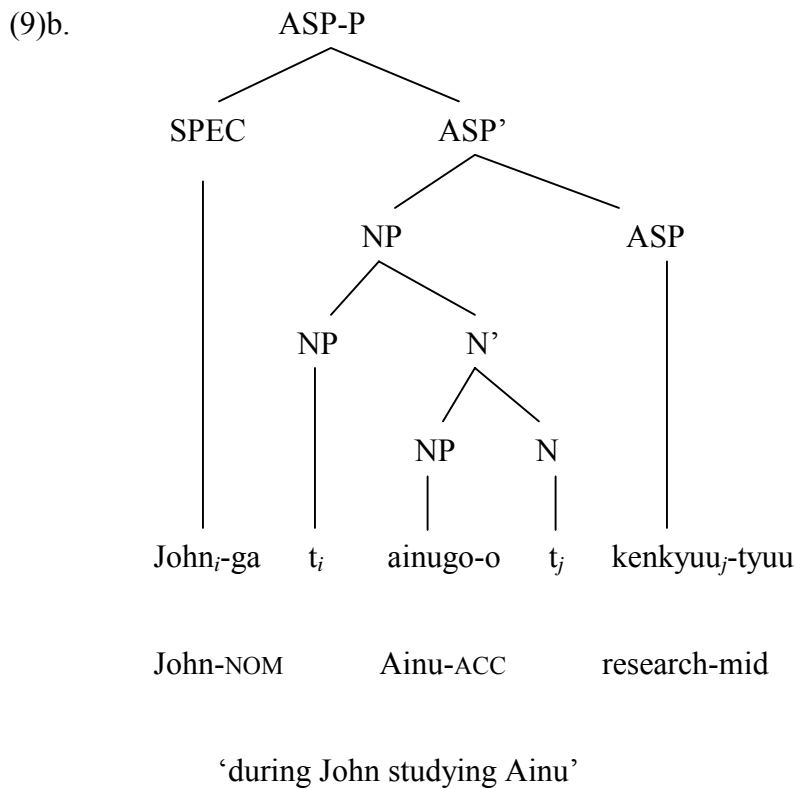
If the subject NP is moved to the Spec of ASP-P and the CEN licenses a Genitive Case

for the object NP, the CEN cannot be raised to the position of ASP, allowing the

MC-marked TMC (9c). However, if the CEN licenses a Genitive Case for both the

subject NP and the object NP, the subject and the CEN stay in the original position,

allowing the NC-marked TMC (10d).

(9)c.

```
                          ASP-P
              ┌────────────┴────────────┐
            SPEC                        ASP'
              │                ┌──────────┴──────┐
              │               NP                 ASP
              │           ┌────┴────┐             │
              │          NP         N'            │
              │           │      ┌───┴───┐        │
              │           │     NP       N        │
              │           │      │       │        │
           John_i-ga     t_i  ainugo-no kenkyuu  tyuu

           John-NOM            Ainu-GEN  research  mid
```

'during John's studying Ainu'

(9)d.

```
                    ASP-P
                   /     \
                SPEC     ASP'
                        /    \
                      NP      ASP
                     /  \       |
                   NP    N'     |
                   |    /  \    |
                   |   NP   N   |
                   |   |    |   |
              John-no ainugo-no kenkyuu tyuu
```
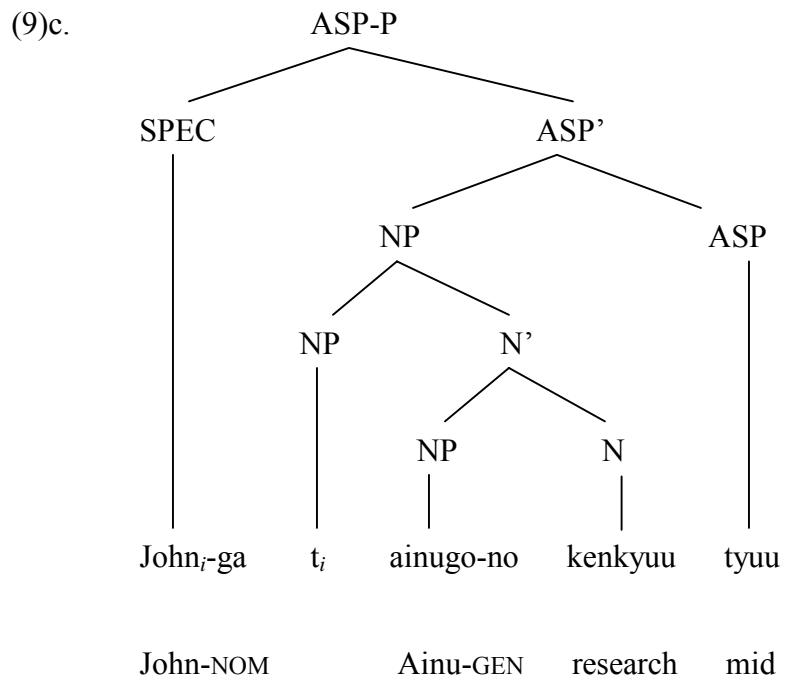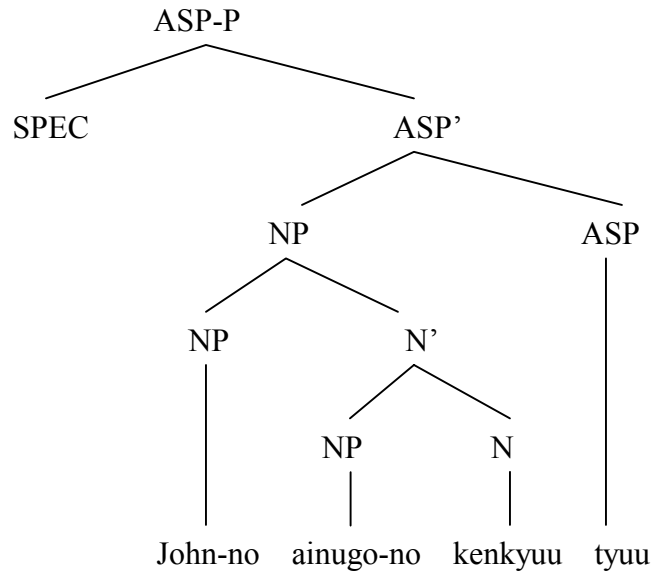
John-GEN Ainu-GEN research mid

'during John's studying of Ainu'

      Miyagawa's Case system allows various case-marking patterns in TMCs. However, his account faces an empirical problem concerning the single word status of heads in MC-marked TMCs. His theory wrongly predicts that a CEN + TM sequence cannot form even a single (syntactic) word but should be analyzed into two distinct words in the MC-marked TMCs.

3.1.4 Hoshi (1997, 2002)

Hoshi (1997) proposes a LF incorporation analysis, assuming that a CEN is raised to the position of TM at LF for a morphological reason (i.e. since the CEN is a stem, it must be affixed by a TM). His account of various case-marking patterns in TMCs is based on the assumption that the theta roles are assigned in the course of derivation (Larson 1988).

For example, a CEN, *kenkyuu* 'research', assigns a theta role to the theme argument, *ainugo* 'Ainu language', in (11a). The theme argument can receive a Genitive Case in the original position. On the way to the position of TM, the CEN drops by an empty V position and assigns a theta role to the agent argument, *John*. The agent argument moves to the Spec of IP where the Nominative Case is licensed by the CEN when it drops by an empty I position. When the CEN arrives at the position of TM, a MC-marked TMC as in (11b) is derived.

(10)a.

```
                    NP
                    |
                    N'
                   /  \
                 IP    N
                / \    |
               /   I'  tyuu
              /   /  \
            VP   VP   I
            / \
         John  V'
              /  \
            NP    V
           /  \
     ainugo-no  N
                |
              kenkyuu
```

John   Ainu-GEN   research   mid

(10)b.

NP
|
N'

IP   N

John$_i$-ga   I'   kenkyuu$_j$-tyuu

VP   I

t$_i$ V'   t$_j$

NP   V

ainugo-no   N   t$_j$

t$_j$

John-NOM   Ainu-GEN   research-mid

'during John's studying Ainu'
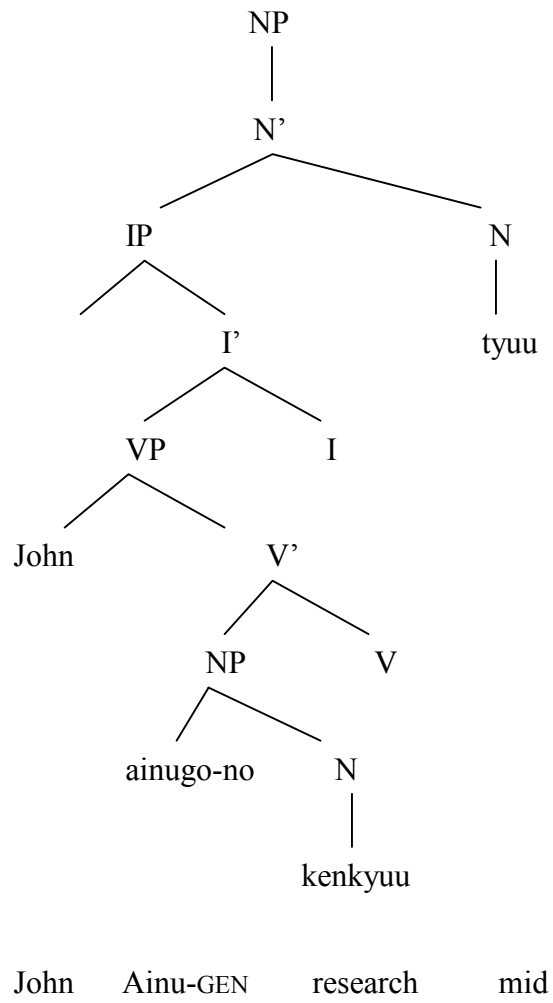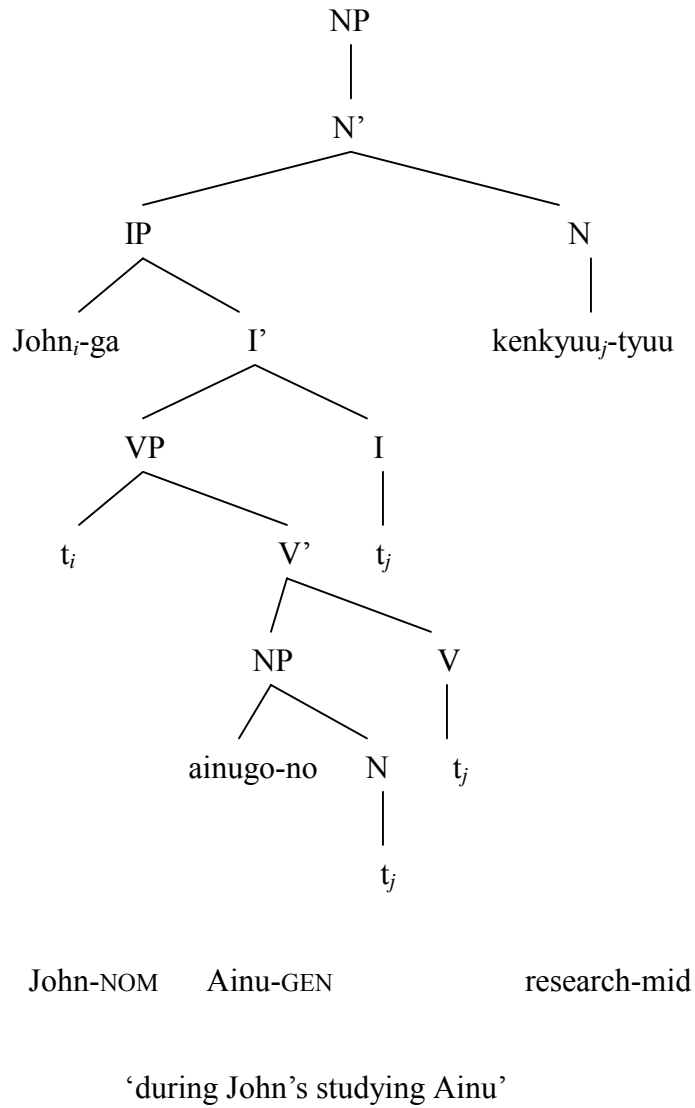
Unlike Miyagawa (1991)'s analysis, Hoshi's theory predicts that a CEN + TM sequence in every TMC forms a single (syntactic) word at LF. Nevertheless, it still allows a possibility that a syntactic rule refers to subparts of the CEN + TM sequence.

Though Hoshi (1997) assumes that a TM takes an IP as complement, this IP

seems to be unmotivated. Rather, this IP seems to be required only to license a

Nominative Case for the subject of CEN. Hoshi (2002) tries to solve this problem,

incorporating Iida (1987)'s idea that the CEN is concatenated with a TM, which bears

an aspect feature. The aspect feature, which activates the CEN's verbal property,

percolates up to the maximal projection, and the Nominative Case is licensed under the

maximal projection.

(10)c.

$$
\begin{array}{c}
\text{NP[+asp]} \\
\diagup \quad \diagdown \\
\text{John-ga} \qquad \text{NP[+asp]} \\
\diagup \quad \diagdown \\
\text{NP} \qquad \text{N[+asp]} \\
\end{array}
$$

      ainugo-no t_i kenkyuu$_i$-tyuu

  John-NOM   Ainu-GEN   research-mid

'during John's studying Ainu'
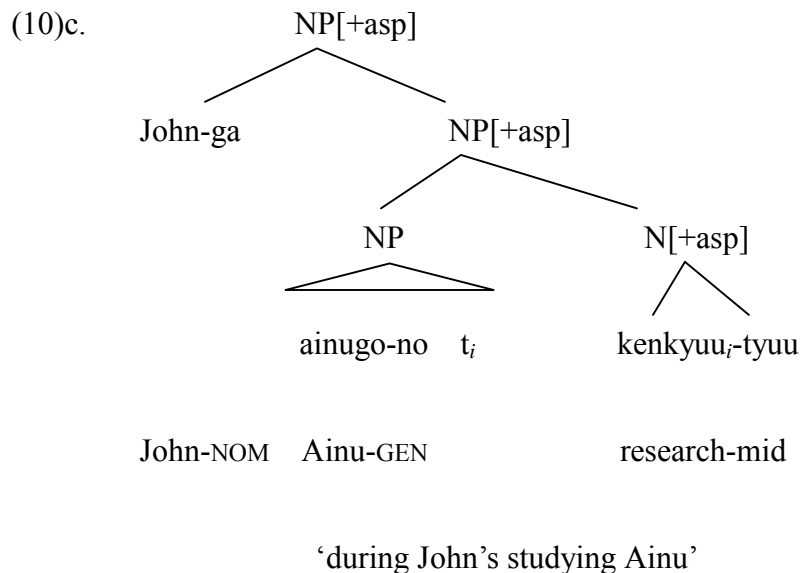
3.2 Lexical Integrity of Heads and Lexical Licensing of Categorial Properties

In contrast to approaches in (1A), approaches that occupy the cell (1D) share an assumption that heads are single words formed in the lexicon and both nominal and verbal properties are licensed by lexical information of the heads. An advantage of these approaches is to be able to capture the lexical integrity of heads in mixed categories and explain the categorial amalgam on the basis of lexical properties by maintaining the endocentric character of phrase structure. But, at the same time, these approaches do not capture structural properties of mixed categories such as phrasal coherence (2.42c).[14]

---

[14] Malouf (1998, 2000) argues a preference of his Lexical Coherence Hypothesis to the Phrasal Coherence Hypothesis, but his argument does not seem to affect a possibility of the latter hypothesis.

3.2.1 Malouf (2000): Multiple Inheritance Type Hierarchy

Within a HPSG framework, Malouf (2000) tries to provide a unified account for mixed categories across languages, as follows. He divides syntactic properties into categorial, selectional, and constructional information, which is specified in the lexical entry for heads. The categorial information, which is specified as HEAD value, determines the external distribution of a phrase. The selectional information, which is specified as a head's valence features, determines a head's complementation. The constructional information, which is represented as constraints on particular constructions, controls the combination of syntactic units.

Malouf analyzes English verbal gerunds as follows. The verbal gerunds involve a combination of noun-like categorial properties and verb-like selectional properties. He explains syntactic properties of the verbal gerunds on the basis of their categorial information, which is arranged as types in a multiple inheritance type hierarchy (Flickinger 1987, Pollard and Sag 1987, Riehemann 1998), as follows.

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(11)   a partial hierarchy of HEAD values

head
├── noun
│   ├── p-noun   c-noun   gerund
└── relational
        gerund   verb   adjective
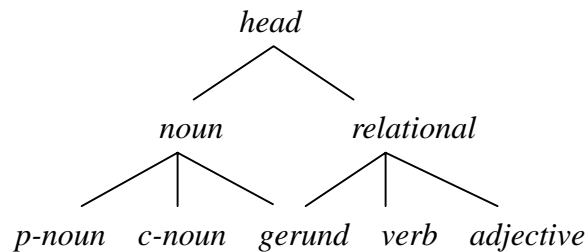
Since *gerund* is a subtype of *noun*, its projection can have the external distribution of

NPs. In contrast, since *gerund* is not a subtype of *verb*, its projection does not have the

external distribution of VPs. Adverbs modify *relational* objects including *gerund*, *verb*,

and *adjective*. Adjectives modify *c-noun* (common noun) but do not modify *gerund*.

The syntactic structure of a POSS-ing gerund can be represented as in (12). The

constructional information associated with phrasal nodes in (12), *head-comp-cx* and

noun-poss-cx, represents that the POSS-ing is a construction in which a single word

heads an internal verbal projection and an external nominal projection, simultaneously.

That is, the *head-comp-cx* is a subtype of *non-clause* (i.e. a phrase) and *head-comp* (i.e.

a head-complement combination), which corresponds to a verb phrase, while the

noun-poss-cx is a subtype of *non-clause* and *head-spr* (i.e. a head-specifier

combination), which corresponds to a noun phrase[15].

---

[15] A type hierarchy for English construction types is proposed by Malouf (2000: 15).

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(12)

$$\begin{bmatrix} \textit{noun-poss-cx} \\ \text{CAT} \begin{bmatrix} \text{HEAD} & \boxed{1} \\ \text{VAL} \begin{bmatrix} \text{SUBJ} & <> \\ \text{COMPS} & <> \\ \text{SPR} & <> \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

$$\boxed{2}\begin{bmatrix} \text{CAT|HEAD} \begin{bmatrix} \textit{noun} \\ \text{CASE } \textit{gen} \end{bmatrix} \end{bmatrix} \qquad \begin{bmatrix} \textit{head-comp-cx} \\ \text{CAT} \begin{bmatrix} \text{HEAD} & \boxed{1} \\ \text{VAL} \begin{bmatrix} \text{SUBJ} & <\boxed{2}> \\ \text{COMPS} <> \\ \text{SPR} & <\boxed{2}> \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

$$\begin{bmatrix} \text{CAT} \begin{bmatrix} \text{HEAD} & \boxed{1}\textit{ gerund} \\ \text{VAL} \begin{bmatrix} \text{SUBJ} <\boxed{2}> \\ \text{COMPS} <\boxed{3}> \\ \text{SPR} & <\boxed{2}> \end{bmatrix} \end{bmatrix} \end{bmatrix} \qquad \boxed{3}[\text{CAT|HEAD }\textit{noun}]$$

John's   singing   the aria

Malouf's account on the basis of the type hierarchy (11) explains both verbal

properties (i.e. compatibility with adverbs but not with adjectives, internal structure or

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complementation) and nominal properties (i.e. distribution, genitive subject) of

POSS-ing gerunds. Nevertheless, it is possible to point out the following three minor

problems about his account. One problem is that not only common nouns but also

proper nouns allow modification by adjectives.

(13) Lucky/Clever Mary, Big bad John

This type of adjectival modification is regarded as exceptional. Nonetheless, no

grammar can exclude the possibility of modifying proper nouns by adjectives. And if

adjectives can modify proper nouns as well as common nouns, no other nouns than

verbal gerunds can support an assumption that adjectives can modify only particular

types of nouns. Thus, his account for adjectival modification can be weakened.

The other two problems are related to Malouf's account of adverbial modification.

One pertains to a logical possibility of the subtype of *noun* and *relational* in (11). In

addition to gerund, it is possible to assume *relational noun* as the subtype. However,

the relational noun does not allow adverbial modification, which should be allowed by

the supertype *relational*.

(14) John's gentle/*gently father, Mary's violent/*violently enemy

Thus, Malouf's account of adverbial modification cannot predict the incompatibility of

adverbs with a subtype of *relational*.

The other problem pertains to a logical possibility of the subtype of *c-noun* and

relational. One can assume *process nominals* (Grimshaw 1990) as the subtype, since

they allow both adjectival and adverbial modification (Fu, Roeper, and Borer 2001).

(15)a. Kim's thorough explanation of the problem to the tenants (did not prevent the

    riot.)

  b. Kim's explanation of the problem to the tenants thoroughly (did not prevent

     the riot.)

In (15), a process nominal, *explanation*, is modified by either an adjective, *thorough*, or an adverb, *thoroughly*. Though one can assume the subtype, *process noun*, under *c-noun* and *relational*, such a type hierarchy does not explain why adverbs can be licensed only in the NP final position (Pesetsky 2005).

(16)a. *Her slowly performance of the sonata (drew the negative attention of the

    critics.)

  b. Her performance of the sonata slowly (drew the negative attention of the

    critics.)

As in (16), an adverb like *slowly* cannot be placed between a process noun, *performance*, and its determiner. This positional difference in adverbial modification of process noun seems to suggest that adverbs are licensed structurally rather than lexically. At least, the positional difference cannot be predicted by Malouf's account.

As for the literature on mixed categories in Japanese, studies on the basis of a

Lexical Integrity and Lexical-licensing approach can be seen only in Kikuta (2000).

However, since her study deals with a rather different type of mixed category

construction (i.e. Noun Modifying Clauses), I do not discuss it here. As far as I know,

there is no literature that deals with TMC in this approach[16]. Only Manning (1993)

studies TMCs by using a categorial sort hierarchy such that CEN (or verbal noun: VN)

is a subcategory of V and N. However, his theory seems to belong to one of the

approaches in (1B), since it involves syntactic licensing of a categorial amalgam. I will

review his study later, but his theory can be taken as occupying an intersection of (1B)

and (1D).

It might be possible to adopt a Lexical Integrity and Lexical-licensing approach

for Japanese MC-marked TMCs, but it is important to consider carefully which

subtype in a hierarchy is associated with a particular property. In particular, it seems

difficult to explain the fact that MC-marked TMCs disallow either adjectival or

adverbial modification, which reflects a grammatical property of Japanese mixed

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[16] Chun et al. (2001) study Korean nominalization constructions, which are somewhat similar to Noun Modifying Clauses, on the basis of a type hierarchy in HPSG framework. Choi and Wechsler (2001) examine Korean Light Verb Constructions, partially based on a type hierarchy.

categories (2.42b). If the heads inherit both nominal and verbal properties like English gerunds, they should allow either adjectival or adverbial modification, at least.

3.3 Lexical Integrity of Heads and Structural Licensing of Categorial Properties

Now, I turn to Lexical Integrity and Structural-licensing approaches (1B). As I mentioned, these approaches can be considered preferable to Syntactic Word-formation and Syntactic-licensing approaches (1A) or Lexical Integrity and Lexical-licensing approaches (1D) in that they can capture the single word status of heads and a structural relevance to categorial amalgam such as phrasal coherence (2.42c) in mixed categories.

As one can see in the following paragraphs, there are many and various approaches in (1B). This tendency seems to suggest that approaches in (1B) are intuitively desirable but there are various ways to explain categorial amalgam in syntax.

The various ways can be distinguished by a level of grammar where a categorial amalgam is achieved. However, I will see that the categorial amalgam at argument structure or phrase (constituent) structure is not preferable.

Among the approaches in (1B), I claim that the most preferable one licenses categorial amalgam in syntax and reflects categorial coherence at phrase structure, explaining all grammatical properties in Japanese mixed categories.

3.3.1 Categorial Amalgam at Argument Structure

Approaches that rely on argument structure to explain categorial amalgam in mixed categories share an assumption that each argument of a head is linked to a syntactic projection where it is realized at the level of argument structure. An argument can be linked to either a verbal or a nominal projection. Mixed categories are allowed if a head has more than one argument, which is linked to a verbal projection and a nominal projection, respectively.

These approaches are, more or less, influenced by Argument Transfer, which is proposed by Grimshaw and Mester (G&M: 1988), on one hand. On the other hand, such an approach is consistent with Iida (1987)'s idea of VC licensing by the feature [+asp(ect)].

3.3.1.1 Grimshaw and Mester (1988): Argument Transfer

G&M's Argument Transfer can be used to explain argument realization in complex predicates, which are formed by more than one word. In particular, it is used to explain case marking patterns (or argument-realization patterns) in Light Verb Constructions in Japanese. The basic idea is that a Sino-Japanese Verbal Noun like *keikoku* 'warning' can transfer its arguments to a light verb, *suru* 'do', in order to realize them under a verbal projection. Depending on how many and what kinds of arguments are transferred, one can obtain various case marking patterns in the Light Verb Constructions. For example, if the Verbal Noun *keikoku* transfers all arguments,

i.e. Agent (e.g. John), Goal (e.g. villagers), and Theme (e.g. (that) a wolf comes), they

are realized as verbal arguments (i.e. VC-marked arguments), as in (17a). If the Verbal

Noun transfers two of its arguments (i.e. Agent and Goal), they are realized as verbal

arguments, as in (17b).

(17)a. John-ga   murabito-ni [ookami-ga kuru]-to   keikoku-o sita.

     John-NOM   villagers-to [wolf-NOM come.NPST]-COMP   warning-ACC did

        'John warned villagers that a wolf came.'

   b. John-ga   murabito-ni   [ookami-ga kuru]-to-no   keikoku-o sita.

     John-NOM   villagers-to   [wolf-NOM come.NPST]-COMP-GEN warning-ACC did

Though the Argument Transfer is not directly available for explaining

case-marking patterns in TMCs due to its applicability to complex predicates, the basic

idea can be applied to the analysis of mixed categories. The basic idea of Argument

Transfer includes an assumption that arguments that appear in verbal projections and

those that appear in nominal projections can be operated at the level of argument structure. The lexical operation serves as explaining categorial amalgam at the level of argument structure without making syntactic structure complex. Hence, the basic idea of Argument Transfer is still inherited by some analyses of mixed categories in Japanese (cf. Hoshi 1997, 2002: LF-incorporation and theta-marking theory). I will review Sells (1990)'s way of characterizing Transfer, which is applied to Japanese TMCs, after I see Iida (1987)'s aspect-based VC-licensing.

3.3.1.2 Iida (1987): VC licensing by [+asp]

In her pioneering work on Japanese TMCs, Iida (1987) claims that not only verbal predicate but also nominals can license VCs under a special condition. Assuming that the CEN + TM sequence in TMCs is Noun, she identifies the source of VC-marking in the constructions with a semantic feature [+asp], which is associated with a TM. That is, a CEN's arguments can be associated with verbal grammatical functions such as

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SUBJ or OBJ, which are realized as verbal arguments that receive VCs, by morphological concatenation with a TM, which bears [+asp].

An advantage of Iida's aspectual licensing of VCs is that there is no need to assume that only verbal predicates can assign VCs in their projections. Rather, one can assume that nominals can assign VCs under nominal projections, if they are concatenated with an element with [+asp].

Her idea can be used to account for NC-marked TMCs and VC-marked TMCs, but is not applicable to MC-marked TMCs without any constraint, since MC-marked TMCs involve both NC-marked and VC-marked arguments. That is, the aspectual licensing VCs by nominals cannot be maintained without a constraint that determines which argument should or should not receive VC in the same construction. Her followers (Sells 1990, Manning 1993, Ohara 2000, Hoshi 2002) have attempted to propose a lexical or structural constraint to preserve the aspectual licensing of VCs.

3.3.1.3 Sells (1990)

Sells (1990) explains various case-marking pattern of TMCs under the influence of G&M (1988)'s Argument Transfer, following Iida (1987)'s aspectual licensing of VCs by nominals. Instead of Argument Transfer, he proposes an argument structure that consists of a list of ARGUMENTS (thematic structure) and a list of DEPENDENTS (subcategorization: cf. Rappaport 1983). That is, he assumes that syntactic argument realization can be specified in the list of DEPENDENTS: subcategorized arguments are realized in the phrase with VC-marking, while non-subcategorized arguments are realized in the phrase with NC-marking.

For example, a head nominal (i.e. a CEN: e.g. *kenkyuu-tyuu* 'during research') itself is associated with a thematic structure such as <Agent, Theme> and the following four logical possibilities for subcategorization (Note: here, I represent the subcategorization as <arguments in thematic structure/case assigned in syntax>): <Agent/VC, Theme/VC>, <Agent/NC, Theme/NC>, <Agent/VC, Theme/NC>, and

*<Agent/NC, Theme/VC>. Among the four logical possibilities of subcategorization,

the last one, *<Agent/NC, Theme/VC>, violates the following constraint, so that it is

not a truly possible subcategorization.

(18) If a given role θ_i is subcategorized for, all arguments thematically higher than θ_i

must also be subcategorized for.

The subcategorization and the constraint (19) can predict case-marking patterns in

TMCs.

(19)a. <Agent/VC, Theme/VC> →

      John-ga   ainugo-o kenkyuu-tyuu   <VC>

      John-NOM   Ainu-ACC   research-mid

      'during John's research of Ainu'

   b. <Agent/NC, Theme/NC> →

John-no   ainugo-no   kenkyuu tyuu   <NC>

John-GEN   Ainu-GEN   research mid

c. <Agent/VC, Theme/NC> →

John-ga   ainugo-no   kenkyuu-tyuu   <MC>

John-NOM   Ainu-GEN   research-mid

d. *<Agent/NC, Theme/VC> →

*John-no   ainugo-o   kenkyuu-tyuu

John-GEN   Ainu-ACC   research-mid

Though Sells's analysis can handle MC-marked TMCs as well as VC- or NC-marked TMCs, the head-as-noun and maximal-projection-as-NP analysis in MC-marked TMCs seems to be empirically wrong (Chapter 2.6) and hence cannot capture one of the properties of Japanese mixed categories (2.42a).[17]

Moreover, the nominal status of the head of MC-marked TMC is less plausible

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[17]   Horiuchi (2004a) points out an insufficiency of Sells's argument for the heads of TMCs as nouns.

with respect to the cross-linguistic pattern of nominalization. Recall the phrasal coherence discussed in Chapter 2.7. Malouf (2000: 91-99) points out the fact that nominalization across languages constrains a possible case/category mixing pattern. As the following examples of English verbal gerunds suggest, nominals allow an external NC-marked argument and an internal VC-marked argument as in (20a), but do not allow an external VC-marked argument and an internal NC-marked argument as in (20b).

(20)a. Pat worries about Chris's endlessly watching television.

    b. *Pat worries about Chris endlessly watching of television.

That is, <Agent/NC, Theme/VC> but not <Agent/VC, Theme/NC> is possible in nominalization. Sells's analysis of TMCs as nominal projections headed by nominals is not compatible with the general constraint on the possible case mix in nominalization as in (20). As (19c, d) suggest, the pattern of case mix in Japanese TMCs is the reverse

of that in English verbal gerunds.

A theoretical problem of Sells's subcategorization account is that case-marking

properties are dissociated from categorial properties, since subcategorized arguments

can be realized as VC-marked NP even if they are associated with a nominal element

which heads a nominal projection. Thus, Sells's subcategorization cannot capture a

general correlation of case and categories in Japanese (Chapter 1.2), which is a scope

of this thesis along with mixed case marking.

3.3.2 Categorial Amalgam at Phrase Structure

The approaches to categorial amalgam in mixed categories at phrase structure

tackle the problems in the approaches to categorial amalgam at argument structure, by

trying to solve them at the level of phrase structure or constituent structure.

3.3.2.1 Manning (1993)

Manning (1993) tries to explain various case-marking patterns in TMCs or other mixed categories, on the basis of the following proposals: 1) morphological licensing (= Iida's aspectual licensing of VC-marking by nominals), 2) categorial underspecification, and 3) division of the concept of category. The categorial underspecification 2) is an idea of allowing a CEN to be categorized as noun or verb. It is captured by a type hierarchy such that a Verbal Noun (VN: i.e. CEN) is a subtype of V and N (cf. Choi and Wechsler 2001). The categorial underspecification also involves notions like SELECTION and SPECIFICATION, which serve as constraints on the cross-categorial relation[18]. A category SELECTS another, preserving its sort, if the former is sort-compatible with the latter (i.e. if the former is a subtype of the latter in a type hierarchy). A category SPECIFIES another, so that the latter category is changed to the former. The division of the concept of category 3) means that the concept of

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[18] SPECIFICATION is represented by an exclamation mark (!), while SELECTION is unmarked.

category is divided into categorial and combinatoric information (Cho and Sells 1995, Sells 1995). The categorial information is everything that is selected by another head. The combinatoric information is consistently inherited from the righthand sister and constrains only a syntactic combination.

Manning's proposals 2) and 3) as above are similar to Malouf (2000)'s proposals in that both rely on a type hierarchy and a distinction between categorial and selectional (= combinatoric) information. However, Manning's differ from Malouf's in that the former are made for a structural/lexical account while the latter for a pure lexical account. Manning's account is based on the assumption that both categorial information and selectional/combinatoric information are inherited at phrase structure, but the categorial information is partially inherited from the lexicon in that a sort-compatibility is determined by a reference to type hierarchy. Thus, Manning's account suggests that categorial amalgam in mixed categories is handled at phrase structure and the lexicon.

Manning explains a Japanese MC-marked TMC in the following way.

(21)

```
                    V'_V-SIS
                   /        \
          N'_V-SIS!          V'_V-SIS
            /\               /      \
          /    \          N'_N-SIS   VN_V-SIS
         /_____\          /\        /    \
        John-ga          /    \     /        \
                        /_____\   /_____\
                       ainugo-no   [kenkyuu-tyuu] _VNv-SIS
```

John-NOM   Ainu-GEN   research-mid

'during John's studying Ainu'
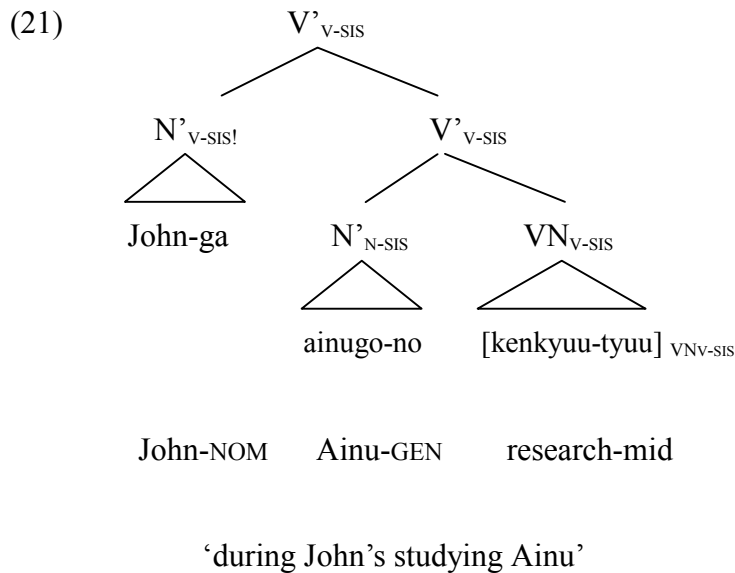
In (21), the combinatoric information, V-SIS (i.e. SELECT V's sister), is inherited from a VN *kenkyuu-tyuu* 'during research' up to the maximal projection. Under the verbal projection, the VN can take a sister NP *ainugo-no* 'on Ainu', which receives NC, since it is sort-compatible with N and the sister NP SELECTS an N sister (i.e. N-SIS). The resultant phrase *ainugo-no kenkyuu-tyuu* 'during research on Ainu' can take a subject NP *John-ga* 'John-NOM' which receives VC, since it is a verbal projection and the subject NP must SPECIFY a V's sister (i.e. V-SIS!).

Manning's theory predicts well-formedness of MC-marked TMCs in Japanese.

Moreover, it can handle empirical facts in MC-marked TMCs. The verbal distribution can be explained by the category of maximal projection in (21). Case-marking asymmetry can be explained as a consequence of the distinction of selection and specification: a VC-marked argument cannot be a sister of heads in MC-marked TMCs if a NC-marked argument appears as a subject, since a V's argument (i.e. a VC-marked argument) specifies the sister VN's category as V, so that the category V disallows a N's argument (i.e. a NC-marked argument), which may take a sort-compatible category as its sister. In contrast, a VC-marked argument can appear as a subject if a sister of heads in MC-marked TMCs is a NC-marked argument for the reverse reason (i.e. the sister NC-marked argument of heads allows a sort-compatible category without changing the original category VN). Moreover, the fact that neither adjectives nor adverbs can occur between a head and its sister in MC-marked TMCs can be explained by an assumption that adjectives and adverbs require their sister VN to be N and V, respectively, which disallow a category mix. In addition, heads cannot be conjoined in MC-marked TMCs can be explained by an assumption that the conjunction *to* 'and'

specifies its sister to be N. Therefore, Manning's theory seems to be empirically adequate with respect to MC-marked TMC.

Nevertheless, Manning's theory cannot capture the generalization about case-marking and syntactic projection in Japanese, since the theory incorporates Iida's aspectual licensing of VC-marking.

Furthermore, Manning's theory wrongly predicts that a pure nominal projection and a pure verbal projection cannot be combined. However, it is the case that a nominal projection like NC-marked TMC can take a main clause (i.e. a verbal projection). For example, the well-formedness of the example (22a) cannot be explained by assuming a schematic combination of subordinate and main clause in (22b).

(22)a. John-no   ainugo-no   kenkyuu-tyuu Mary-ga   sinda.

    John-GEN   Ainu-GEN   research-mid   Mary-NOM   died

    'Mary died, during John's study of Ainu.'

b.

DOOM[19]

N'$_\text{N-SIS}$ V'$_\text{V-SIS}$
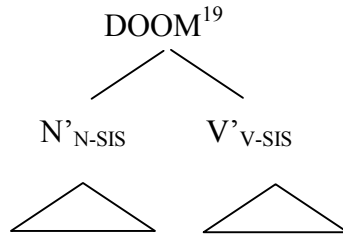
In addition, it is the case that a noun is modified by and concatenated with a preceding

verbal projection in Japanese.   For example, the well-formedness of (23a) cannot be

explained by assuming a schematic combination of a modifying clause and a modified

noun (phrase).

(23)a.   John-ga   ainugo-o   kenkyuu-suru   basyo-no …

         John-NOM   Ainu-ACC   study-do   place-GEN

            'of the place where John studies Ainu'

   b.

---
[19] DOOM indicates a categorial feature incompatibility.

```
            DOOM
          /      \
    V'_{V-SIS}    N'_{N-SIS}
      /\            /\
```
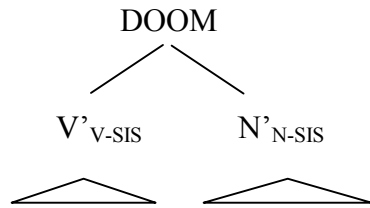
Thus, though Manning's theory can work clause-internally, it cannot explain

cross-clausal relations.

3.3.2.2 Lapointe (1993) and Sells (1996): Dual Lexical Category

Dual Lexical Category (DLC) theory (Lapointe 1993) is another type of approach

to categorial amalgam at phrase structure. He assumes a lexical category $<X|Y>^0$

which constrains not only a categorial status of its (internal) projection (i.e. the

right-hand side of a bar in a DLC: Y) but also a categorial status of a(n external)

projection which governs the former projection (i.e. the left-hand side of a bar in a

DLC: X). The DLC is designed to capture an intuition about the categorial amalgam in

mixed categories: both verbal and nominal projections are headed by a single head. It also serves to explain the asymmetry of internal and external projections in mixed categories (cf. Chapter 2.7: case-marking asymmetry of Japanese TMCs and English verbal gerunds) by constraining the category of internal and external projections. For English verbal gerunds, Lapointe assumes a DLC, $\langle N|V \rangle^0$, to capture their external distribution like nominals and their internal organization like verbals.

Sells (1996) explains MC-marked TMCs, assuming that a DLC, $\langle V|N \rangle^0$, heads both an external verbal projection and an internal nominal projection. For example, the DLC serves to build the following phrase structure for a MC-marked TMC.

(24)

```
                          VP
                    _____|_____
                   |             |
                   NP            NP
                   |          ___|___
                   △         |       |
                           NP      <V|N>⁰
                            △        |
                                     |
                John-ga   ainugo-no   kenkyuu-tyuu

                John-NOM   Ainu-GEN    research-mid
```

'John's studying Ainu'
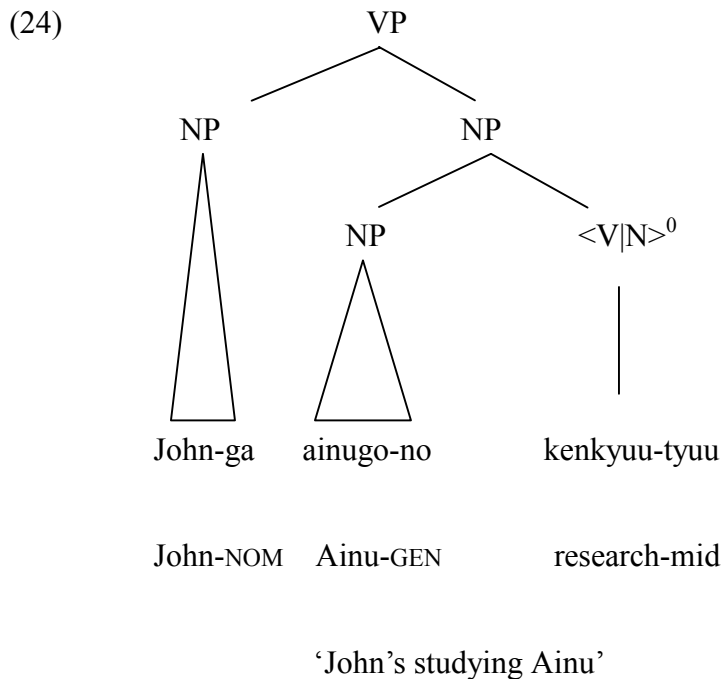
The structure (24) provides a straight forward account for mixed case marking in that a

VC and a NC appear under a verbal and a nominal projection, respectively. However, it

is not desirable empirically and theoretically. An empirical problem is that MC-marked

TMCs do not have an internal nominal projection. As I have shown, adjectives cannot

occur anywhere within a MC-marked TMC. The DLC $\langle V|N \rangle^0$ cannot explain why

adjectives do not occur in the internal nominal projection of the MC-marked TMC.

A theoretical problem is that a DLC does not reflect endocentricity of phrase

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structure. For example, a phrase structure rule such as VP→NP NP must be assumed to generate the structure (24).

3.3.2.3. Wescoat (2002): Lexical Sharing

Wescoat (2002)'s lexical sharing theory is a current approach to categorial amalgam at phrase structure. The basic idea is that a terminal node (i.e. a single word) is associated with two pre-terminal nodes, N and V, for example, which head a nominal and a verbal projection, respectively. Unlike Bresnan (2001)'s strict lexical integrity principle (see Chapter 1.4), he argues that the pre-terminal node and the terminal node do not always show a one-to-one correspondence but can have a many-to-one correspondence (cf. syntactic vs. morphological categories: Sells 1996b), examining what he call portmanteau words. The many-to-one correspondence is formally implemented by a lexical-token function λ.

There seems to be no existing analysis of MC-marked TMC based on the lexical

sharing theory, but it is possible to assume the following lexical sharing tree for a

MC-marked TMC.

(25)

VP
├── NP
│   └── John-ga
├── NP
│   └── NP
│   └── ainugo-no
│   └── N
│   └── kenkyuu-tyuu
└── V

John-NOM   Ainu-GEN   research-mid

'during John's studying Ainu'
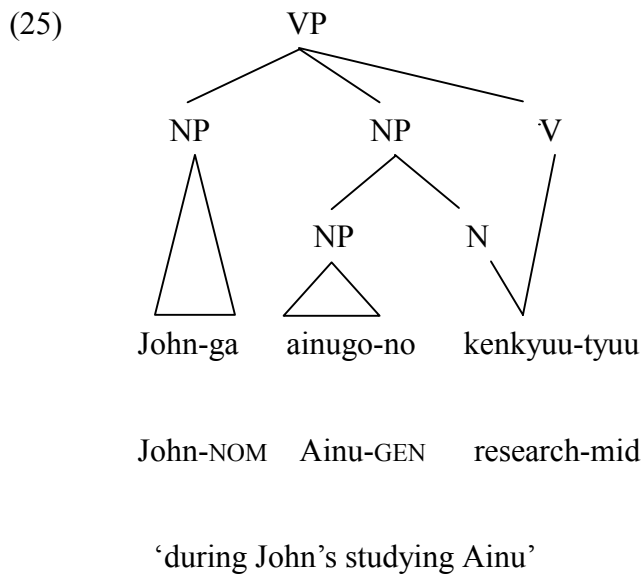
Like Lapointe's DLC theory, Wescoat's lexical sharing theory can capture an intuition

that both verbal and nominal projections are headed by a single head in mixed

categories. Unlike the DLC theory, the lexical sharing theory is theoretically preferable

in that it preserves the endocentricity of phrase structure. However, like the DLC

theory, the lexical sharing theory has an empirical problem for MC-marked TMCs: i.e.

non-occurrence of adjectives in their internal nominal projections.

3.3.2.4 Ohara (2000)

Another approach to categorial amalgam at phrase structure is proposed by Ohara (2000), based on her study of constructions that involve verbal nouns. Examining TMCs or other mixed categories in Japanese, she proposes a way of constructing a categorial amalgam via the following phrase structure rules.

(26)a.　NP　→　NP　　　　　　N(P)

　　　　　　　　($\uparrow$GF) = $\downarrow$　　　$\uparrow$ = $\downarrow$

　　　　　　　　($\downarrow$CASE) = Gen

　b.　VP　→　NP　　　　　　X(P)

　　　　　　　　($\uparrow$GF) = $\downarrow$　　　$\uparrow$ = $\downarrow$

　　　　　　　　($\downarrow$CASE) = ~Gen

The phrase structure rules in (26) allow the following constituent structure for a

MC-marked TMC.

(27)

```
                        VP
              _____|_____
             NP                      NP
                              _____|_____
        (↑SUBJ) = ↓          ↑ = ↓
                          _____|_____
        (↓ CASE) = NOM   NP               N

                         (↑OBJ)=↓         ↑ = ↓

                         (↓ CASE) = GEN

           /\              /\              |
          /  \            /__\             |

       John-ga          ainugo-no      kenkyuu-tyuu

   (↑PRED) = 'John'   (↑PRED) = 'Ainu'   (↑PRED) =

   (↑ CASE) = NOM     (↑ CASE) = GEN     'during-research

                                          <(↑SUBJ)(↑OBJ)>'

       John-NOM          Ainu-GEN        research-mid

              'during John's research on Ainu'
```
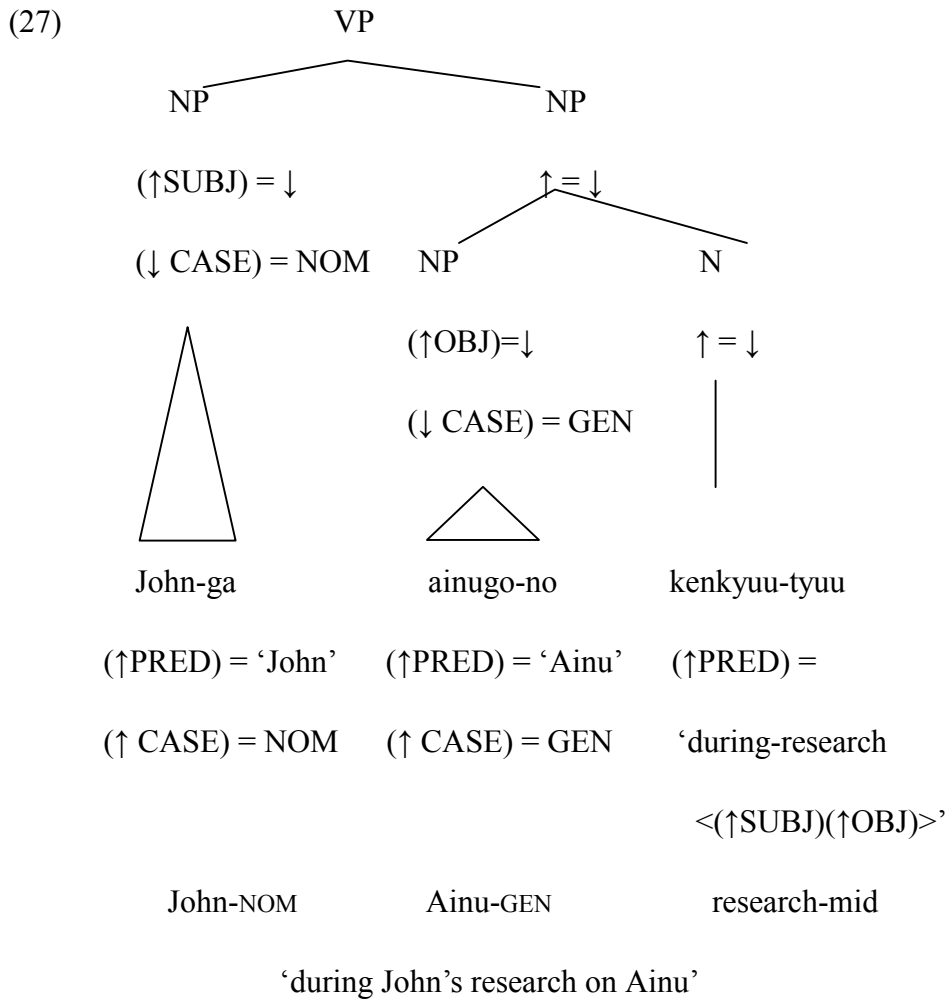
Ohara's phrase-structure rule approach can provide a straightforward account for a

correlation between categorial properties and syntactic projections at phrase structure. However, her phrase-structure rules cannot maintain the endocentricity of phrase structure (cf. a theoretical problem for Lapointe's DLC). For example, (26b) allows a rule, VP → NP NP, which serves to generate part of the structure (27).

Moreover, since she assumes that a head of MC-marked TMC is a noun like Iida (1987) and her followers and that the MC-marked TMC has an internal nominal projection, her theory faces the empirical problem of non-occurrence of adjectives.

3.4 Summary

In sum, even the approaches, which are taken as preferable with respect to crucial properties of mixed categories in general, cannot fully explain grammatical properties of mixed categories in Japanese. In particular, they are not compatible with the notion of endocentricity, which reflects categorial coherence between heads and projections (2.42a), allowing categorial amalgam. In addition, they do not provide an account for

the property of adjacency between heads and their sisters in Japanese mixed categories

(2.42b). Thus, I need a theory that involves the notion of endocentricity, which allow

the categorial coherence at constituent structure and the categorial amalgam at a level

of syntax other than argument structure and constituent structure. It must also explain

all of the grammatical properties in Japanese mixed categories. In the next chapter, I

will see the most promising theory of mixed categories in Japanese.

Chapter 4

A Head Sharing Analysis

of Temporal Morpheme Construction

In this chapter, I introduce a head sharing analysis (Bresnan 1997) to explain

mixed categories in Japanese.[20] Next, I propose my theory of mixed categories and

case marking within a LFG framework (Bresnan 2001, Dalrymple 2001, Falk 2001) to

explain mixed case (MC) marking as well as pure verbal case (VC) marking and pure

nominal case (NC) marking in Japanese Temporal Morpheme Constructions (TMCs).

Then, I explain case marking in TMCs, based on my theory .

4.1 Categorial Amalgam at Functional Structure

Bresnan's head sharing approach in a LFG framework (1997) does not involve

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[20] Horiuchi (2004b) is a compact version of our discussion from Chapter 1 to Chapter 4.

categorial amalgam at argument structure or phrase structure. Instead, the categorial

amalgam takes place at f-structure in her theory. This idea reconciles two incompatible

properties, categorial coherence and categorial amalgam, of mixed categories in

Japanese. The categorial coherence between a head and its projection can be preserved

at c-structure, while c-structures for the head and its sister are mapped to the same

f-structure where two distinct categorial properties are mixed or amalgamated. In

MC-marked TMCs, a c-structure of a verbal head and that of its sister NP are mapped

to the same f-structure, as follows.

(1)

```
                    VP
                   /  \
                  /    \
               NP        V'f3 ──────────────→ f1,f2,f3: [        ]
               /\        /  \
              /  \      /    \
             /    \    /      \
            /      \  NPf2      Vf1
           /        \
          /          \  ↑=↓      ↑=↓
         /_____\   /\        |
                        /__\       |

     John-ga     ainugo-no      kenkyuu-tyuu

     John-NOM    Ainu-GEN       research-mid

         'during John's studying Ainu'
```
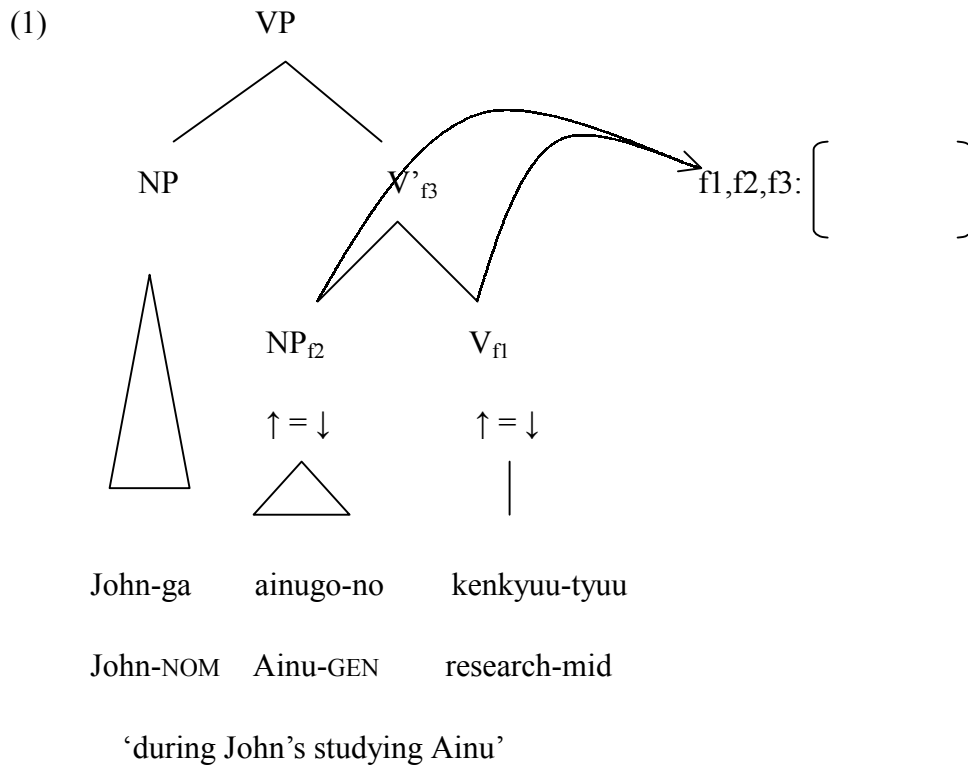
The c-structure of a MC-marked TMC (1) captures the categorial consistency between

heads and projections (i.e. V-head and V-projection). The arrows in (1) represent a

c-to-f structure mapping of a verbal head and its sister NP, resulting in a categorial

amalgam, that is, a f-structure associated with distinct categories (i.e. V and N), as the

subscripts, f1 and f2, indicate.

To make this special mapping possible, I must refine the notion of 'head'. In

general, only a head is allowed in a projection; more than one head must not appear in a projection. However, as long as the notion of head is associated with a single word, one cannot make such a mapping as (1) possible. What I need is to share a head between V and its sister NP. Therefore, Bresnan's approach is called 'head sharing'. In other words, I need to 'extend' the notion of head to a unit larger than a single word. Thus, her theory is called the 'Extended Head Theory'. In (1), a head is extended to incorporate both V and N(P).

The head sharing approach (or the extended head theory) is similar to a head movement approach in that both can explain a categorial amalgam, maintaining an X-bar theoretical endocentricity in phrase structure (or c-structure). The crucial difference is that the latter (i.e. a head movement approach) extends the notion of 'word' rather than 'head' to let two categorially distinct words serve as a single head. The head derived by a head movement can govern two categorially distinct projections, which are underlyingly headed by distinct words. Thus, in a head movement approach, a categorial amalgam is made possible at c-structure, without violating endocentricity.

However, the lexical integrity of a head in mixed categories is not reflected in the approach.

In addition to categorial coherence and categorial amalgam, a head sharing approach or an extended head theory can capture other important properties of mixed categories in Japanese: the adjacency between a head and its sister NP and the phrasal coherence. These properties can be explained uniformly by assuming that a head sharing approach or an extended head theory allows a verbal head to be mapped from c-structure to f-structure with only an 'adjacent' sister NP. By this adjacency requirement for the extended head, a verbal head, *kenkyuu-tyuu*, and its direct object, *ainugo-no*, can be mapped to the same-f-structure in (1), but the verbal head and its subject, *John-ga*, cannot. The f-structure shared by the verbal head and its adjacent NP (i.e. its direct object) is also shared by a verbal projection as a whole (e.g. the topmost VP node in 1). Thus, in (1), there is only a single point of articulation between a verbal part and a nominal part, as follows.

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(1')

John-ga ainugo-no   kenkyuu-tyuu

John-NOM Ainu-GEN   research-mid

'during John's studying Ainu'
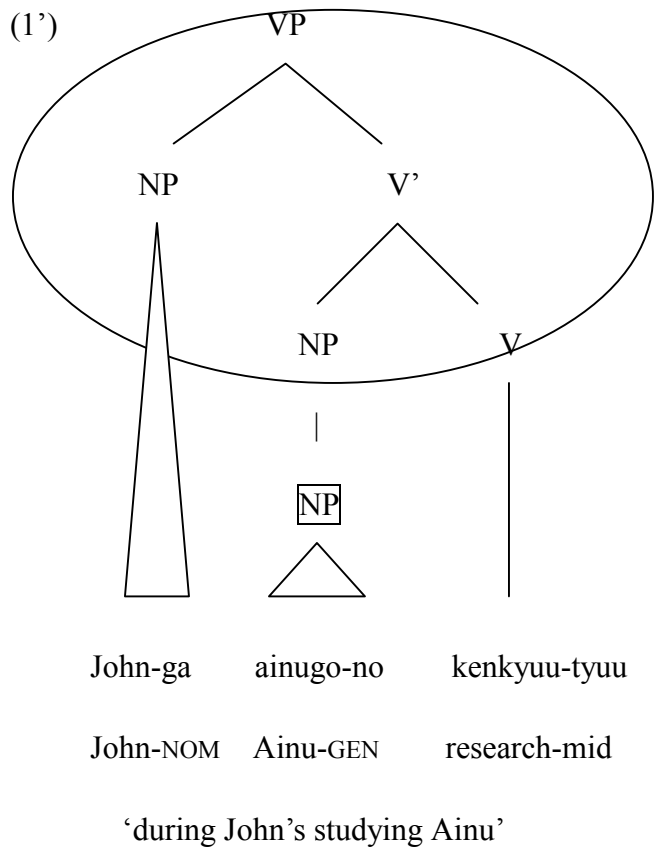
In (1'), the verbal part is surrounded by an oval, while the nominal part is surrounded

by a rectangle.

In contrast, mixed categories in Japanese disallow a verbal part to be divided into

two sub-parts by a nominal part, violating the adjacency requirement for the extended

head. For example, such a violation of the adjacency requirement is caused by

mapping a c-structure of a verbal head and that of a non-adjacent subject NP to the

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same f-structure, as follows.

(1")

VP

NP

NP   V'

NP   V

*John-no   ainugo-o   kenkyuu-tyuu

John-GEN   Ainu-ACC   research-mid

'during John's studying Ainu'
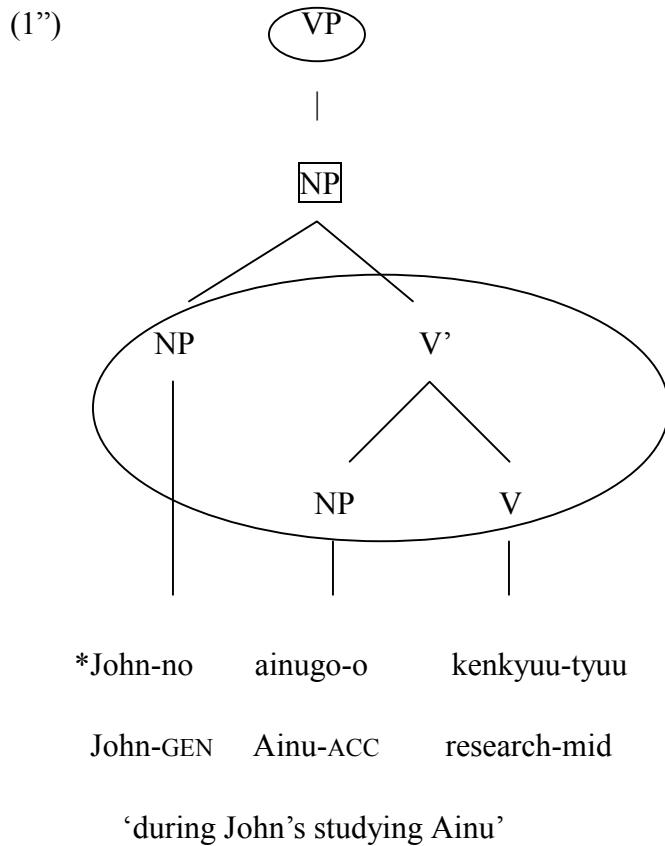
As above, the adjacency requirement for the extended head can explain the phrasal

coherence (2.42b, c).

In addition to the phrasal coherence, the adjacency requirement for the extended

head seems to explain the fact that MC-marked TMCs disallow any intervening

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element between a verbal head and its sister. In particular, the adjacency requirement

can explain the fact that the sister of a verbal head in mixed categories can do without

even a genitive case-particle as in (2.36). I will discuss this issue in Chapter 6.

Lastly, let us clarify a theoretical point for a head sharing approach or an extended

head theory, that is, endocentricity. One might ask if the constituent structure (1) is

endocentric, since the sister NP, *John-no*, appears to lack a 'head' Noun. This question

can be answered if I assume the following definition of endocentricity.

(1.28) **Endocentricity** (Bresnan 2001: 134): Every lexical category has an extended

head.

As I discussed, a verb, *kenkyuu-tyuu*, in (1) can head not only its verbal projection but

also its sister NP, as an extended head. In that sense, the sister NP, *ainugo-no*, has a

head, which corresponds to a f-structure categorially compatible with a noun phrase.

However, it is important to notice that the f-structure of the extended head cannot

bear a "categorial feature", in order to avoid the principle of Uniqueness or

Consistency (cf. Chapter 1), which requires every attribute to have a unique value

(Bresnan 2001: 47). If I assume a CAT(EGORY) feature as an attribute and its values

like VERB and NOUN, I must assume that a f-structure of an extended head involves

an attribute CAT, which has two incompatible values, VERB and NOUN. To avoid the

violation of Uniqueness/Consistency, I must assume that the notion of category

belongs to constituent structures but not to functional structures. Therefore, the title of

this section, categorial amalgam at f-structure, must not be understood as co-existence

of two incompatible, categorial features at f-structure, but as categorial amalgam in the

course of mapping to f-structure.

Though the sister NP in (1) does not have a N-head at c-structure and its

corresponding f-structure must not bear a NOUN feature, the category Noun associated

with the extended head in (1) can be recovered, as I mentioned in Chapter 1. The

recovery of the N node is made possible by assuming an inverse function, ϕ^{-1}, which

takes each f-structure f into the set of nodes that correspond to f under ϕ, and by

assuming the following definition of extended head.

(1.29) Definition of Extended Head (Bresnan 2001: 132): Given a c-structure containing nodes *N*, *C*, and c- to f-structure correspondence mapping ϕ, *N* is an **extended head** of *C* if *N* is the minimal node in $\phi^{-1}(\phi(C))$ that c-commands *C* without dominating *C*.

As above, a head sharing approach to mixed categories is compatible with the notion of endocentricity.

4.2 Proposals

In this section, I will present my theory of mixed categories and case marking in Japanese for my analysis in the next section. First of all, let us begin with my idea of case marking in Japanese. I do not assume a Case assignment by heads. Rather, the

general correlation between category and case marking in Japanese is brought about by phrase structure[21].

(2) **Structural Case Licensing**: A NP is licensed to have a VC (e.g. Nom(inative), Acc(usative)) when it is immediately dominated by a VP/IP, while a NP is licensed to have a NC (e.g. Gen(itive)) when it is immediately dominated by a NP/DP.

Though Case is structurally licensed, I also assume that case-particles play a role of conveying a grammatical function (GF) associated with a host NP. The GF information conveyed by case-particles can be unified with the GF information associated with a head's lexical entry. This idea is based on Constructive Case Theory (Nordlinger 1998), which I will see later.

Next, the result of my study on lexical integrity of the CEN + TM sequence in TMC (i.e. the sequence behaves like either a single word (V-affix) or two words (N +

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[21] Ohara (2000)'s phrase structure rules (3.26) also reflect this idea of structural case licensing.

N)) is reflected by the following lexical entries for a CEN, *kenkyuu* 'research', in (3a),

TMs, -*tyuu* 'during', and –*nosai* 'occasion-of', in (3b) and (3d), respectively, and their

combinations, *kenkyuu-tyuu* 'during research' and *kenkyuu-nosai* [22] 'occasion of

research', in (3c) and (3e), respectively.

(3)a. kenkyuu: N, (↑PRED) = 'research <SUBJ, OBJ>'

  b. –tyuu: Af, (↑PRED) = 'during<PRED>'

  c. kenkyuu-tyuu: V, (↑PRED) = 'during<research <SUBJ, OBJ>>'

  d. –nosai: Af, (↑PRED) = 'occasion-of<PRED>'

  e. kenkyuu-nosai: V, (↑PRED) = 'occasion-of<research <SUBJ, OBJ>>'

The lexical entries for a noun, *tyuu* 'mid' or *sai* 'occasion', are shown later.

    The structure of mixed categories or MC-marked TMC in Japanese is largely

explained by the Extended Head Theory, which is defined as follows.

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[22] Here, we do not discuss the morphological structure of –*nosai*, which can be analyzed as –*no-sai*. We will discuss the morphological issue in Chapter 5.

(4) **Extended Head Theory** (Bresnan 1997: 11).

(i) A functional category F0 and its sister correspond to the same f-structure.

(ii) Every lexical category has a(n extended) head.

(X is an extended head of Y if X corresponds to the same f-structure as Y, X is

of the same/nondistinct category type as Y, and every node other than Y that

dominates X also dominates Y.)

I need the following modifications to define an extended head which appears in mixed

category constructions (Morimoto 1996, Bresnan 1997, 2001).

(4') **Extended Head Theory (modified)**

(i)   A functional category F0 and its sister correspond to the same f-structure.

(ii)   A <u>lexical</u> category <u>L0</u> and its adjacent sister correspond to the same

f-structure.

(iii)   Every lexical category has a(n extended) head.

(X is an extended head of Y if X corresponds to the same f-structure as Y,

X is of the same/nondistinct category type as Y, <u>or X is a morphological</u>

<u>derivative of a category identical/nondistinct from the phrase Y</u>, and

every node other than Y that dominates X also dominates Y.)[23]

For instance, the modified Extended Head Theory (4') applies to a MC-marked TMC

as follows.

(5)

VP
├── NP
└── V'
     ├── NP $\uparrow = \downarrow$
     │   │
     │   NP $(\uparrow GF) = \downarrow$
     └── V_0 $\uparrow = \downarrow$

F1: [   ]

John-ga   ainugo-no kenkyuu-tyuu

John-NOM Ainu-GEN research-mid

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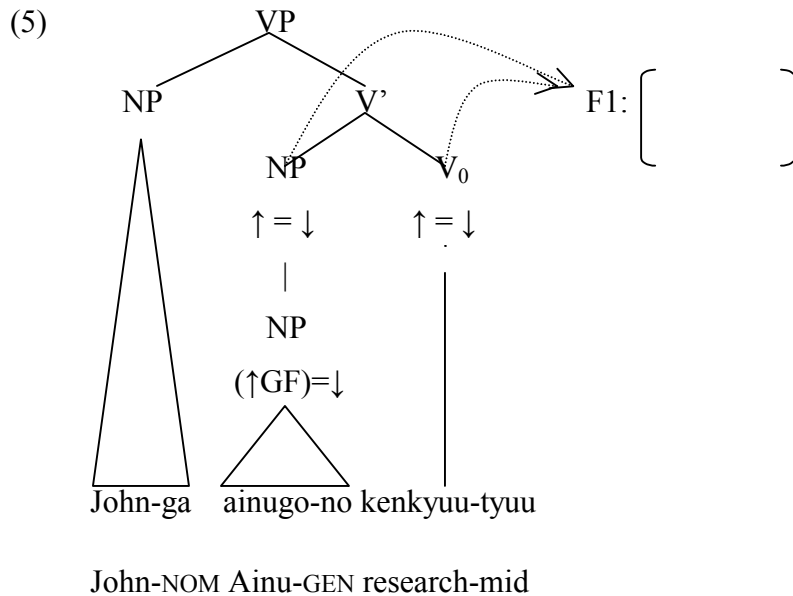
[23] We also adopt the formal definition of the extended head (1.27) in terms of an inverse function, for the explanation of recoverability of a missing category of Y.

'during John's studying Ainu'

In (5), by (4'ii), a lexical category V_0 and its sister NP correspond to the same f-structure F1. By (4'iii), the V_0 is an extended head of the sister NP because the V_0 corresponds to the same f-structure as the sister NP, the V_0 is a morphological derivative of a category identical/nondistinct from the sister NP (i.e. V_0 is derived from a noun (=CEN) by concatenation with a verbalizing suffix (= TM)), and every node other than the sister NP that dominates the V_0 also dominates the sister NP.

The Structural Case Licensing (2) and the modified Extended Head Theory (4') can be implemented by the following PS rules.

(6) **PS-rules**

a. VP →   NP*   (NP)   V

            ($\uparrow$GF) =$\downarrow$ $\uparrow$=$\downarrow$ $\uparrow$=$\downarrow$

            ($\downarrow$CASE) = V-CASE

b. NP →   NP*   (N)

            ($\uparrow$GF) =$\downarrow$ $\uparrow$=$\downarrow$

            ($\downarrow$CASE) = GEN

The general case-marking pattern in Japanese can be captured by the PS rules (6a, b) in

the following manner: by the VP rule (5a), a VC (i.e. V-CASE) is licensed under a VP,

while by the NP rule (6b), a NC (i.e. GEN) is licensed under a NP. Since PS-rules (6a,

b) can generate VC- and NC-marked TMC, respectively, they also explain pure VC-

and NC-marking in TMC.

     The PS-rules (6a, b) can handle even the MC-marking in the same way as they

handle the general case-marking pattern. A MC-marked TMC can be generated by

plugging the NP rule (6b) into the second NP in the VP rule (6a). The functional

annotation, $\uparrow$=$\downarrow$, under the second NP in the VP rule (6a) suggests that the NP is

mapped to the same f-structure as a head verb, so that it reflects the modified Extended

Head Theory. For example, a phrase structure for MC-marked TMC can be represented

below.

(7) c-structure for MC-marked TMC w/o lexical insertion of argument NPs

VP

NP   NP   V

(↑GF) =↓   ↑=↓   ↑=↓

(↓CASE)=V-CASE

NP

(↑GF) =↓

(↓CASE)=GEN

John-ga   Ainugo-no   kenkyuu-tyuu

John-Nom   Ainu-Gen   research-during

(↑PRED) =

'during<research <SUBJ, OBJ>>'
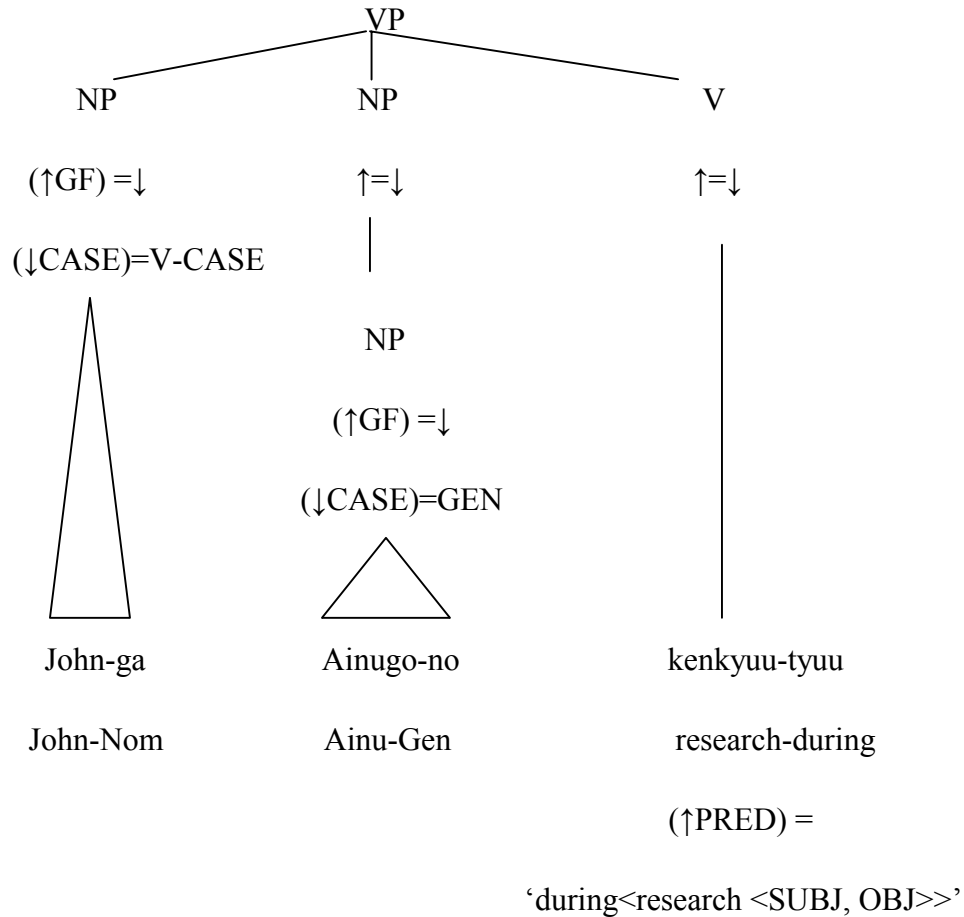
Here, a NC and a VC are licensed by PS-rules (6b, a) under a nominal and a verbal

projection, respectively. MC-marking in (7) is different from NC- or VC-marking in

that an apparently headless NP licenses a NC. The lack of c-structure head does not

always mean a violation of endocentricity of phrase structure in a LFG framework, and

the notion of head in the extended head theory can be defined in terms of f-structure.

Thus, I posit a covert head of the apparently headless NP at f-structure.

Incidentally, the PS-rules (6a, b) predict the case-marking asymmetry of

MC-marked TMC (cf. Chapter 2.7). That is, they allow a MC-marked TMC, *John-ga*

ainugo-no kenkyuu-tyuu [John-NOM Ainu-GEN research-mid] 'during John's research

on Ainu', but do not allow a MC-marked TMC, **John-no ainugo-o kenkyuu-tyuu*

[John-GEN Ainu-ACC research-mid]. A NC-marked NP, which is generated by the NP

rule (6b), cannot be plugged into the first NP in the VP rule (6a), since two conflicting

CASE values are attributed to the first NP.

The PS-rules (6a, b) serve to license a VC and a GEN, but they do not specify a

particular kind of VC such as Nom, Acc, or Dat. The specification of individual cases

is made by the **Constructive Case Theory** (Nordlinger 1997)[24], which is an

application of inside-out function application to lexical entries for case particles in

order "to enable case markers to carry information about the larger syntactic context in

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[24] Ohara (2000) also applies the Constructive Case Theory to her studies on light verb constructions or other constructions related to verbal nouns, including TMCs.

which they appear, especially information about grammatical relations (Nordlinger 1997: 6)". For example, the major VC particles have the following lexical entries.

(8)a. −ga: (↑ CASE) = NOM

(SUBJ ↑)

b. −o: (↑ CASE) = ACC

(OBJ ↑)

c. −ni: (↑ CASE) = DAT

(OBJ$_\theta$ ↑)

d. −ni: (↑ CASE) = DAT

(OBLgoal ↑)

The inside-out function application makes it possible that an inner f-structure carrying information on a CASE value also carries information on a GF value. This technology reflects an insight that case morphology in Japanese serves to determine a GF for the

host noun.

Then, how about NC-particles? Do they also carry information about GFs? Yes, they do. I arrive at this conclusion by following the so-called **Functional Consistency Hypothesis** advocated by Saiki (1987), which predicts that argument-taking nouns share not only thematic structure but also functional structure of the corresponding verbs[25]. Accordingly, I assume that, even in a nominal domain, case morphology carries information about GFs. In particular, genitive *–no* carries information about SUBJ and OBJ as in (9b). Each GF is carried by a nominative *–ga* and an accusative *–o*, respectively, under a VP/IP, as in (9a). Another genitive *–eno*[26] carries information about OBJ_θ and OBL_{goal} as in (10b) and (11b). Each GF is carried by a dative *–ni* (or a directional *–e*), under a VP/IP, as in (10a) and (11a). Though the information carried by a genitive morpheme is not specific enough to determine a particular GF, it is specific enough to distinguish a **semantically unrestricted** GF (i.e. SUBJ or OBJ) from a

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[25] The Functional Consistency is proposed to argue against Rappaport (1983)'s Thematic Consistency, which claims that a derived noun and its corresponding verb share thematic structure but do not share grammatical function. In this article, we will take a position similar to Morimoto (1999)'s OT analysis: the fact supporting the Functional Consistency in Japanese and the fact supporting the Thematic Consistency in English emerge through a difference in constraint ranking, so that each hypothesis is valid for each language.

[26] We do not analyze *–eno* as *–e-no* until the analysis is required.

semantically restricted GF (i.e. OBJ$_\theta$ or OBL$_\theta$).

(9)a. John-ga   ainugo-o   kenkyuu-suru.   b. John-no   ainugo-no kenkyuu

      John-NOM Ainu-ACC research-do   John-GEN Ainu-GEN research

      'John studies Ainu.'   'John's research on Ainu'

(10)a. John-ga   gakkoo-ni/e   b. John-no   gakkoo-eno

      John-NOM   school-DAT/DIR   John-GEN school-GEN

      hon-o   kihu-suru.   hon-no   kihu

      book-ACC   donation-do   book-GEN donation

      'John donates his book to a school'   'John's donation of his book to a

                                                school'

(11)a. John-ga pari-ni/e   b. John-no   pari-eno   syuttyoo

      John-NOMParis-DAT/DIR   John-GEN Paris-GEN business.trip

      syuttyoo-suru   'John's business trip to Paris'

      business.trip-do

'John goes on business to Paris'

Another property associated with genitive morphemes is their obligatory occurrences. As the following data of case-marker drop in Japanese suggests, GFs like SUBJ or OBJ can be associated with a NP which lacks a Nominative or an Accusative case particle (i.e. –*ga* or –*o*), but cannot be associated with a NP which lacks a Genitive case particle –*no/-eno*.

(9')a. John-(ga) ainugo-(o) kenkyuu-suru.   b. John-*(no) ainugo-*(no) kenkyuu

     John-NOM Ainu-ACC research-do   John-GEN   Ainu-GEN   research

     'John studies Ainu'   'John's research of Ainu'

(10')a. John-(ga)   gakkoo-*(ni/e)   b. John-*(no) gakkoo-*(eno)

     John-NOM school-DAT/DIR   John-GEN   school-GEN

hon-(o)   kihu-suru.   hon-*(no)   kihu

book-ACC   donation-do   book-GEN donation

'John donates his book to a school'   'John's donation of his book to a

school'

The contrast between obligatory and optional occurrence of case particles can be captured by a constraining and defining equation for their morphological forms, respectively. Here, I assume that the major NC-particles have the following lexical entries.

(12) a. –no: (↑ CASE) = GEN

$(GF_{unres} ↑)$

(↑ CASE CASEFORM) =c NO

b. –eno: (↑ CASE) = GEN

$(GF_{res} ↑)$

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$$(\uparrow \text{CASE CASEFORM}) =c \text{ ENO}$$

4.3 Analyses

Now, I am ready to show my analyses of case-marking in TMCs. Let us begin

with a MC-marked TMC. In the MC-marked TMC, a genitive-marked NP, *ainugo-no*

'of Ainu', carries information about a GF_{unres}, which can be unified with either SUBJ

or OBJ associated with a verb, *kenkyuu-tyuu* 'during research'[27]. The c-structure (7)

can be fully represented as (13a) after lexical insertion of their arguments.

Properties of MC-marked TMC are explained on the basis of the structure (13a).

Both a VC-marked subject and a NC-marked object are licensed by the Structural Case

Licensing (2) and PS-Rules (6) repeated here.

(6) **PS-rules**

---

[27] The genitive-marked NP, *ainugo-no*, can serve as an OBJ as well as a SUBJ. Only pragmatics can determine which is selected.

a. VP → NP* (NP) V

$(\uparrow GF) = \downarrow$ $\uparrow = \downarrow$ $\uparrow = \downarrow$

$(\downarrow CASE) = V\text{-}CASE$

b. NP → NP* (N)

$(\uparrow GF) = \downarrow$ $\uparrow = \downarrow$

$(\downarrow CASE) = GEN$

The case-marking asymmetry (i.e. the ill-formedness of the combination of NC-marked subject and VC-marked object) is explained by an asymmetry such that a VP rule (6a) can plug in a NP rule but not vice versa. The structure (13a) captures a single word status of heads, and a verbal value of external projections and heads in MC-marked TMCs. The non-occurrence of adjuncts of the internal projection of MC-marked TMCs is explained by a c-structure constraint, which I have discussed in 3.3.3.

(13)a. c-structure for MC-marked TMC w/ lexical insertion

```
                              VP
              ┌───────────────┼───────────────┐
             NP              NP               V
          (↑GF) = ↓         ↑ = ↓            ↑ = ↓
        (↓CASE) = V-CASE      |
            ╱│╲              NP
           ╱ │ ╲          (↑GF) = ↓
          ╱  │  ╲        (↓CASE) = GEN
         ╱   │   ╲          ╱ ╲
        ╱    │    ╲        ╱   ╲
      John-ga          Ainugo-no          kenkyuu-tyuu
  (↑PRED) = 'John'   (↑PRED) = 'Ainu'      (↑PRED) =
  (↑CASE) = NOM      (↑CASE) =c GEN      'during-research<SUBJ, OBJ>'
   (SUBJ ↑)           (GF_unres ↑)
                    (↑ CASE CASEFORM) =c NO
```
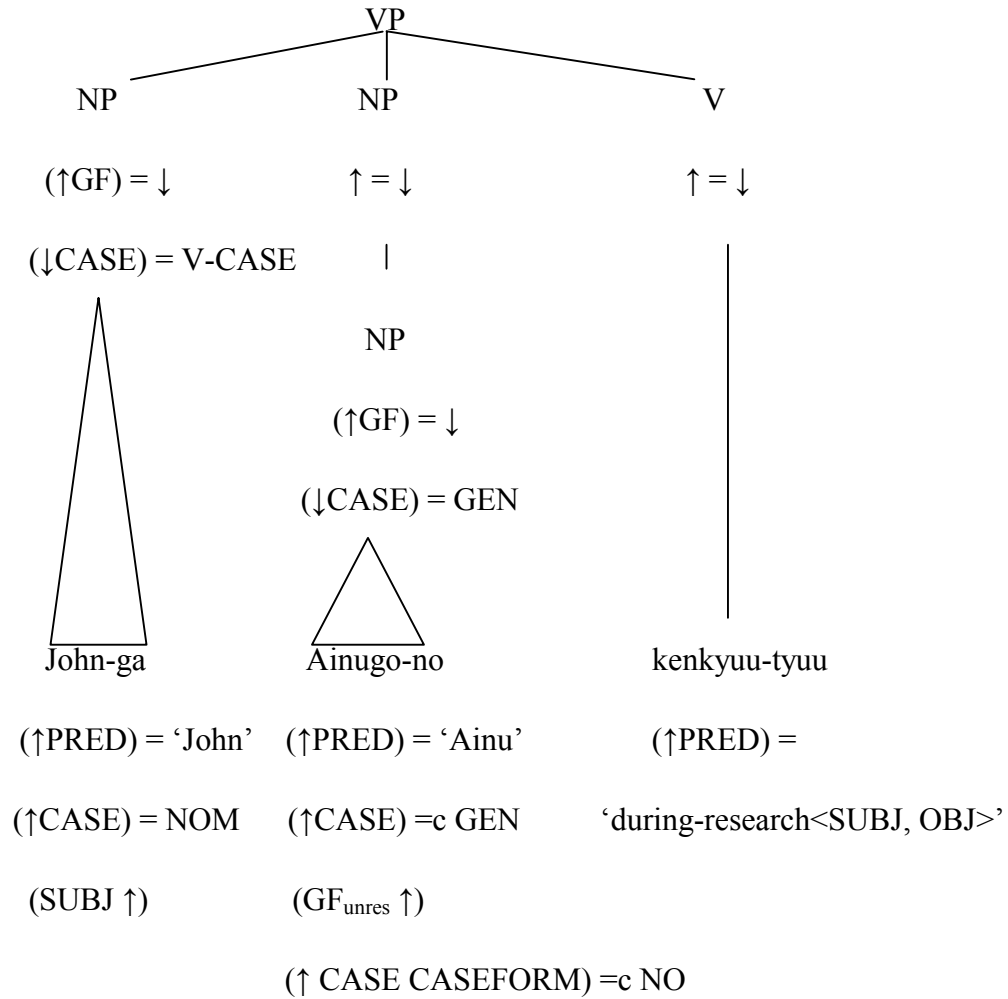
The corresponding f-structure is shown below.

(13)b. f-structure for MC-marked TMC

$$
\begin{bmatrix}
\text{PRED} & \text{[DURING<RESEARCH<SUBJ, OBJ>>]} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'John'} \\ \text{CASE} & \text{NOM} \end{bmatrix} \\
\text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'Ainu'} \\ \text{CASE} & \text{GEN} \end{bmatrix}
\end{bmatrix}
$$
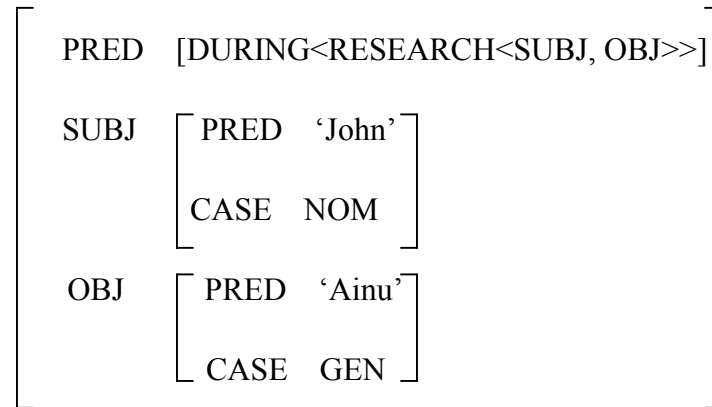
This f-structure satisfies f-structure well-formedness conditions (see 1.4).

Next, let us turn to my account for NC- and VC-marked TMCs. My analysis of

NC-marked TMC should reflect my morphological analysis of the CEN + TM

sequence, which consists of two nouns. I assume that a noun that has a corresponding

TM takes a CEN as its argument. However, the problem is that the argument NP has no

case morphology if a noun like *tyuu* 'during' follows it (i.e. *kenkyuu tyuu* vs.

*kenkyuu-no tyuu 'during research'), while it has a genitive *–no* if a noun like *–sai*

'occasion' follows it (i.e. *kenkyuu-no sai* vs. **kenkyuu sai* 'on the occasion of

research'). Here, I assume that a noun like *tyuu* 'during' does not require the

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complement NP to have case morphology, while a noun like *sai* requires the

complement NP to have a genitive morpheme *–no*. To capture the selectional

restriction on case morphology of argument NPs, I adopt a constraining equation and a

negative existential constraint for the entries of *sai* and *tyuu*. The lexical entries for

items relevant to NC-marked TMC are shown below[28].

(14)a. kenkyuu: N, ($\uparrow$ PRED) = 'research<SUBJ, OBJ>'

              ($\uparrow$ STEMFORM) = KENKYUU

   b. -no: Af, ($\uparrow$ CASE) = GEN

           (GF_{unres} $\uparrow$)

           ($\uparrow$ CASE CASEFORM) $=_c$ NO

   c. kenkyuu-no: N, ($\uparrow$ PRED) = 'research<SUBJ, OBJ>'

              ($\uparrow$ STEMFORM) = KENKYUU

              ($\uparrow$ CASE) = GEN

---

[28] We will use SFORM or CFORM to stand for STEMFORM or CASEFORM for saving a space.

$(GF_{unres} \uparrow)$

$(\uparrow CASE\ CASEFORM) =c\ NO$

d. tyuu: N, $(\uparrow PRED) = \text{'during<OBJ>'}$

$\neg(\uparrow OBJ\ CASE\ CASEFORM)$

e. sai: N, $(\uparrow PRED) = \text{'occasion<OBJ>'}$

$(\uparrow OBJ\ CASE\ CASEFORM) =c\ NO$

My c-structure analysis for NC-marked TMC can be represented as in (14). A NC-marked TMC is a nominal projection whose head consists of two nouns. An outer noun *tyuu* 'during' takes an argument NP headed by an inner noun *kenkyuu* 'research', which in turn takes its arguments. The Functional Consistency allows the inner noun to have arguments associated with a GF. The argument NPs receive a NC such as GEN(itive), because they are generated by the NP-rule (6b), which serves to license a NC for a complement NP. The Constructive Case Theory allows a genitive-marked NP to carry information about a GF, which can be unified with information about a GF

associated with a head noun. As for the inner noun, it has no case morphology, though

Functional Consistency allows the outer noun to have its argument associated with a

GF. I assume that the inner noun itself cannot take a case morphology due to the

selectional restriction of the outer noun, so that it cannot carry information about a GF.

Nevertheless, (15a) is legitimate since the defining equation for GEN in the NP-rule

(6b) does not require but just allows an argument NP to have a GEN. The c-structure

for NC-marked TMC (15a) can be mapped to the f-structure (15b).

(15)a. c-structure for NC-marked TMC

```
                                                    NP
                                        ┌───────────────────────┐
                                       NP                        N
                                    (↑GF) =↓                     ↑=↓
                                  (↓CASE) = GEN
                          ┌──────────────┼──────────────┐
                         NP             NP              N
                      (↑GF) =↓       (↑GF) =↓          ↑=↓
                    (↓CASE) = GEN  (↓CASE) = GEN
                         │              │              │              │
                      John-no        ainugo-no      kenkyuu          tyuu
                  (↑PRED) = 'J'    (↑PRED) = 'A'   (↑PRED) =        (↑PRED) =
                  (↑CASE) = G      (↑CASE) = G    'research <SUBJ, OBJ>'   'during<OBJ>'
                  (↑ CASE CF)      (↑ CASE CF)     (↑SF) =   KENKYUU    ¬(↑OBJ CASE CF)
                  =c NO            =c NO
                  (SUBJ   ↑)       (OBJ   ↑)
```

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(15)b. f-structure for NC-marked TMC

$$
\left[
\begin{array}{l}
\text{PRED} \quad [\text{DURING} <\text{OBJ}>] \\[2mm]
\text{OBJ} \quad
\left[
\begin{array}{ll}
\text{PRED} [\text{RESEARCH}<\text{SUBJ, OBJ}>] \\[2mm]
\text{SFORM} \quad [\text{KENKYUU}] \\[2mm]
\text{SUBJ} \quad
\left[
\begin{array}{ll}
\text{PRED} [\text{'John'}] \\[1mm]
\text{CASE} \quad \text{GEN} \\[1mm]
\text{CFORM} \quad \text{NO}
\end{array}
\right] \\[6mm]
\text{OBJ} \quad
\left[
\begin{array}{ll}
\text{PRED} \quad [\text{'Ainu'}] \\[1mm]
\text{CASE} \quad \text{GEN} \\[1mm]
\text{CFORM} \quad \text{NO}
\end{array}
\right]
\end{array}
\right]
\end{array}
\right]
$$

Similarly, the c- and f-structure for a NC-marked TMC, *John-no ainugo-no kenkyuu-no sai* 'on the occasion of John's research of Ainu' can be represented as in (16a, b). Unlike (15a, b), the inner noun *kenkyuu* 'research' has a genitive case particle. Functional Consistency allows the outer noun *sai* 'occasion' to have its argument associated with a GF. I assume that the inner noun itself must take case morphology due to the selectional restriction of the outer noun, so that it must carry information

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about a GF.

(16)a. c-structure for *John-no ainugo-no kenkyuu-no sai* 'on the occasion of John's

    research of Ainu'

```
                                    NP
                        _____
                       |                        |
                       NP                        N
                   (↑GF) =↓                      ↑=↓
                  (↓CASE) = GEN
           _____|_____
          |            |            |
          NP           NP           N
      (↑GF) =↓     (↑GF) =↓         ↑=↓
    (↓CASE) = GEN (↓CASE) = GEN
          |            |            |                |
       John-no      ainugo-no    kenkyuu-no          sai
    (↑PRED) = 'J'  (↑PRED) = 'A'  (↑PRED) =       (↑PRED) =
    (↑CASE) = G    (↑CASE) = G   'research <SUBJ, OBJ>'  'occasion<OBJ>'
    (↑ CASE CF)    (↑ CASE CF)    (↑SF) = KENKYUU   (↑ OBJ CASE CF)
    =c NO          =c NO          (↑ CASE) = G          =c NO
    (SUBJ   ↑)     (OBJ   ↑)      (↑ CASE CF) =c NO
                                  (GF_unres ↑)
```

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(16)b. f-structure for *John-no ainugo-no kenkyuu-no sai* 'on the occasion of John's

research of Ainu'

$$
\begin{bmatrix}
\text{PRED} \quad [\text{OCCASION} <\text{OBJ}>] \\
\text{OBJ} \begin{bmatrix}
\text{PRED } [\text{RESEARCH}<\text{SUBJ, OBJ}>] \\
\text{SFORM} \quad [\text{KENKYUU}] \\
\text{CASE} \begin{bmatrix} \text{GEN} \\ \text{CFORM} \quad \text{NO} \end{bmatrix} \\
\text{SUBJ} \begin{bmatrix} \text{PRED } [\text{'John'}] \\ \text{CASE} \begin{bmatrix} \text{GEN} \\ \text{CFORM} \quad \text{NO} \end{bmatrix} \end{bmatrix} \\
\text{OBJ} \begin{bmatrix} \text{PRED} \quad [\text{'Ainu'}] \\ \text{CASE} \begin{bmatrix} \text{GEN} \\ \text{CFORM} \quad \text{NO} \end{bmatrix} \end{bmatrix}
\end{bmatrix}
\end{bmatrix}
$$

Lastly, let us move on to my c-structure analysis for VC-marked TMC. A

VC-marked TMC is a verbal projection whose head is a verb, which inherits arguments

from a CEN. The arguments are syntactically realized as VC-marked NPs, since they

are generated by the VP-rule (6a), which serves to license a VC for a complement NP.

The Constructive Case Theory allows a VC-marked NP to carry information about a

GF, which can be unified with information about the GF associated with a head verb.

The c-structure for VC-marked TMC can be represented in (17a). It can be mapped to

the f-structure in (17b).

(17)a. c-structure for VC-marked TMC
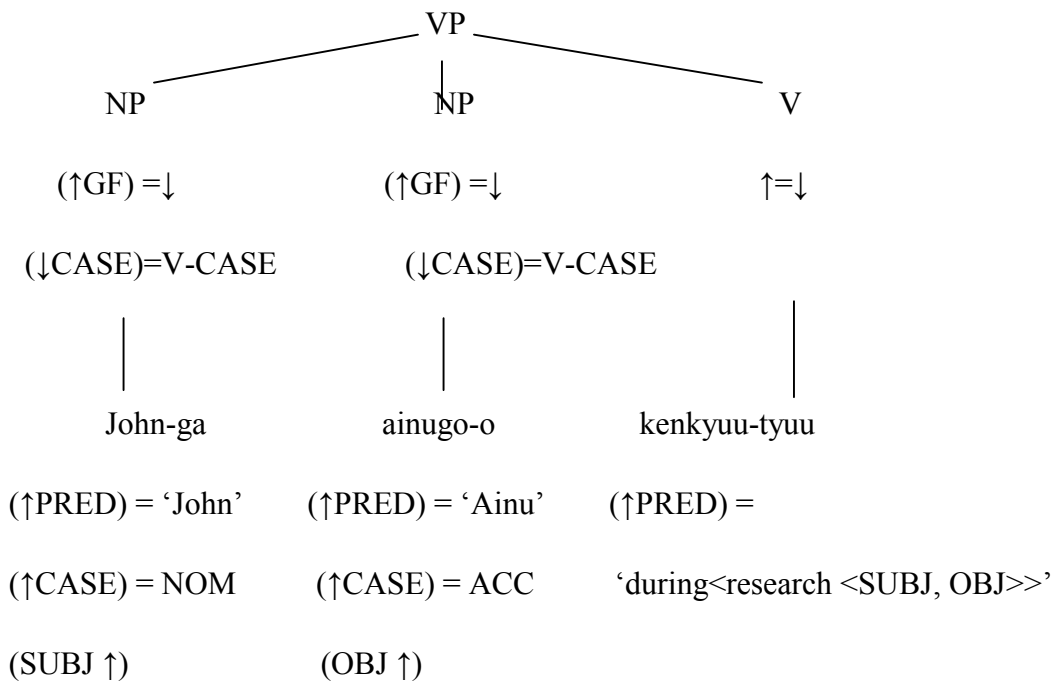
```
                         VP
          _____ / | _____
         /            |               \
        NP            NP                V
   (↑GF) =↓       (↑GF) =↓            ↑=↓
 (↓CASE)=V-CASE  (↓CASE)=V-CASE
        |             |               |
        |             |               |
     John-ga       ainugo-o      kenkyuu-tyuu
```

(↑PRED) = 'John'   (↑PRED) = 'Ainu'   (↑PRED) =

(↑CASE) = NOM   (↑CASE) = ACC   'during<research <SUBJ, OBJ>>'

(SUBJ ↑)   (OBJ ↑)

(17)b. f-structure for VC-marked TMC

$$
\begin{bmatrix}
\text{PRED} & [\text{DURING}<\text{RESEARCH}<\text{SUBJ, OBJ}>>] \\[4pt]
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'John'} \\ \text{CASE} & \text{NOM} \end{bmatrix} \\[10pt]
\text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'Ainu'} \\ \text{CASE} & \text{ACC} \end{bmatrix}
\end{bmatrix}
$$

Chapter 5

Lexical Integrity and Prosodic Wordhood

In this and the following chapter, I discuss two important issues related to mixed categories in Japanese.[29] In this chapter, I discuss the issue of the wordhood of a head element in the mixed categories. By definition, the mixed categories must be headed by a single word (Chapter 1). However, as suggested in Chapter 2, their head elements apparently require a two-word analysis with respect to some criteria for lexical integrity. Another issue, which I discuss in the following chapter, pertains to the case-particle omission phenomenon, which can be observed in Japanese mixed categories. I will consider the relationship between the phenomenon and the structure of mixed categories.

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[29] Horiuchi (forthcoming b) is a compact version of Chapter 5.

5.1 A Puzzle

In this section, I discuss the problem of the criteria for lexical integrity (Bresnan and Mchombo 1995) that I postponed in Chapter 2. Recall that, based on the criteria, I examined the wordhood of predicative elements in Temporal Morpheme Constructions (TMCs), which consist of a Complex Event Nominal (CEN: cf. Grimshaw 1990, e.g. *kenkyuu* 'research') followed by a Temporal Morpheme (TM: e.g. *tyuu* 'during', *-no sai* 'occasion').[30]

(1)a. kenkyuu tyuu

    research mid   'during research'

  b. kenkyuu no sai

    research NO occasion   'on the occasion of research'

---

[30] We do not discuss the status of the morpheme *no*, which precedes a temporal morpheme like *sai* 'occasion'.

The question was whether the sequence, CEN+TM, is one word or two. In Chapter 2, I

examined the wordhood of CEN+TM on the basis of the two criteria, inbound

anaphoric island and phrasal recursivity. The inbound anaphoric island is a general

property of words such that subparts of words disallow their anaphoric forms (e.g.

McCarthyite, *himite). The phrasal recursivity is another general property of words

such that subparts of words cannot be embedded in a phrase (e.g. *happiness*, *[AP *quite*

happi]-*ness*). According to these criteria, I obtained the following result as Hypothesis

1.

(2) Hypothesis 1:

   a. NP-NOM NP-ACC/GEN [CEN + TM]   (in VC- or MC-marked TMCs)

   b. NP-GEN NP-GEN [CEN][TM]   (in NC-marked TMCs)

      where brackets represent word boundaries.

(2a) shows that a CEN forms a single word with a TM (i.e. [CEN+TM]), if it occurs in

either VC-marked TMCs (i.e. TMCs in which all arguments are marked with verbal case such as Nominative or Accusative) or MC-marked TMCs (i.e. TMCs in which an argument is marked with verbal case while another argument is marked with nominal case such as Genitive). In contrast, (2b) shows that the CEN and the TM behave like a full-fledged word respectively, if they occur in NC-marked TMCs (i.e. TMCs in which all arguments are marked with nominal case).

As I suggested in Chapter 2, a puzzle arises if I examine the wordhood of CEN+TM on the basis of the other two criteria, conjoinability and gapping. The conjoinability is a general property of words such that subparts of words cannot be conjoined (e.g. *joyfulness and cheeriness, *joyful and cheeri-ness*). The gapping is another general property of words such that subparts of words disallow syntactic gapping (e.g. *John liked the play and Mary, the movie. *John liked the play, and Mary dis- it.*). According to these criteria, CEN+TM can be analyzed in such a way as (3), which I call Hypothesis 2.

(3) Hypothesis 2:

    a. [CEN+TM1]

    b. [CEN][TM2]

(3a) shows that a CEN forms a single word with a TM such as *tyuu* 'during' or *go*

'after', which is directly concatenated with the preceding CEN. In contrast, (3b) shows

that the CEN behaves like a full-fledged word, if it is combined with a TM such as *sai*

'case' or *ori* 'occasion', which requires an epenthetic morpheme *no* immediately after

the preceding CEN.[31] I referred to the above two different classes of TMs as

dependent and independent TM in Chapter 2, but in this chapter, I will call them

"TM1" and "TM2", respectively, to avoid a confusion about the wordhood of these

classes of morphemes.

    The puzzle to be solved in this section is that there are two conflicting hypotheses

about the wordhood of CEN+TM in TMC. In particular, I examine Hypothesis 2.

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[31] As we have seen in Chapter 2, the criterion of extraction (i.e. subparts of words cannot be extracted) is not applicable to TMCs for an independent reason. Likewise, intervention by particles, which is proposed as a criterion for wordhood (Matsumoto 1996, Kageyama 1999b), is not applicable, either.

Based on the examination, I will solve the puzzle by arguing that Hypothesis 2 should be rejected since it reflects 'phonological' wordhood rather than grammatical wordhood. My discussion in this section is organized as follows. First, I summarize possible patterns of conjoining and gapping in CEN+TM, observing the data obtained from application of the criteria of conjoinability and gapping (5.1.2). Next, I consider a possible solution of the puzzle given above (5.1.3). It will be claimed that the possible solution is that I choose Hypothesis 1 and exclude Hypothesis 2, assuming that exceptional patterns of conjoining and gapping are relevant to a phonological process. In 5.1.4, I will see that the phonological process explains the exceptional patterns of conjoining and gapping. My phonological analysis suggests that not only [CEN+*no*] but also [*no*+TM2] should be a phonological word. In the last two subsections (5.1.5 and 5.1.6), I will argue for phonological wordhood of both [CEN+*no*] and [*no*+TM2], based on independent phonological reasons.

5.2 Conjoining and Gapping in CEN+TM

In this section, I examine Hypothesis 2 and the data that motivate it. In particular, assuming conjoinability and gapping as criteria of lexical integrity, I will observe patterns for conjoining and gapping in CEN+TM and conclude the wordhood of the sequence with respect to the criteria.

5.2.1 Conjoinability

Assuming that a part of a word cannot be conjoined while a full-fledged word can, conjoinability can be used as a test for grammatical wordhood. For example, an entire complex word such as *joyfulness* or *cheeriness* can be conjoined (*John's joyfulness and cheeriness*) but its subpart such as *joyful-* or *cheeri-* cannot (**John's [joyful- and cheeri-]ness*).

In CEN+TM1 sequence, neither CEN nor TM1 can be conjoined, as the following

patterns indicate.

(5)a. *[CEN- Conj CEN]-TM 1

   b. *CEN-[TM1 Conj -TM1]

Crucially, these patterns hold regardless of the case-marking on the arguments. The

patterns in (5) can be illustrated by the following examples.

(6)a.   *John-ga   ainugo-o   kenkyuu to tyoosa-tyuu,   [VC]

         John-NOM   Ainu-ACC   research and survey-mid

         (Mary-ga   ronbun-o kaita).

         Mary-NOM   paper-ACC wrote

         '(Mary wrote a paper) during John's research and survey of Ainu'

   b.   *John-no   ainugo-no   kenkyuu to tyoosa-tyuu, …   [NC]

         John-GEN   Ainu-GEN   research and survey-mid

c.　*John-ga　　　ainugo-no　　kenkyuu to tyoosa-tyuu, …　　　[MC]

　　　John-NOM　　　Ainu-GEN　　research and survey-mid

(7)a.　*John-ga　　ainugo-o　　　kenkyuu-tyuu to –go,　　[VC]

　　　John-NOM　　Ainu-ACC　　research-mid and -after

　　(Mary-ga　　ronbun-o kaita).

　　Mary-NOM paper-ACC wrote

　　'(Mary wrote a paper) during and after John's research of Ainu'

b.　*John-no　　　ainugo-no　　kenkyuu-tyuu to -go　　　　[NC]

　　　John-GEN　　　Ainu-GEN　　research-mid and -after

c.　*John-ga　　　ainugo-no　　kenkyuu-tyuu to -go,　　　　[MC]

　　　John-NOM　　　Ainu-GEN　　research-mid and -after

The data in (6) illustrate the pattern (5a), conjoining of two CENs in the CEN + TM

sequence. The data in (7) illustrate the pattern (5b), conjoining of two TMs in the CEN

+ TM sequence. The data in (6, 7) suggest that both CEN and TM cannot be conjoined

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if the TM is a member of Class 1 TMs.

Next, in the CEN + TM2 sequence, both CEN and TM can be conjoined.

(8)a. [CEN$_i$ Conj CEN$_j$] *no* TM2

b. N *no* [TM2$_i$ Conj TM2$_j$]

However, neither CEN + *no* nor *no* + TM2 can be conjoined.

(8')a. *[N$_i$ *no* Conj N$_j$ *no*] TM2

b. *N [*no* TM2$_i$ Conj *no* TM2$_j$]

Crucially, these patterns hold regardless of the case-marking on the arguments.

The patterns in (8a, b) can be illustrated by the following examples.

(9)a.　　John-ga　ainugo-o　　　kenkyuu to tyoosa no sai,　[VC]

　　　　　John-NOM Ainu-ACC　　　research and survey NO occasion

　　　　　(Mary-ga　　　ronbun-o　　　kaita).

　　　　　Mary-NOM　　　paper-ACC　　　Wrote

　　　　　'(Mary wrote a paper) on the occasion of John's research and survey of Ainu'

　　b.　　John-no　　　ainugo-no　　kenkyuu to tyoosa no sai, …　　　[NC]

　　　　　John-GEN　　　Ainu-GEN　　research and survey NO occasion

　　c.　John-ga　　　　ainugo-no　　　kenkyuu to tyoosa no sai, …　　　　　[MC]

　　　　　John-NOM　　　Ainu-GEN　　　research and survey-NO occasion,

(10)a.　?John-ga　ainugo-o　　　kenkyuu no sai to ori,　[VC]

　　　　　John-NOM Ainu-ACC　　　research NO case and occasion

　　　　　(Mary-ga　　　　ronbun-o　　　kaita).

　　　　　Mary-NOM　　　　paper-ACC　　　wrote

　　　　　'Mary wrote a paper in and on the occasion of John's research of Ainu'

b. John-no   ainugo-no   kenkyuu no sai to ori, …   [NC]

John-GEN   Ainu-GEN   research NO case and occasion

c. John-ga   ainugo-no   kenkyuu no sai to ori, …   [MC]

John-NOM   Ainu-GEN   research NO case and occasion,

The data in (9) illustrate the pattern (8a), conjoining of two CENs in the CEN + TM

sequence. The data in (10) illustrate the pattern (8b), conjoining of two TMs in the

CEN + TM sequence. The data in (9, 10) suggest that both CEN and TM can be

conjoined if the TM is a member of Class 2 TMs.

The patterns (8'a, b) can be illustrated by the following examples.

(11)a. *John-ga ainugo-o   kenkyuu no to tyoosa no sai,   [VC]

John-NOM Ainu-ACC   research and survey NO occasion

(Mary-ga   ronbun-o   kaita).

Mary-NOM   paper-ACC   Wrote

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'(Mary wrote a paper) on the occasion of John's research and survey of Ainu'

b. *John-ga   ainugo-o   kenkyuu no sai to no ori,   [VC]

John-NOM Ainu-ACC   research NO case and occasion

(Mary-ga   ronbun-o   kaita).

Mary-NOM   paper-ACC   Wrote

'Mary wrote a paper in and on the occasion of John's research of Ainu'

The data in (11) illustrate the pattern (8'a), conjoining of two CEN + *no* sequences in

the CEN + TM sequence. The data in (12) illustrate the pattern (8'b), conjoining of two

no + TM2 sequences in the CEN + TM sequence. The data in (9, 10) suggest that

neither CEN + *no* nor *no* + TM2 can be conjoined if the TM is a member of Class 2

TMs.

In sum, the conjoining patterns in (5) and (8) show that TM2 but not TM1 allows

conjoining of CENs and conjoining of TMs in the CEN + TM sequence. Thus,

Hypothesis 2 captures all patterns of conjoining in the CEN + TM sequence without

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exception. I will see that gapping patterns also reflect the different classes of TMs.

5.2.2 Gapping

Assuming that part of a word cannot be gapped while a full-fledged word can, I

can use gapping as a test for grammatical wordhood. For example, a full-fledged verb,

like, can be gapped as in *John liked the play and Mary, the movie*, while part of a

complex verb (e.g. *-like* in *dislike*) cannot as in **John liked the play, and Mary dis- it*.

In the CEN + TM sequence, TM1 cannot be gapped (12a), while *no* + TM2 can

(12b); the TM2 alone cannot be gapped (12b').

(12)a. *… CEN ~~TM1~~$_i$, …CEN TM1$_i$

   b. … CEN ~~no TM2~~$_i$, …CEN *no* TM2 $_i$

   b'. *…CEN *no* ~~TM2~~$_i$, …CEN *no* TM2$_i$

Crucially, these patterns hold regardless of the case-marking on the arguments. The

patterns in (12) can be illustrated by the following examples.

(13)a.   *John-ga   ainugo-o   kenkyuu-~~tyuu~~,   (sosite,) Mary-ga suwahirigo-o

John-NOM Ainu-ACC research-~~mid~~,   (and) Mary-NOM Swahili-ACC

tyoosa-tyuu, Bill-ga   ronbun-o   kaita.   [VC]

survey-mid, Bill-NOM   paper-ACC   wrote.

'Bill wrote a paper during John's research of Ainu and Mary's survey of

Swahili.'

b.   *John-ga ainugo-no kenkyuu-~~tyuu~~, (sosite,) Mary-ga suwahirigo-no

John-NOM Ainu-GEN research-~~mid~~, (and) Mary-NOM Swahili-GEN

tyoosa-tyuu, Bill-ga   ronbun-o   kaita.   [MC]

survey-mid, Bill-NOM   paper-ACC   wrote.

c.   *John-no ainugo-no kenkyuu-~~tyuu~~, (sosite,) Mary-no suwahirigo-no

John-GEN Ainu-GEN research-~~mid~~, (and) Mary-GEN Swahili-GEN

tyoosa-tyuu,   Bill-ga   ronbun-o   kaita.   [NC]

survey-mid,   Bill-NOM paper-ACC wrote.

(14)a.   John-ga   ainugo-o   kenkyuu ~~no sai~~,   (sosite,)

John-NOM Ainu-ACC   research ~~NO occasion~~,   and

Mary-ga suwahirigo-o   tyoosa no sai,   Bill-ga ronbun-o kaita.   [VC]

Mary-NOM Swahili-ACC survey NO occasion,   Bill-NOM paper-ACC wrote

   'Bill wrote a paper on the occasion of John's study of Ainu and Mary's

   survey of Swahili.'

b.   John-ga   ainugo-no   kenkyuu ~~no sai~~,   (sosite,)   [MC]

   John-NOM Ainu-GEN research ~~NO occasion~~,   and

   Mary-ga suwahirigo-no tyoosa no sai,   Bill-ga ronbun-o kaita.

   Mary-NOM Swahili-GEN survey NO occasion,   Bill-NOM paper-ACC wrote

c.   John-no   ainugo-no   kenkyuu ~~no sai~~,   (sosite,)   [NC]

John-GEN Ainu-GEN research ~~NO occasion~~,   and

Mary-no suwahirigo-no tyoosa no sai, Bill-ga ronbun-o kaita.

Mary-GEN Swahili-GEN survey NO occasion, Bill-NOM paper-ACC wrote

(15)　　*John-ga　ainugo-o　　kenkyuu no ~~sai~~, 　　　　(sosite,)　[VC]

John-NOM Ainu-ACC research NO ~~occasion~~, 　　and

Mary-ga suwahirigo-o　tyoosa no sai,　　　　Bill-ga　　ronbun-o　kaita.

Mary-NOM Swahili-ACC survey NO occasion, 　Bill-NOM paper-ACC wrote

'Bill wrote a paper on the occasion of John's study of Ainu and Mary's

survey of Swahili.'

The data in (13) illustrate the pattern (12a), backward gapping of TM1 in the first

occurrence of the CEN + TM sequence. The data in (14) illustrate the pattern (12b),

backward gapping of *no* + TM2 in the first occurrence of the CEN + TM sequence.

The data in (15) illustrate the pattern (12b'), backward gapping of TM2 alone in the

first occurrence of the CEN + TM sequence. The data in (13 - 15) suggest that *no* +

TM can be gapped if the TM is a member of Class 2. Neither TM1 nor TM2 alone can

be gapped.

As for CEN in the CEN + TM sequence, it cannot be gapped regardless of the classes of TMs.

(16)a. *… ~~CEN~~$_i$ TM1, …CEN$_i$ TM1

  b. *… ~~CEN~~$_i$ *no* TM2, …CEN$_i$ *no* TM2

  b'. * …~~CEN$_i$ no~~ TM2, …CEN$_i$ *no* TM2

Crucially, these patterns hold regardless of the case-marking on the arguments. The patterns in (16) can be illustrated by the following examples.

(17)a.　*John-ga　ainugo-o ~~kenkyuu~~-tyuu, (sosite,) Mary-ga suwahirigo-o

　　　John-NOM Ainu-ACC ~~research~~-mid, (and) Mary-NOM Swahili-ACC

　　　kenkyuu-go,　Bill-ga　ronbun-o　kaita.　　　　　　[VC]

　　　research-after, Bill-NOM paper-ACC wrote.

'*Bill wrote a paper during John's research of Ainu and after Mary's of

Swahili.'

b. *John-ga   ainugo-no ~~kenkyuu~~-tyuu, (sosite,) Mary-ga suwahirigo-no

John-NOM Ainu-GEN ~~research~~-mid, (and) Mary-NOM Swahili-GEN

kenkyuu-go,   Bill-ga   ronbun-o   kaita.   [MC]

research-after, Bill-NOM   paper-ACC wrote.

c.   *John-no   ainugo-no   ~~kenkyuu~~-tyuu, (sosite,) Mary-no suwahirigo-no

John-GEN Ainu-GEN   ~~research~~-mid, (and) Mary-GEN Swahili-GEN

kenkyu-go,   Bill-ga   ronbun-o   kaita.   [NC]

research-after, Bill- NOM   paper-ACC wrote.

(18)a *John-ga   ainugo-o   ~~kenkyuu~~ no sai,   (sosite,)   [VC]

John-NOM Ainu-ACC ~~research~~ NO case,   (and)

Mary-ga suwahirigo-o kenkyuu no ori,   Bill-ga   ronbun-o   kaita.

Mary-NOM Swahili-ACC research NO occasion,   Bill- NOM paper-ACC wrote

'*Bill wrote a paper in John's research of Ainu and on the occasion of

Mary's of Swahili.'

b.   *John-ga   ainugo-no   ~~kenkyuu~~ no sai,   (sosite,)   [MC]

John-NOM Ainu-GEN   ~~research~~ NO case,   (and)

Mary-ga suwahirigo-no kenkyuu no ori,   Bill-ga   ronbun-o   kaita.

Mary-NOM Swahili-GEN research NO occasion,   Bill- NOM paper-ACC wrote

c.   *John-no   ainugo-no ~~kenkyuu~~ no sai,   (sosite,)   [NC]

John-GEN Ainu-GEN ~~research~~ NO case,   (and)

Mary-no suwahirigo-no kenkyuu no ori,   Bill-ga   ronbun-o   kaita.

Mary-GEN Swahili-GEN research NO occasion,   Bill- NOM paper-ACC wrote

(19)a.   *John-ga   ainugo-o   ~~kenkyuu no~~ sai,   (sosite,)   [VC]

John-NOM Ainu-ACC ~~research NO~~ case,   (and)

Mary-ga suwahirigo-o kenkyuu no ori,   Bill-ga   ronbun-o   kaita.

Mary-NOM Swahili-ACC research NO occasion,   Bill- NOM paper-ACC wrote

'*Bill wrote a paper in John's research of Ainu and on the occasion of

Mary's of Swahili.'

The data in (17) illustrate the pattern (16a), backward gapping of CEN alone in the first

occurrence of the CEN + TM1 sequence. The data in (18) illustrate the pattern (16b),

backward gapping of CEN alone in the first occurrence of the CEN + TM2 sequence.

The data in (15) illustrate the pattern (12b'), backward gapping of CEN + *no* in the

first occurrence of the CEN + TM2 sequence. The data in (17 - 19) suggest that

gapping cannot apply to CEN (or CEN + *no*) in the CEN + TM sequence.

So far, I have shown examples of backward gapping in the CEN + TM sequence.

Hypothesis 2 cannot accurately capture the patterns of backward gapping of TM in the

CEN + TM sequence, since it predicts that not TM alone but *no* + TM is a word. It

cannot predict that the backward gapping cannot apply to both CEN alone and CEN +

no, even if the subsequent TM is a member of Class 2 TMs.

To make matters worse, forward gapping cannot apply to any subpart in the

second (or last) occurrence of the CEN + TM sequence. That is, it cannot apply to both

CEN alone (or CEN + *no*) and TM alone (or *no* + TM), as shown in (20) and (21),

respectively.

(20)a. *… CEN TM1$_i$, …CEN ~~TM1$_i$~~

    b. *… CEN *no* TM2 $_i$, …CEN ~~*no* TM2 $_i$~~

    b'. *…CEN *no* TM2$_i$, …CEN *no* ~~TM2$_i$~~

(21)a. *… CEN$_i$ TM1, …~~CEN$_i$~~ TM1

    b. *… CEN$_i$ *no* TM2, …~~CEN$_i$~~ *no* TM2

    b'. * …CEN$_i$ *no* TM2, …~~CEN$_i$ *no*~~ TM2

Crucially, these patterns hold regardless of the case-marking on the arguments. The

patterns in (20) can be illustrated by the following examples.

(22)a.   *John-ga   ainugo-o   kenkyuu-tyuu,   (sosite,) Mary-ga suwahirigo-o

John-nom Ainu-acc research-mid,   (and) Mary-nom Swahili-acc

tyoosa-~~tyuu~~,   Bill-ga   ronbun-o   kaita.   [VC]

survey-~~mid~~,   Bill-NOM paper-ACC   wrote.

'Bill wrote a paper during John's research of Ainu and Mary's survey of

Swahili.'

b.   *John-ga ainugo-no kenkyuu-tyuu, (sosite,) Mary-ga suwahirigo-no

John-NOM Ainu-GEN research-mid, (and) Mary-NOM Swahili-GEN

tyoosa-~~tyuu~~,   Bill-ga   ronbun-o   kaita.   [MC]

survey-~~mid~~,   Bill-NOM paper-ACC   wrote.

c.   *John-no ainugo-no kenkyuu-tyuu, (sosite,) Mary-no suwahirigo-no

John-GEN Ainu-GEN research-mid, (and) Mary-GEN Swahili-GEN

tyoosa-~~tyuu~~,   Bill-ga   ronbun-o   kaita.   [NC]

survey-~~mid~~,   Bill-NOM paper-ACC wrote.

(23)a. *John-ga ainugo-o kenkyuu no sai, (sosite,) [VC]

John-NOM Ainu-ACC research NO occasion, and

Mary-ga suwahirigo-o tyoosa ~~no sai~~, Bill-ga ronbun-o kaita.

Mary-NOM Swahili-ACC survey ~~NO occasion~~, Bill-NOM paper-ACC wrote

'Bill wrote a paper on the occasion of John's study of Ainu and Mary's

survey of Swahili.'

b. *John-ga ainugo-no kenkyuu no sai, (sosite,) [MC]

John-NOM Ainu-GEN research NO occasion, and

Mary-ga suwahirigo-no tyoosa ~~no sai~~, Bill-ga ronbun-o kaita.

Mary-NOM Swahili-GEN survey ~~NO occasion~~, Bill-NOM paper-ACC wrote

c. *John-no ainugo-no kenkyuu no sai, (sosite,) [NC]

John-GEN Ainu-GEN research NO occasion, and

Mary-no suwahirigo-no tyoosa ~~no sai~~, Bill-ga ronbun-o kaita.

Mary-GEN Swahili-GEN survey ~~NO occasion~~, Bill-NOM paper-ACC wrote

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(24)   *John-ga   ainugo-o   kenkyuu no sai,   (sosite,)   [VC]

John-NOM Ainu-ACC research NO occasion,   and

Mary-ga suwahirigo-o   tyoosa no ~~sai~~,   Bill-ga   ronbun-o   kaita.

Mary-NOM Swahili-ACC survey NO ~~occasion~~,   Bill-NOM paper-ACC wrote

'Bill wrote a paper on the occasion of John's study of Ainu and Mary's survey

of Swahili.'

The data in (22) illustrate the pattern (20a), forward gapping of TM1 in the second

occurrence of the CEN + TM sequence. The data in (23) illustrate the pattern (20b),

forward gapping of *no* + TM2 in the second occurrence of the CEN + TM sequence.

The data in (24) illustrate the pattern (20b'), forward gapping of TM2 alone in the

second occurrence of the CEN + TM sequence.

The patterns in (21) can be illustrated by the following examples.

(25)a.　*John-ga　ainugo-o ~~kenkyuu~~-tyuu, (sosite,) Mary-ga suwahirigo-o

John-NOM Ainu-ACC ~~research~~-mid, (and) Mary-NOM Swahili-ACC

kenkyuu-go,　Bill-ga　ronbun-o　kaita.　　　　　[VC]

research-after, Bill-NOM paper-ACC wrote.

'*Bill wrote a paper during John's research of Ainu and after Mary's of

Swahili.'

　b.　*John-ga　ainugo-no ~~kenkyuu~~-tyuu, (sosite,) Mary-ga suwahirigo-no

John-NOM Ainu-GEN ~~research~~-mid, (and) Mary-NOM Swahili-GEN

kenkyuu-go,　Bill-ga　　ronbun-o　kaita.　　　[MC]

research-after, Bill- NOM paper-ACC wrote.

　c.　*John-no　ainugo-no　~~kenkyuu~~-tyuu, (sosite,) Mary-no suwahirigo-no

John-GEN Ainu-GEN　　~~research~~-mid, (and) Mary-GEN Swahili-GEN

kenkyu-go,　　Bill-ga　ronbun-o　kaita.　　　[NC]

research-after, Bill- NOM paper-ACC wrote.

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(26)a *John-ga   ainugo-o   ~~kenkyuu~~ no sai,   (sosite,)   [VC]

John-NOM Ainu-ACC ~~research~~ NO case,   (and)

Mary-ga suwahirigo-o kenkyuu no ori,   Bill-ga   ronbun-o   kaita.

Mary-NOM Swahili-ACC research NO occasion,   Bill- NOM paper-ACC wrote

'*Bill wrote a paper in John's research of Ainu and on the occasion

of Mary's of Swahili.'

b. *John-ga   ainugo-no   ~~kenkyuu~~ no sai,   (sosite,)   [MC]

John-NOM Ainu-GEN   ~~research~~ NO case,   (and)

Mary-ga suwahirigo-no kenkyuu no ori,   Bill-ga   ronbun-o   kaita.

Mary-NOM Swahili-GEN research NO occasion,   Bill- NOM paper-ACC wrote

c. *John-no   ainugo-no ~~kenkyuu~~ no sai,   (sosite,)   [NC]

John-GEN Ainu-GEN ~~research~~ NO case,   (and)

Mary-no suwahirigo-no kenkyuu no ori,   Bill-ga   ronbun-o   kaita.

Mary-GEN Swahili-GEN research NO occasion,   Bill- NOM paper-ACC wrote

(27)a. *John-ga   ainugo-o   ~~kenkyuu no~~ sai,   (sosite,)   [VC]

John-NOM Ainu-ACC ~~research NO~~ case,   (and)

Mary-ga suwahirigo-o kenkyuu no ori,   Bill-ga   ronbun-o   kaita.

Mary-NOM S-ACC research NO occasion,   Bill- NOM paper-ACC wrote

'*Bill wrote a paper in John's research of Ainu and on the occasion

of Mary's of Swahili.'

The data in (25) illustrate the pattern (21a), forward gapping of CEN alone in the

second occurrence of the CEN + TM1 sequence. The data in (26) illustrate the pattern

(21b), forward gapping of CEN + *no* in the second occurrence of the CEN + TM2

sequence. The data in (27) illustrate the pattern (21b'), forward gapping of CEN alone

in the second occurrence of the CEN + TM2 sequence. Thus, I can conclude that

forward gapping cannot apply to any subpart in the second (or last) occurrence of the

CEN + TM sequence.

In addition to the non-applicability of backward gapping to CEN or CEN + *no* (cf.

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16) as well as TM alone (cf. 12), the non-applicability of forward gapping (cf. 20, 21)

seems to weaken the predictability of Hypothesis 2. In spite of these defects of

Hypothesis 2, which are discussed in the following subsection, my examination

suggests that patterns of conjoining and gapping in the CEN + TM sequence are

basically determined by different classes of TMs and that the wordhood of the CEN +

TM sequence can be generalized as Hypothesis 2 with respect to the criteria of

conjoining and gapping.

My result in this subsection can be summarized in the following table.

(28)

Conjunct	CEN	CEN	CEN+*no*	TM1	TM2	*no*+TM2
Environment	(+TM1)	(+TM2)	(+TM2)			
Conjoining	*	ok	*	*	ok	*
Backward Gapping	*	*	*	*	*	ok
Forward Gapping	*	*	*	*	*	*

5.3 A Solution

Now, let us consider a solution to the puzzle of two incompatible hypotheses on

the wordhood of the CEN + TM sequence. Since the hypotheses are incompatible, one

or the other should be abandoned. Then, the question is: which Hypothesis can

survive? My solution is: Hypothesis 1 can survive but Hypothesis 2 cannot. The

solution is supported by three lines of evidence. First, suppose that Hypothesis 2 is

valid but the Hypothesis 1 is not. Hypothesis 2 can predict the patterns of conjoining

and gapping shown in the last subsection, but it also wrongly predicts that two types of

morphologically distinct temporal morphemes show distinct behavior in wordhood as

to the criteria, inbound anaphoric islands and phrasal recursivity. In contrast, suppose

that Hypothesis 1 is valid but Hypothesis 2 is not. Hypothesis 1, which captures the

result in (2), does not appear to predict the result in (3). However, such an apparent

defect of Hypothesis 1 can be overcome, if I assume that a non-syntactic process is

relevant to the apparent exception of sublexical coordination and gapping. That is, by

excluding a non-syntactic factor, I can maintain the validity of the criteria of lexical

integrity.

Concerning the criteria of conjoinability and gapping, Bresnan and Mchombo

(1995) suggest a possibility that the non-syntactic factor is relevant to the exception to

the criteria, which is observed across languages[32]. To exclude the exceptional

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[32] As to sublexical conjoining, see also Booij (1985) for Dutch and German, Wiese (1996) for German, and Nepor (1985) for Italian. As for sublexical gapping, see Sadock (1991).

sublexical conjoining and gapping, Bresnan and Mchombo assume that **prosodically conditioned ellipsis**, but not true syntactic conjoining or gapping, can be applied to the whole parts of phonological words, which coincidentally correspond to subparts of grammatical words. For instance, an apparent sublexical conjoining, *pre- and post-World War II*, can be analyzed as (29a) rather than (29b).

(29)a. [(pre)-(~~World War II~~)] and [(post)-(World War II)]

    b. pre- and [post-World War II]

where parentheses represent phonological word boundaries, brackets grammatical word boundaries, and double horizontal lines ellipses. Likewise, an example of conjoining in the CEN + TM sequence (6) can be reanalyzed as (30a) rather than (30b).

(30)a. [(kenkyuu) (~~no sai~~)]   to   [(tyoosa) (no sai)]

        research NO occasion and survey NO occasion

b. kenkyuu to [tyoosa no sai]

    research and survey NO occasion

Interestingly, the ellipsis analysis (30a) identifies *no* + TM as a (phonological) word,

whereas the conjoining analysis (30b) identifies a TM alone as a (grammatical) word.

    The second line of evidence is discussed in the last subsection. Hypothesis 2 is

weakened if I observe the non-applicability of backward gapping to CEN alone or

CEN + *no* (cf. 16) as well as TM alone (cf. 12) and the non-applicability of forward

gapping (cf. 20, 21).

(16)a. *… ~~CEN$_i$~~ TM1, …CEN$_i$ TM1

   b. *… ~~CEN$_i$~~ *no* TM2, …CEN$_i$ *no* TM2

   b'. * …~~CEN$_i$ no~~ TM2, …CEN$_i$ *no* TM2

(12)a. *… CEN ~~TM1$_i$,~~ …CEN TM1$_i$

   b. … CEN ~~*no* TM2$_i$,~~ …CEN *no* TM2 $_i$

b'. *…CEN *no* ~~TM2~~$_i$, …CEN *no* TM2$_i$

(20)a. *… CEN TM1$_i$, …CEN ~~TM1~~$_i$

   b. *… CEN *no* TM2 $_i$, …CEN ~~*no* TM2~~ $_i$

   b'. *…CEN *no* TM2$_i$, …CEN *no* ~~TM2~~$_i$

(21)a. *… CEN$_i$ TM1, …~~CEN~~$_i$ TM1

   b. *… CEN$_i$ *no* TM2, …~~CEN~~$_i$ *no* TM2

   b'. * …CEN$_i$ *no* TM2, …~~CEN~~$_i$ ~~*no*~~ TM2

That is, unlike conjoining, gapping cannot apply to either CEN alone or TM alone even

if the TM is a member of Class 2 TMs. With respect to gapping, neither CEN nor TM

in the CEN + TM2 sequence can be taken as a full-fledged grammatical word. This

result is undesirable in that Hypothesis 2 cannot predict both conjoining and gapping

patterns equally. One might argue that gapping cannot apply to the CEN + TM

sequence generally for a particular reason. However, the argument does not seem to be

correct since gapping can apply to the segment, *no* + TM2, as in (12b).

The third line of evidence is the applicability of gapping to the particular segment

which causes a problem of Hypothesis 2. That is, the segments to which conjoining

applies is different from those to which gapping applies. Conjoining applies to CEN

alone or TM alone but does not apply to CEN + *no* or *no* + TM2, as shown in (8a, b)

and (8'a, b), repeated below. In contrast, gapping applies to *no* + TM2 but does not

apply to TM2 alone, as shown in (12b, 12b') above.

(8)a. [CEN$_i$ Conj CEN$_j$] *no* TM2

   b. CEN *no* [TM2$_i$ Conj TM2$_j$]

(8')a. *[CEN$_i$ *no* Conj CEN$_j$ *no*] TM2

   b. *CEN [*no* TM2$_i$ Conj *no* TM2$_j$]

The difference in segments to which conjoining and gapping apply corresponds to the

difference in identification of a word by means of the two criteria: conjoining identifies

a TM alone as a word, while gapping a *no*+TM sequence as a word. It is not desirable

that a hypothesis about wordhood predicts different segments as words in the CEN +

TM sequence.

My evaluation of the three lines of evidence discussed in this subsection leads me

to abandon Hypothesis 2. To defend Hypothesis 1, I adopt a phonologically

conditioned ellipsis analysis to explain apparent exceptions to conjoining and gapping

in the next subsection. My analysis can also explain the source of the second problem

of Hypothesis 2, an environment where apparent sublexical gapping (= phonologically

conditioned ellipsis) is not applicable. It does not cause the third problem of

Hypothesis 2, a difference in segments to which conjoining and gapping apply.

5.4. A Prosodically Conditioned Ellipsis Analysis

In this subsection, I present a phonologically conditioned ellipsis to deal with

apparent sublexical conjoining and gapping, which are inconsistent with Hypothesis 1.

The basic idea is that the apparent sublexical conjoining and gapping are actually

generalized as a phonological process of ellipsis or deletion which can apply to a

phonological segment such as a phonological word. Since the phonological process

applies to segments which are phonological words but not grammatical words, I can

still maintain that a true syntactic process such as conjoining and gapping does not

refer to a subpart of a word. Thus, my analysis supports both Hypothesis 1 and the

criteria (and the principle) of lexical integrity.

I assume a simple formulation of the phonological process by modifying Booij's

(1985) proposal of coordination reduction, as shown below[33].

(31) Prosodically conditioned ellipsis (optional)

Omit X. Conditions: (i) there is an identical string as X in another conjoined part

(ii) $X = w^m$ $m \geq 0$ (where w is a prosodic word)

(iii) X is adjacent to a conjunction or a clause boundary

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[33] Cf. Booij's (1985: 151) definition of coordination reduction (optional): Delete Y. Conditions: (i) X = w^m m≥0, (ii) X is adjacent to a conjunction, and (iii) There is a remnant that, like its counterpart, can function as focus constituent. We avoid the term 'delete' to distinguish it from the term 'ellipsis' (Hinds 1982). We ignore (iii) for convenience.

Ellipsis can happen under the identity with a phonemic string in conjoining (31i). It is

not an obligatory process as shown by the possibility that m can be 0 in (31ii). An

elided element must be a phonological word or a projection thereof (i.e. m = 1 or more

in 31ii). The elided element can coincide with a grammatical word.

As for (31iii), it constrains an environment where the ellipsis is allowed. Booij

(1985: 148) proposes the adjacency condition (31iii) to explain why the following

examples in Dutch are ungrammatical.

(32)a. *in the land _ van Nederland en de tuinbouw van Belgie

'in the agriculture of Holland and the horticulture of Belgium'

b. *…dat Jan appel _ dronk en Piet druivesap dronk

'that John apple juice drank and Peter grape juice drank (lit.)'

c.   *de regelordening en de _ toepassing

'the rule ordering and the rule application'

(N.B. Underscores (_) represent elided elements.)

In (32), none of the elided elements is adjacent to the conjunction *en* 'and'. The condition (31iii) can be used to explain impossible ellipses in apparent gapping patterns, which involve a clause boundary or an optional occurrence of conjunction in Japanese, as well as impossible ellipses in apparent conjoining patterns.

Under the ellipsis analysis, I can obtain the following patterns in the CEN + TM sequence. First, I can obtain the ellipsis patterns in (33a, b), (34a, b), and (34a', b') instead of the corresponding conjoining patterns in (5a, b), (8a, b), and (8'a, b), respectively.

(33)a. *CEN_i ~~$TM1_j$~~ Conj CEN_k $TM1_j$

   b. *CEN_i $TM1_j$ Conj ~~CEN_i~~ $TM1_k$

(5)a. *CEN- Conj CEN-TM1

   b. *CEN-TM1 Conj -TM1

(34)a. CEN_i ~~*no* $TM2_j$~~ Conj CEN_k *no* $TM2_j$

   b. CEN_i *no* $TM2_j$ Conj ~~CEN_i *no*~~ $TM2_k$

(8)a. CEN$_i$ Conj CEN$_j$ *no* TM2

    b. CEN *no* TM2$_i$ Conj TM2$_j$

(34)a'. *CEN$_i$ *no* ~~TM2$_j$~~ Conj CEN$_k$ *no* TM2$_j$

    b'. *CEN$_i$ *no* TM2$_j$ Conj ~~CEN$_i$~~ *no* TM2$_k$

(8')a. *CEN$_i$ *no* Conj CEN$_j$ *no* TM2

    b. *CEN *no* TM2$_i$ Conj *no* TM2$_j$

Here, only (34a, b) are possible ellipsis patterns, since they involve elided elements which satisfy all conditions in (31). That is, the first occurrence of *no* + TM2 in (34a) and the second occurrence of CEN + *no* in (34b) can be elided because they meet the condition (31i), their identity with another occurrence of *no* + TM2 and CEN + *no*, the condition (31ii), their status as a phonological word, and the condition (31iii), their adjacency to a conjunction. It is not obvious that they meet the condition (31ii), but the status of CEN + *no* or *no* + TM as phonological words is discussed in the subsequent subsections.

In contrast with possible ellipsis patterns, (34a, b), (33a, b) and (34a', b'), are impossible since these patterns involve elided elements that do not satisfy a condition in (31). In (33a, b), both TM1 and CEN cannot be elided since they do not meet the condition (31ii). I will come back to the point that TM or CEN alone cannot be a phonological word later. The same reason holds for impossible ellipsis of TM2 and CEN in (34a', b').

Next, ellipsis patterns in (35) and (36) are analyzed in the same way as their corresponding, apparent gapping patterns in (12) and (16).

(35)a. *CEN_i ~~TM1_j,~~ …CEN_k TM1_j (cf. 12a)

  b. CEN_i ~~*no* TM2_j,~~ …CEN_k *no* TM2_j (cf. 12b)

  b'. *CEN_i *no* ~~TM2_j,~~ …CEN_k *no* TM2_j (cf. 12b')

(36)a. *~~CEN_i~~ TM1_j, …CEN_i TM1_k (cf. 16a)

  b. *~~CEN_i~~ *no* TM2_j, …CEN_i *no* TM2_k (cf. 16b)

  b'. *~~CEN_i *no*~~ TM2_j, … CEN_i *no* TM2_k (cf. 16b')

The condition (31ii) explains the impossibility of elided TM1 or TM2 alone (35a, b')

and possibility of elided *no* + TM (35b), since the former segment is not a

phonological word but the latter is. The condition (31iii) explains the impossibility of

elided CEN or CEN + *no* in (36a, b), since the segment is not adjacent to a clause

boundary or a covert conjunction.

Moreover, the ellipsis patterns in (37) and (38) are also analyzed in the same way

as their corresponding, apparent forward-gapping patterns in (20) and (21).

(37) a. *… CEN TM1$_i$, …CEN ~~TM1~~$_i$ (cf. 20a)

   b. *… CEN *no* TM2 $_i$, …CEN ~~*no* TM2~~$_i$ (cf. 20b)

   b'. *…CEN *no* TM2$_i$, …CEN *no* ~~TM2~~$_i$ (cf. 20b')

(38)a. *… CEN$_i$ TM1, …~~CEN~~$_i$ TM1   (cf. 21a)

   b. *… CEN$_i$ *no* TM2, …~~CEN~~$_i$ *no* TM2   (cf. 21b)

   b'. * …CEN$_i$ *no* TM2, …~~CEN~~$_i$ ~~*no*~~ TM2   (cf. 21b')

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The condition (31iii) explains the impossibility of elided TM or *no* + TM in (37) and

impossibility of elided CEN or CEN + *no* in (38), since these segments are not adjacent

to a clause boundary.

As a consequence of my phonologically conditioned ellipsis analysis, I can

assume phonological wordhood in the CEN + TM sequence as follows[34].

(39)a. elided elements (= prosodic words): *no* + TM, CEN + *no*

  e.g. (*kenkyuu no*), (*no sai*)

  b. non-elided elements (= non-prosodic strings): CEN, *no*, TM

  e.g. *kenkyuu, no, sai, tyuu*

  N.B. Parentheses ( ) represent phonological word boundaries.

In the following subsections, I discuss phonological wordhood of (CEN + *no*) and (*no*

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[34] Yatabe (2001)'s left/right node raising analysis in Japanese can be applied to the CEN + TM sequence, since the process of node-raising can be applied to phonological words. Interestingly, the same result of the phonological wordhood in the CEN + TM sequence can be obtained, though we omit the illustration. We leave the issue of whether our prosodically conditioned ellipsis analysis or Yatabe's node-raising analysis is appropriate.

+ TM) from a phonological viewpoint, in order to verify my assumption of the

phonological wordhood in the CEN + TM sequence as above.

5.5 On the Phonological Wordhood of (CEN+*no*) and (*no*+TM)

5.5.1 On *Rendaku*

In what follows, I discuss the phonological status of CEN + *no* and that of *no* +

TM in the CEN + TM sequence. Before going into my discussion, let us consider how

to examine phonological wordhood. In Japanese, phonological wordhood can be tested

by word accentuation and sequential voicing ("*rendaku*"). I will take the former rather

than the latter as a promising test for phonological wordhood, particularly, for the

purpose of this study. Here, let us discuss why the latter is not suitable for my study.

The sequential voicing is a phonological process such that the initial segment of

the second member of a compound is voiced (Ito and Mester 2003: 71). Examples are

shown below (Tsujimura 1996: 55).

(40)a. take + sao → take-zao

   bamboo + pole   bamboo pole

   b. hon + tana → hon-dana

    book + shelf   book shelf

   c. yoo + karasi → yoo-garasi

      western + mustard   western mustard

   d. nihon + hasi → nihon-basi

      Japan + bridge   (place name)

In (40), each compound has a second member noun which undergoes voicing in the

first syllable.

    Though the sequential voicing can be observed in many compounds in Japanese,

its application is conditioned in some ways. First, in general, since the sequential

voicing involves a process of voicing, it can be applied to only a voiceless consonant in

the initial segment of the second member of a compound. That is, a voiced consonant

or a vowel in the initial segment of the second member of a compound cannot undergo

the process of voicing.

(41)a. take + yari → take-yari

    bamboo + spear   bamboo spear

  b. siro + wata → siro-wata

    white + cotton   white cotton

  c. yoo + nasi → yoo-nasi

    western + pear   western pear

  d. nihon + ma → nihon-ma

    Japan + room   Japanese-style room

In (41), voiced consonants, /y, w, n, m/, in the first segment of the second member of a

compound do not undergo any change.

The second condition on the application of the sequential voicing is Lyman's Law: i.e. the sequential voicing is blocked if the second member of a compound has a voiced obstruent such as a voiced stop, a voiced fricative, and a voiced affricate (Tsujimura 1996: 57-58).

(42)a. oo + kata → oo-gata

    big + size   big size

  b. oo + kaze → oo-kaze   (cf. *oo-gaze)

    big + wind   big wind

(43)a. zyuzu + tama → zyuzu-dama

    rosary + beads   (prayer) beads

  b. zyuzu + tunagi → zyuzu-tunagi (cf. *zyuzu-zunagi)

    rosary + sequence   roping together

In (42a) and (43a), the second members of the compounds undergo the voicing, since

they have voiceless obstruents, /k, t/. However, in (42b) and (43b), they do not undergo

the voicing, since they have voiced obstruents, /z, g/.

The third constraint is related to lexical strata in Japanese: the second member of

a compound should be a native Japanese word for the sequential voicing to apply

(Tsujimura 1996: 56-57).

(44)a. ato + harai → ato-barai

      afterward + payment   deferred payment

  b. ato + kin → ato-kin

       afterward + money   balance, money left

(45)a. binboo + kami → binboo-gami

      poverty + god   god of poverty

  b. binboo + syoo → binboo-syoo

      poverty + disposition   disposition to live stingily

(46)a. yasu + heya → yasu-beya

   cheap + room   cheap room

 b. yasu + hoteru → yasu-hoteru

   cheap + hotel   cheap hotel

In (44a, 45a, and 46a), the second members of the compounds are native Japanese words, so that they undergo the sequential voicing. However, in (44b, 45b, and 46b), they are non-native Japanese words (i.e. Sino-Japanese words in 44b and 45b; a Western loanword in 46b) and do not undergo the sequential voicing.

Keeping these three constraints in mind, let us consider head elements in Temporal Morpheme Constructions (TMCs). The head elements consist of a Complex Event Nominal (CEN) and a Temporal Morpheme (TM). Here, suppose that the TM is a target of the sequential voicing as the second member of a compound (or a complex word). The following is a sample list of TMs.

(47)a. *tyuu* 'mid, during', *go* 'after', *izen* 'before', *igo* 'after', *tyokuzen* 'immediately

   before', *tyokugo* 'immediately after', *sidai* 'as soon as possible'

 b. *sai* 'case', *ori* 'occasion', *akatuki* 'happy occasion', *ue* 'upon, after',

First, the TM, *go*, does not satisfy the first condition as well as the third condition. Its

first segment is made up of a voiced consonant and it is a Sino-Japanese morpheme.

The TMs in (47b), *sai, ori, akatuki,* and *ue*, do not satisfy the first condition, either,

since they require the morpheme *no*, which is also made up of a voiced consonant.

Even if I can dissociate the morpheme *no* from part of a TM, it does not improve the

situation. The TMs, *ori, akatuki,* and *ue*, still do not satisfy the first condition, since

they begin with a vowel. The TM, *sai*, can satisfy the first condition, but cannot meet

the third, since it is a Sino-Japanese morpheme, which begins with a voiceless

consonant, though. Next, the TMs, *izen, igo, tyokuzen, tyokugo,* and *sidai*, contain

voiced obstruents, /g, z, d/, dissatisfying the second condition.

 Lastly, the TM, *tyuu*, satisfies the first and the second condition, but not the third.

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Though the TM, *tyuu*, seems to have a voiced counterpart, *juu*, the use of the latter is

limited to non-predicative uses (i.e. adverbial uses), which are not relevant to my

discussion, and it is not clear whether *tyuu* and the *juu* can be related by the sequential

voicing, given the following examples.

(48)a. itiniti-juu (cf. *itiniti-tyuu)

        one.day-during   'all day long'

    b. mati-juu (cf. *mati-tyuu)

        town-throughout   'throughout the town'

(49)a. natuyasumi-juu

        summer.break-during   'throughout the summer break'

    b. natuyasumi-tyuu

(50)a. asu/asita-juu (cf. *asu/asita-tyuu)

        tomorrow-during   'during tomorrow'

b. myooniti-tyuu (cf. *myooniti-juu)

   tomorrow

In (48), the morpheme *juu* cannot be altered by their voiceless variation, *tyuu*. In (49), *juu* can be altered by *tyuu*, but their meanings are different. In (50), *juu* and *tyuu* can be altered only if the preceding word belongs to a lexically different stratum (e.g. *asu/asita* is a native word, while *myooniti* is a Sino-Japanese word).[35] Therefore, it seems that *juu* is either registered as a native morpheme, which contrasts with a Sino-Japanese morpheme, *tyuu*, or distinct from *tyuu* in meaning. In any case, in its predicative use, the TM *tyuu* does not undergo the sequential voicing since it is a Sino-Japanese morpheme.

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[35] See Mizuno (1984) for more discussion.

5.5.2 Accentuation of Complex Words in Japanese

As compared with sequential voicing, word accentuation is not so conditioned to examine the phonological wordhood of head elements in TMCs. In the following, I will discuss the phonological wordhood of the CEN + *no* and that of the *no* + TM, on the basis of the word accentuation in Japanese.

In general, words have their own unique accent patterns as well as unaccented patterns in Japanese. Word accent in Japanese is identified with a pitch fall from High (H) to Low (L). It is associated with a phonological segment like mora. For example, in (51a), the first mora is associated with a pitch fall ('), so that it is accented. In (51b), the second (or last) mora has a pitch fall and is accented. In (51c), there is no segment associated with a pitch fall, so that the word is unaccented.

(51)a. ha'si-ga (HLH)

   chopstick-NOM

b. hasi'-ga (LHL)

bridge-NOM

c. hasi-ga (LHH)

edge-NOM

It is important to notice that a noun *hasi* in (51b) and a noun *hasi* in (51c) appear to

have the same accent, since there is no difference in pitch if nothing follows the nouns.

However, the last segments (or edges) of the nouns are visible if the nouns are suffixed

by a particle.

Complex words, in particular, N1-N2 compounds tend to form unique accent

patterns, which are largely determined by the Compound Accent Rule (CAR:

McCawley 1977, Kubozono 1993, 1995, Kubozono et al. 1997). According to the rule,

if N2 is two or fewer morae long, an accent is typically placed on the last mora of N1

(52a), on the one hand. However, there are two exceptional cases in which the whole

compound is deaccented (52b) and the original accent on N2 predominates eliminating

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the accent of N1 (52c).

(52)a. ka'buto + musi   =   kabuto'musi

   'helmet'   'insect'   'beetle'

   b. sya'kai   +   to'o   =   syakaitoo

     'society'   'party'   'Socialist Party'

   c. pe'rusya + ne'ko = perusyane'ko

     'Persia'   'cat'   'Persian Cat'

On the other hand, if N2 is three or more morae long, the accent of N2 predominates

eliminating the accent of N1 (53a) or an accent is placed on the first mora of N2 (53b,

b').

(53)a. sya'kai   +   se'ido   =   syakaise'ido

     'society'   'system'   'social system'

b. kyooiku + zyooke'n = kyooikuzyo'oken

'education' 'condition' 'educational conditions'

b'. de'nki + airon = denkia'iron

'electricity' 'iron' 'electric iron'

5.5.3 (CEN + *no*) as Prosodic Words: Particle as Part of Prosodic Words

Now, I am in a position to discuss phonological wordhood in the CEN + TM sequence. First, I discuss the phonological wordhood of the CEN + *no* sequence by following Nasu (2001)'s study on the accent pattern associated with a class of complex mimetic words. He tries to explain a class of mimetic words which appear to violate a universal constraint such as Non-finality (Kager 1999, Prince and Smolensky 1993): i.e. No prosodic head is final in prosodic words. If I assume that a prosodic head contains an accent and that a prosodic word is identical with a grammatical word, the

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Non-finality predicts that every word cannot have an accent on its final mora. However,

mimetic words in (54) appear to have their accents on their final morae.

(54)a. (pika)pika'Q 'glistening'

　　b. (poki)poki'Q 'snapping'

　　c. (koro)koro'Q 'rolling'

(N.B. *Q* stands for part of a long consonant or a geminate. It forms a mora with a

preceding CV string. That is, *kaQ*, *kiQ*, and *roQ* in (54) are made up of one mora,

respectively.)

To explain this exceptional accent pattern, Nasu regards prosodic words as being

formed by a Noun + Particle sequence. This idea seems to be correct if I take basic

word-accent patterns into consideration. Recall that I have already shown the fact that I

must take particles into account to distinguish accent patterns for nouns. For example,

there is no difference in accent between a noun *hasi* in (51b) and a noun *hasi* in (51c)

by themselves. However, their difference in accent emerges if a particle (e.g. nominative -*ga*) follows these nouns.

(51)b. hasi'-ga (LHL)

bridge-NOM

c. hasi-ga (LHH)

edge-NOM

The noun *hasi* 'bridge' has its accent on the final mora. The noun violates the Non-finality, if it is a (phonological) word. However, if I assume that it forms a phonological word with the subsequent particle, then the resultant phonological word does not violate the Non-finality, since the particle itself can form a mora.

The idea of prosodic words as Noun + Particle is also preferred by the fact that mimetic words in (54) must always be followed by a particle *to*.

(55) (pika)pika't-*(to), (poki)poki't-*(to), (koro)koro't-*(to)

If the mimetic words in (54) are phonological words, they violate the Non-finality due to their accent on their final mora. However, their requirement of being followed by a particle (55) suggests that they cannot form a phonological word in their own rights but can form it with their subsequent particles. The resultant phonological word does violate the Non-finality, since the particle forms a final mora, and the penultimate mora is accented.

The idea of a particle as part of a prosodic word is compatible with a characterization of (CEN + *no*) as phonological word. It explains the fact that not CEN alone but CEN + *no* can be elided in the CEN + TM sequence, as a minimal pair, (34b, b'), shows.

(34)b. CEN_i *no* $TM2_j$ Conj ~~CEN_i *no*~~ $TM2_k$

(34)b'. *CEN_i *no* $TM2_j$ Conj ~~CEN_i~~ *no* $TM2_k$

The elided element, CEN + *no*, in (34b) meets the condition (31ii), since it is a

phonological word. In contrast. the elided element, CEN, in (34b') does not meet the

condition (31ii), since it is not a phonological word.

Besides, a genitive particle *no* has a special property such that it deprives or

deletes an accent on the final mora of a preceding noun (N1). Hence, the property

serves to avoid the N1's violating the Non-finality, as shown in (56).

(56) $[_{N1} …μ']$ *no* $[_{N2} …] → [_{NP} …μ$ no $…]$

The property is known as the pre-*no* deaccenting rule (McCawley 1968, Poser 1984). It

is also relevant to my discussion in the next subsection.

Here, a question remains: why can *no* + TM2, rather than TM2 alone, be elided in

the CEN + TM sequence? This point is illustrated by the minimal pairs, (34a, a') and

(35b, b').

(34)a. CEN$_i$ ~~no TM2$_j$~~ Conj CEN$_k$ no TM2$_j$

(34)a'. *CEN$_i$ no ~~TM2$_j$~~ Conj CEN$_k$ no TM2$_j$

(35)b. CEN$_i$ ~~no TM2$_j$~~, …CEN$_k$ no TM2$_j$ (cf. 12b)

(35)b'. *CEN$_i$ no ~~TM2$_j$~~, …CEN$_k$ no TM2$_j$ (cf. 12b')

The fact that (*no* + TM2) can be elided in the CEN + TM2 seems to require isolation of the preceding N from the particle *no*. Hence, it is not desirable for my assumption that CEN + *no* forms a phonological word in the CEN + TM2 sequence. This problem can be avoided if the Noun + Particle requirement for phonological wordhood is overridden by another requirement which makes it possible that the particle *no* forms a prosodic word with the subsequent noun. I will discuss this point in the next subsection.

5.5.4 (*no* + TM) as Prosodic Words: Ambiguity of Prosodic Structure of N *no* N

To discuss the possibility of phonological wordhood of *no* + TM, I share some assumptions with Kubozono et al. (1997)'s study of a boundary between phonological words and phrases. I overview their discussion on prosodic constituency of complex words, and then, I turn to my phonological word analysis of *no* + TM along the line of their discussion.

5.5.4.1 Kubozono et al. (1997)

Kubozono et al. (1997) try to find a boundary between phonological words and phrases in N1-N2 compounds by examining whether their members, N1 and N2, can preserve their original accents. There are four logically possible combinations of N1 and N2 with regard to whether they preserve their original accents, as shown in the

following table.

(57)

Member nouns / Accent patterns	N1	N2
a)	Not preserving	Not preserving
b)	Not preserving	Preserving
c)	Preserving	Not preserving
d)	Preserving	Preserving

The table (57) shows that there are N1-N2 compounds such that 1) both N1 and N2 do

not preserve their accents (57a), 2) only N2 preserves the accent (57b), 3) only N1

preserves the accent (57c), and 4) neither N1 nor N2 preserves the accent (57d).

Among the four possibilities, there are three extant combinations; (57c), which is

shaded, does not occur[36].

Kubozono et al. assume a criterion such that a N1-N2 compound is phonologically taken as a phrase if both member nouns preserve their own accents, whereas it is phonologically taken as a word if both members do not preserve their own accents and the whole compound receives its own accent pattern. According to the criterion, a compound whose members have the accent pattern in (57a) is regarded as a phonological word, while a compound whose members have the accent pattern in (57d) is taken as a phonological phrase. I can represent these phonological constituencies with parentheses, which indicate phonological word boundaries, as follows.

(58)a. (N1 N2)   cf. (57a)

   b. (N1)(N2)   cf. (57d)

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[36] The impossibility of (53c) can be explained by a basic assumption on prosodic compound formation: the accentual properties (both accentedness and accent location) of the non-final elements are essentially irrelevant in determining the accent of the whole compound expressions (Kubozono 1993: 12).

For example, a compound, *sattyaa-se'iken* (LHHH-HLLL) 'the Thatcher administration' in (59a), is associated with the phonological constituency (58a), since both N1 (i.e. *sa'ttyaa*: HLLL) and N2 (i.e. *seiken*: LHHH) do not preserve their own accent patterns.

(59)a. (Sattyaa-se'iken)

      Thatcher-administration   'the Thatcher administration'

In contrast, a compound, *sa'ttyaa syusyoo* (HLLL)(LHH) 'Prime Minister Thatcher' in (59b), is associated with (58b), since both N1 and N2 (i.e. *sa'ttyaa*: HLLL, *syusyoo*: LHH) preserve their own accent patterns.

(59)b. (Sat'tyaa)(syusyoo)

      Thatcher premier   'Prime Minister Thatcher'

As for a compound whose members have the accent pattern in (57b), Kubozono et al. regard it as a sub-phrasal constituent that has a status between phonological word and phonological phrase. It can be represented with parentheses as follows.

(58)c. (N1(N2))   cf. (57b)

(58c) indicates that N2 is phonologically full-fledged word but N1 is not, so that the entire compound cannot be taken as a phrase phonologically.[37] For example, a compound, *nyuu-karedonia* (LH- (LHHHH)) 'New Caledonia' in (59c), is associated with (58c), since N2 (i.e. *karedonia*: LHHHH) preserves its own accent, while N1 (*nyu'u*: HL) does not[38].

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[37] The phonological constituency in (58c) can be compared with a morphological constituency of derived word such as prefixed noun.
[38] The example (59c) appears to have a pitch fall between the first and second member, but it is not an accent because a pitch cannot get back to High after a pitch fall within a word boundary.

(59)c. (nyuu-(karedonia))

       new Caledonia   'New Caledonia'

Moreover, assuming the Pre-*no* deaccenting rule, which I saw in the last subsection, Kubozono et al. find that a noun phrase, N1 *no* N2, which involves a genitive particle *no*, can also be associated with the phonological constituency (58c)[39]. That is, a noun that precedes the particle *no* (i.e. N1) cannot preserve its accent if the accent is placed on the final mora, while a noun that follows the particle (i.e. N2) preserves its accent. For example, in *uma-no-i'tiba* (LH-H-HLL) 'a horse market (lit. a market of horse)', the pre-particle noun (i.e. *uma'* (LH) 'horse') is deaccented but the post-particle noun (i.e. *i'tiba* (HLL) 'market') preserves the accent.

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[39] Kubozono et al. point out that not only a noun phrase that involves a genitive particle but also a complex nominal that involves a suffix *–teki* '-like' can be associated with (58c), though the suffix can deprive an accent from any mora of the preceding noun. The genitive particle can deprive an accent from the last mora of the preceding noun, as we have already noted.

5.5.4.2 My Analysis

So far, I have overviewed Kubozono et al.'s discussion about phonological constituency of complex words, which is summarized as the following assumptions[40].

(60)a. phonological wordhood as independent accentuation

b. a classification of N1-N2 compounds on the basis of accent-preserving patterns

c. N1 *no* N2 as a subclass of N1-N2 compounds

That is, it is assumed that 1) phonological words must have their own independent accent patterns (60a), 2) complex words, in particular, N1-N2 compounds can be classified into three types as to whether each member noun preserves its own accent (60b), and 3) noun phrase in the form of N1 no N2 is identified with a subclass of N1-N2 compound with respect to its accent-preserving pattern (60c).

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[40] Kubozono (2004) claims that phonological constituency of derived words can be analyzed in the same way as that of compounds.

I share these assumptions with Kubozono et al. In addition, I make the following

assumptions for my discussion of the phonological wordhood of (*no* TM2) in the CEN

+ TM sequence.

(61)a. CEN + TM2 as a class of N1 *no* N2

   b. two phonological functions of genitive particle

That is, as in (61a), I identify the CEN + TM2 sequence with a type of N1 *no* N2 noun

phrase, since both involve a genitive particle, and a TM2 behaves like a noun

morphologically (cf. Chapter 2). I also assume, as in (61b), that the genitive particle

has two phonological functions both as a particle and as a genitive particle. As a

particle, the genitive *no* serves to form a well-formed phonological word with the

preceding noun, N1. This function is required to prevent the N1 alone from violating

the Non-finality (cf. Section 5.2). As a genitive particle, the genitive *no* serves to form

a well-formed phonological word with the subsequent noun, N2, or TM2. This

function is required by the Pre-*no* deaccenting rule (McCawley 1968, Poser 1984): i.e. deprive or delete an accent on the final mora of a noun that precedes to a genitive particle (cf. (56)). This rule prevents a class of N1 alone from preserving the accent, that is, from forming a phonological word [41]. Moreover, the two apparently incompatible functions of genitive particle can be taken as the source of ambiguous constituency of the CEN + TM2 sequence. One constituency such as (N *no*) is brought about by the phonological function of particle, as I argued in 5.2. The other constituency such as (*no* TM2) is caused by the phonological function of genitive particle, as I discuss in this subsection.

Based on the assumptions in (60) and (61), I propose the following phonological constituencies for the N *no* N and the CEN + TM2, respectively.

(62)a. (N1 (*no* N2))

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[41] The Pre-*no* deaccenting rule applies to a class of N1, which has an accent on its final mora (e.g. *uma* 'horse'). Nevertheless, we assume that the rule is, in principle, supposed to apply to every N1, perhaps, to avoid the Non-finality. The rule is required to emerge when a genitive particle follows a class of N1, which violates the Non-finality.

e.g. (uma-(no-i'tiba))

    horse-GEN-market   'a horse market'

b. (N1 (*no* TM2))

e.g. (kenkyuu-(no-sai))

    research-GEN-occasion   'on the occasion of research'

By (61a), the CEN + TM2 is a subclass of the N1 *no* N2 noun phrase. Thus, not only

the N1 *no* N2 but also the CEN + TM2 can share a phonological constituency such as

(N1(N2/TM2)) with a subclass of N1-N2 compound, by (60b, c).

In (62a, b), the position occupied by *no* is in the inner parenthesis of

(N1(N2/TM2)). That is, I claim that the genitive particle can form a phonological word

with the N2 or the TM2 without forming it with the N1. This constituency is made

possible by (61b). In particular, it is a consequence of the phonological function of *no*

as genitive particle. To fulfill the function, the genitive *no* must form a phonological

word with the subsequent noun or TM2 to prevent a class of the preceding noun alone

from forming a phonological word. Thus, the genitive *no* appears in the inner

parenthesis of (N1(N2/TM2)).

One might think that the genitive *no* can occupy the position outside of the inner

parenthesis, as follows.

(63)a. (N1 *no* (N2))

e.g. (uma-no(-i'tiba))

horse-GEN-market   'a horse market'

b. (N1 *no* (TM2))

e.g. (kenkyuu-no(-sai))

research-GEN-occasion   'on the occasion of research'

These phonological representations preserve the phonological constituency, (N1

(N2/TM2)). Nevertheless, they do not capture the phonological function of *no* as

particle, since the genitive particle *no* in (63) does not form a phonological word with

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the preceding noun. In contrast, the parenthesizing in (62) does not contradict the same

function, since the N1 alone does not form a phonological word. In other words, the

genitive *no* in (62) forms a phonological word with the subsequent noun <u>before</u>

fulfilling the phonological function as particle.

It is important to notice, here, that the phonological representations in (62) reflect

the phonological function of *no* as genitive particle rather than that of *no* as particle.

The latter function requires a preceding noun to form a phonological word with the

genitive particle. In contrast, if I assume a phonological representation to reflect the

latter function rather than the former function, one can obtain another constituency of

N1 *no* N2 or CEN + TM2. In the next subsection, I will discuss how the relative

priority of two functions leads to the difference in constituency of the N1 *no* N2 or

CEN + TM2.

5.5.5 Phonological Disambiguation of CEN *no* TM2

So far, I have argued that the CEN + TM2 sequence (and the N1 *no* N2 noun phrase) allows two phonological words, (N1 *no*) and (*no* N2/TM2). As I suggested in the last subsection, either of these phonological words can be obtained according to the priority of two competing functions of the genitive particle *no*.

The phonological wordhood of (N1 *no*) can be obtained if the function of *no* as particle is fulfilled prior to the function of *no* as genitive particle. Accordingly, the genitive particle forms a phonological word with N1 prior to the phonological word formation with TM2/N2. In contrast, the phonological wordhood of (*no* TM2/N2) can be obtained if the function of *no* as genitive particle is fulfilled prior to the function of *no* as particle. Accordingly, the genitive particle forms a phonological word with TM2/N2 prior to the phonological word formation with N1. Assuming that the function of *no* as particle and the function of *no* as genitive particle can be attributed to the phonological constraints, Non-finality and Pre-*no* deaccenting, respectively, I can

summarize phonological word formation in the N1 no TM2/N2, as follows.

(64)

Input	Constraint Ranking	Output
a. N1 *no* TM2/N2 → Non-finality >> Pre-*no* deaccenting → ((N1 *no*) TM/N2)		
b. N1 *no* TM2/N2 → Pre-*no* deaccenting >> Non-finality → (N1 (*no* TM/N2))		

where A >> B represents that A ranks over B[42].

5.6 Two Types of TMs

In 5.1.5, I argued that part of a grammatical word (i.e. a CEN + TM2 sequence) can form a phonological word (i.e. (CEN *no*) or (*no* TM2)). This phonological analyzability of the CEN + TM2 sequence allows apparent sublexical conjoining or gapping, which is actually a prosodically conditioned ellipsis.

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[42] We do not discuss what kind of universal constraint works behind the Pre-*no* deaccenting rule. Also, we adopt an OT-like idea but leave an OT formulation for further investigation.

In contrast to the CEN + TM2, the CEN + TM1 sequence cannot be analyzed into

a phonological word due to the lack of genitive particle. For example, a CEN + TM 2

sequence, *tyoosa-tyuu* (LHH-LH) 'during survey', behaves like a N1-N2 compound

which has the accent pattern (57a), since both the N (i.e. *tyo'osa*: HLL) and the TM2

(i.e. *tyu'u*: HL) do not preserve their own accents. Thus, the subparts of the CEN +

TM2 sequence cannot be taken as a full-fledged phonological word and do not allow

apparent conjoining or gapping.

The contrast between the CEN + TM1 sequence and the CEN + TM2 sequence

brings about Hypothesis 2, which I reject as a hypothesis about the grammatical

wordhood of the CEN + TM sequence in TMC. Hypothesis 2 can be taken as a

hypothesis about the phonological wordhood of the CEN + TM sequence in TMC,

instead.

Chapter 6

Case Particle Omission in Mixed Categories

6.1 Introduction

So far, I have focused on Temporal Morpheme Construction (TMC), which is predicated by a Complex Event Nominal (CEN: e.g. *kenkyuu* 'research') following a Temporal Morpheme (TM: e.g. *tyuu* 'during', *go* 'after', *sai, ori* 'occasion').[43] I classified TMCs into three types (i.e. VC-/MC-/NC-marked TMCs), according to their case marking patterns, that is, whether only a verbal case (VC) such as Nominative or Accusative is allowed, only a nominal case (NC) such as Genitive is allowed, or both VC and NC are allowed (MC = Mixed Case).

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[43] Horiuchi (forthcoming a) is a compact version of Chapter 6.

(1)a.　　John-ga　　ainugo-o　　kenkyuu-tyuu/-go, …　[VC]

　　　　John-NOM　　Ainu-ACC　　research-mid/-after

　　　　'during/after John's research of Ainu'

　　b.　John-ga　　ainugo-no　　kenkyuu-tyuu/-go, … 　[MC]

　　　　John-NOM　　Ainu-GEN　　research-mid/-after

　　c.　John-no　　ainugo-no　　kenkyuu-tyuu/-go, … 　　[NC]

　　　　John-GEN　　Ainu-GEN　　research-mid/-after

(2)a.　　John-ga　　ainugo-o　　kenkyuu-no sai/ori, …　[VC]

　　　　John-NOM　　Ainu-ACC research-NO occasion

　　　　'on the occasion of John's research of Ainu'

　　b.　John-ga　　ainugo-no　　kenkyuu-no sai/ori, … 　[MC]

　　　　John-NOM　　Ainu-GEN research-NO occasion

　　c.　John-no　　ainugo-no　　kenkyuu-no sai/ori, … 　[NC]

　　　　John-GEN　　Ainu-GEN research-NO occasion

As such, case marking is characteristic of TMCs, but they have corresponding

variant constructions in which a case particle is omitted from an NP adjacent to a CEN,

as follows.

(3)a.　　　John-ga　　ainugo_　 kenkyuu-tyuu/-go, …

　　　　　　John-NOM　　Ainu　　research-mid/-after

　　　　　　'during/after John's research of Ainu'

　　b.　　　John-ga　　ainugo_　 kenkyuu-no sai/ori, …

　　　　　　John-NOM　　Ainu　　research-NO occasion

　　　　　　'on the occasion of John's research of Ainu'

In (3), omission of case particles is represented by an underscore (_). These examples

show that a NP, *ainugo* 'Ainu language', does not have a case marker such as

accusative *–o* or genitive *-no* that serves to indicate the object of a CEN, *kenkyuu*

'research', in the corresponding full sentences (1a-c) and (2a-c). Examples in (3)

convey the same cognitive meaning as the corresponding TMCs. The difference

between them is only whether a NP adjacent to a CEN is a bare noun or case-marked.

The bare N + CEN is claimed to form a **post-syntactic compound** (Shibatani and

Kageyama 1988: S&K). It behaves like a single lexical compound according to some

criteria, whereas it also behaves like phrases according to other criteria including

phrasal accentuation. The term 'post-syntactic' refers to a phonological component of

grammar where the output of syntax is processed[44]. I will adopt S&K's convention:

compound-like units are represented by brackets and phonological word-boundaries by

colons (:). Following S&K's convention, I can modify representations for the examples

in (3) as follows.

(3')a.   John-ga   [ainugo: kenkyuu]-tyuu/-go, …

          John-NOM   Ainu:research-mid/-after

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[44] Post-syntactic compounds are renamed as S-structure compounds by Kageyama (1993), since their compound accent rules must refer to syntactic structures of their input strings. Nevertheless, we will maintain the former term, since the latter term is only compatible with a particular derivational theory.

'during/after John's research of Ainu'

b.   John-ga   [ainugo: kenkyuu]-no sai/ori, …

John-NOM   Ainu:research-NO occasion

'on the occasion of John's research of Ainu'

The purpose of this chapter is to present a proper analysis of a construction which differs from the corresponding TMC in that a case-particle is omitted from a NP adjacent to a CEN. I claim that the construction in question is a variant of a MC-marked TMC from which a genitive case-particle can be omitted due to the adjacency condition of the extended head. Thus, the ultimate goal of this chapter is to support the adjacency condition of the extended head theory, which is a key aspect of mixed categories in Japanese.

My discussion is organized as follows. First, I overview S&K's (and Kageyama 1993's) arguments for the existence of post-syntactic compounds and summarize their arguments for both lexical and phrasal properties of the post-syntactic compound,

observing the data that are used in their arguments. Secondly, motivating my account, I

propose my hypothesis. Based on the hypothesis, I explain compound-like behaviors of

the particle-less variants of TMCs. Thirdly, I argue against alternative hypotheses

about the alleged post-syntactic compounds. Finally, I touch upon the remaining

problems of my analysis.

6.2 Arguments for Post-syntactic Compounds

In this section, I overview Shibatani and Kageyama (and Kageyama 1993)'s

post-syntactic compound hypothesis and their arguments for both lexical and phrasal

properties associated with the syntactic unit called the post-syntactic compound.

Though the syntactic unit in question must be dissociated from any theoretical position,

the term, post-syntactic compound, will often be used to refer to the syntactic unit in

the following paragraphs, for convenience.

Let us begin with S&K's (and Kageyama's) arguments for the existence of

post-syntactic compounds. The logic of their arguments can be summarized as follows.

1) Post-syntactic compounds behave like lexical compounds, on the one hand, with respect to the criteria including exclusion of case particles, morphological integrity, binary branching, the First Sister Principle, and lexical idiosyncrasies. On the other hand, 2) post-syntactic compounds behave like phrases (or two full-fledged words), with respect to the criteria including phrasal accentuation, inbound anaphoric islands, and phrasal recursivity (cf. Bresnan and Mchomobo 1995). 3) Seemingly inconsistent facts in 1) and 2) can be resolved by assuming a distinction between principles of word formation applicable in the lexicon and general principles of word formation, which can apply in every component of grammar including a post-syntactic component as well as a lexical component. In particular, the criteria used to show lexical properties of post-syntactic compounds in 1), on the one hand, are conceived as reflecting the general principles of word formation, so that they can apply in the lexicon as well as the other components of grammar. On the other hand, the criteria used to show phrasal properties of post-syntactic compounds in 2) are conceived as reflecting the principles

of word formation applicable in the lexicon, so that they cannot apply in other

components of grammar. The idea of reconciliation between 1) and 2) is referred to as

the modular theory of word formation.

6.2.1 Lexical Properties of Post-syntactic Compounds

Then, let us review the data that are used to support S&K's (and Kageyama's)

arguments[45]. The data used to illustrate the lexical properties of post-syntactic

compounds are collected as results of the application of the following criteria:

exclusion of particles, morphological integrity, the Binary Branching Constraint, the

First Sister Principle, and lexical idiosyncrasies.

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[45] Kageyama (1993)'s arguments overlap with S&K's in most parts. We will cite his study for arguments presented by him alone.

6.2.1.1 Exclusion of Particles

S&K assume that particles must, in principle, be present obligatorily in normal

sentences by observing the unacceptability of a particle-free sentence as in (4b), which

contrasts with the grammaticality of the corresponding full sentence as in (4a).

(4)a. Taroo-ga eki-de Hanako-ni ziroo-no teeki-ken-o tukawaseta.

   Taro-NOM station-at Hanako-DAT Jiro-GEN pass-ACC use-let-PAST

    'Taro let Hanako use Jiro's pass at the station'

   b. *Taroo_ eki_ Hanako_ ziroo_ teeki-ken_ tukawaseta.

However, expressions with certain styles allow 'exceptional' particle omission, as

shown in (5). (N.B. underscores represent particle omissions.)

(5)a. casual speech

Kimi_ kore_ moo   yonda?

You   this already read

'Have you read this already?'

Cf. Kimi-wa kore-o moo   yonda?

You-TOP this-ACC already read

b. newspaper headlines and catch phrases

Syusyoo_   beikoku_ tootyaku

Premier   US   arrival

'The Prime Minister arrives in U.S.'

Cf.   Syusyoo-ga beikoku-ni tootyaku-suru

Premier-NOM US-in   arrival(-do)

c. juxtaposition of nouns in enumeration, where each noun is followed by a

comma

Nihon-wa zidoosya_, konpyuutaa_, denki-seihin-no   yusyutu-de yuumei-da.

Japan-TOP car   computer,   elec.appliances-GEN export-for famous-COP

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'Japan is famous for its exportation of automobiles, computers, and electric

appliances.'

Cf. Nihon-wa zidoosya-to, konpyuutaa-to, denki-seihin-no

Japan-TOP car-and   computer-and   elec.appliances-GEN

yusyutu-de yuumei-da.

export-for famous-COP

d. proverbs and other fixed expressions that follow the syntax of Classical

Japanese

Raku_   areba,   ku_   ari.

Pleasure if.exist   pain there.be

'No pain, no gain.'

Cf. Raku-ga   areba,   ku-mo   aru.

Pleasure-NOM if.exist   pain-also   there.be

The particle omission in (5) is 'exceptional' in that it is allowed only by expressions

with a special style, particularly, a casual speech. The corresponding full-sentences are

not always associated with such a special style.

S&K also assume that only the first constituent-nouns of compound words allow

<u>legitimate</u> particle omission, as shown in (6).

(6)a. [N-X]_N compounds:

    zidoosya-hanbai 'car sales',   hai-zara 'ash-tray'

    automobile-sales   ash-plate

    cf. zidoosya-no hanbai 'sales of cars'

      automobile-GEN sales

  b. [N-V]_V compounds:

    yume-miru 'to dream',   tabi-datu 'to set out on a journey'

    dream-see   journey-stand

    cf. yume-o miru   'to dream'

      dream-ACC see

c. [N-A]$_A$ compounds:

   darasi-nai 'slovenly',　hara-guroi 'black-hearted'

   tidiness-nonexistent,　stomach-black

   cf. darasi-ga nai 'slovenly'

   　tidiness-NOM nonexistent

The particle omission in (6) is 'legitimate' in that it is allowed by an expression that

has no stylistic difference from the corresponding full expression.

   Under these assumptions, S&K claim that post-syntactic compounds behave like

lexical compounds in that both allow <u>legitimate</u> particle omission of the first

constituent nouns. For instance, the first constituent noun, *ainugo* 'Ainu language', in a

post-syntactic compound (3'a) allows particle omission without any difference in style

from the corresponding full expression (1a-c).

(3')a.   John-ga   [ainugo: kenkyuu]-tyuu/-go, …

John-NOM   Ainu:research-mid/-after

'during/after John's research of Ainu'

(1)a.   John-ga   ainugo-o   kenkyuu-tyuu/-go, …   [VC]

John-NOM   Ainu-ACC   research-mid/-after

'during/after John's research of Ainu'

b. John-ga   ainugo-no   kenkyuu-tyuu/-go, …   [MC]

John-NOM   Ainu-GEN   research-mid/-after

c. John-no   ainugo-no   kenkyuu-tyuu/-go, …   [NC]

John-GEN   Ainu-GEN   research-mid/-after

6.2.1.2 Morphological Integrity

S&K assume that words generally make up a tight unit that cannot be analyzed by syntactic means. For example, a complex word like *New Yorker* does not allow an

intervening syntactic element within it (e.g. *He is a New, I guess, Yorker*). Given the

assumption and the example (7b), which appears to show that a post-syntactic

compound also disallows a syntactic modifier to occur within it, S&K conclude that

post-syntactic compounds are (complex) words.

(7)a. Yooroppa-o   nonbiri   ryokoo-tyuu-ni

      Europe-ACC leisurely   travel-during-in

      'in the middle of traveling Europe leisurely'

   b. *[Yooroppa: nonbiri: ryokoo]-tyuu-ni

       Europe: leisurely: travel-during-in

(7a) shows that a phrase or a clause (i.e. *yooroppa-o rykoo-tyuu-ni* 'in the middle of

traveling Europe') allows a syntactic modifier (i.e. an adverb, *nonbiri* 'leisurely') to

appear within it. In contrast, (7b) shows that the same syntactic modifier cannot appear

within a post-syntactic compound (i.e. [*yooroppa*: *ryokoo*]-*tyuu-ni*).

Furthermore, S&K try to illustrate a difference between the post-syntactic compound and an instance of exceptional particle omission, based on the acceptability of the following example of a newspaper headline.

(8) Syusyoo_   asu   kikoku.

    Premier_ tomorrow return.home

    'Prime Minister to return home tomorrow'

    cf. Syusyoo-ga   asu   kikoku(-suru).

      Premier-NOM tomorrow return.home(-do)

    'Prime Minister returns home tomorrow.'

The example of a newspaper headline (8), which involves exceptional particle omission, allows a syntactic modifier (i.e. adverb, *asu* 'tomorrow') to appear within it, unlike a post-syntactic compound.

In addition to the argument above, Kageyama (1993) proposes gapping or

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coordination reduction as a test for morphological integrity. Since Japanese has a SOV

word order, the gapping or the coordination reduction involves an elided predicate in

the first conjunct (i.e. $S_1O_1\_$, $S_2O_2V_2$), so that an argument noun preceding the elided

predicate (i.e. O_1) must be adjacent to the first element of the second conjunct (i.e. S_2).

I can test the morphological integrity of post-syntactic compounds by using gapping

whose target is a CEN + TM sequence (i.e. $S_1 [O_1 \_]+\_$, $S_2 [O_2 N_2]+TM_2$), since a bare

argument noun of post-syntactic compounds in the first conjunct (i.e. O_1) must be

adjacent to an element in the second conjunct (i.e. S_2) and be dissociated from a

predicative element in the second conjunct (i.e. $N_2 + TM_2$), which is identical with the

elided predicative element in the first conjunct. This test predicts that gapping of the

predicative element in the first conjunct leads to ungrammaticality if post-syntactic

compounds form a morphologically tight unit like lexical compounds (i.e. $*S_1 [O_1 \_]+\_$,

$S_2 [O_2 N_2]+TM_2$ should not be well-formed since part of a compound (= part of a

bracketed element) cannot be elided). According to Kageyama (1993), the prediction is

borne out, since his judgment of the following example is unacceptable[46].

(9) Syusyoo-wa [Rondon: ~~taizai]~~ ~~tyuu-ni~~,   zoosyoo-wa   [Pari: taizai]-tyuu-ni,

premier-TOP London: stay-during-in,   Finance.minister-TOP Paris: stay-during-in,

sono sirase-o   kiita. (→ unacceptable in Kageyama's judgment)

that news-ACC heard

'The Prime Minister heard the news during his stay in London, and the Finance

 Minister did so.'

6.2.1.3 Exclusion of Phrases from Heads

Kageyama (1993)'s additional argument pertains to exclusion of phrases from

heads, which is also in support of morphological integrity of post-syntactic compounds.

He assumes that the No Phrase Constraint (Botha 1984), that is, a ban of compounding

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[46] My judgment differs from Kageyama's. The difference in judgment affects the difference in
wordhood of post-syntactic compounds, as we will discuss later.

with phrases, cannot be violated by the heads of lexical compounds[47, 48]. For example,

a head of lexical compound disallows conjoining with another head, as follows.

(10)a. hito-dasuke

      person-helping

      'an act of kindness'

  b. hito-zukai

      person-using

      'working one's employment, etc.'

  c. *hito-dasuke   to -zukai

      person-helping and –using

---

[47] In other words, Kageyama assumes that the No Phrase Constraint can be violated by the left-hand members of lexical compounds. He considers the following example as an exception to the constraint.

(i) [[*sunakku-no mama*]   [*gorosi*]] 'a murder of the proprietress of a bar'
    Bar-GEN   proprietress murder

[48] The No Phrase Constraint can be taken as almost identical with Phrasal Recursivity, one of the criteria of lexical integrity (Bresnan and Mchombo 1995), but interestingly, the latter criterion is used to show a phrasal property of post-syntactic compounds, which is discussed later.

In (10a, b), the right-hand members, *dasuke* 'helping' and *zukai* 'using', are heads of

the compounds. They cannot be conjoined as in (10c), since the left-hand member, *hito*

'person', cannot be compounded with a noun phrase which involves two conjoined

nouns.

He claims that the same constraint holds in post-syntactic compounds on the basis

of the unacceptability of the following examples.

(11)a. *[Hokkaido: [vp nonbirito ryokoo]]-tyuu-ni,

   Hokkaido: leisurely travel-during-at

   'while (someone) travels to Hokkaido leisurely,'

   b. *[kinenhin: [vp nyuusyoosya-ni zootei]]-no sai-ni[49]

   souvenirs: prizewinner-to present-NO occasion-on

   'on the occasion of presenting souvenirs to prizewinners'

---

[49] His original example is: *nyuusyoosya: kinenhin zootei-no sai-ni*. However, this example should be
excluded by another constraint such as the First Sister Principle, since *kinenhin* 'souvenir' but not
nyuusyoosya 'prizewinner' is taken as an argument eligible to have the status of the properly governed,
the first sister of the predicate *zootei* 'presentation'. As a result, **nyuusyoosya: zootei(-no sai-ni)* cannot
be taken as a well-formed syntactic unit (cf. in our analysis, *nyuusyoosya-*(e-no/-ni* 'to-GEN/to'*)
zootei(-no sai-ni)), but *kinenhin: zootei(-no sai-ni)* can (cf. in our analysis, *kinenhin(-no/-o* 'GEN/ACC'*)
zootei(-no sai-ni)). Thus, we modified the original example as in (11b).

In (11), the right-hand members of bracketed parts, *ryokoo* 'travel' and *zoote*i 'present',

(i.e. argument-taking nouns) are heads of post-syntactic compounds. They do not allow

building a phrase with a syntactic element like an adverb, *nonbirito* 'leisurely', or an

argument, *nyuusyoosya-ni* 'to prizewinner', since the left-hand members, *Hokkaidoo*

'Hokkaido' and *kinenhin* 'souvenir', cannot be compounded with such a phrase.

6.2.1.4 The Binary Branching Constraint

S&K regard the Binary Branching Condition (Selkirk 1982) as a general property

of words. The condition is assumed to prohibit three or more branches in

morphological structure (cf. [[*un-happy*]-*ness*] rather than [*un*][*happi*][*ness*]). It

constrains the number of arguments that N-V compounds can incorporate (i.e. More

than one argument cannot appear in the compounds). Compare a well-formed N-V

compound (12a) with an ill-formed one (12b).

(12)a. tako-age

    kite-flying   'kite-flying'

  b. *kodomo-tako-age

    child-kite-flying   'flying kites by kids'

(12a) is used to show that lexical compounds allow incorporation of a direct internal

argument (i.e. *tako* 'kite'), while (12b) is used to show that they disallow incorporation

of an external argument (i.e. *kodomo* 'child') as well as the direct internal argument.

    S&K claim that the same condition holds in post-syntactic compounds, based on

unacceptability of (13c), below.

(13)a. Sooseki-ga   syeikusupia-o   kenkyuu-tyuu-ni, …

    Soseki-NOM Shakespeare-ACC research-during-in

    'While Soseki was studying Shakespeare'

b. Sooseki-ga [syeikusupia: kenkyuu]-tyuu-ni, …

Soseki-NOM Shakespeare: research-during-in

c. *[Sooseki: syeikusupia: kenkyuu]-tyuu-ni, …

Soseki: Shakespeare: research-during-in

(13b) is used to show that post-syntactic compounds, which are derived from the corresponding phrasal expressions such as (13a), allow incorporation of a direct internal argument (i.e. *syeikusupia* 'Shakespeare'). (13c) is, in contrast, used to show that they disallow incorporation of an external argument (i.e. *Sooseki* 'Soseki') as well as the direct internal argument.

Furthermore, S&K try to illustrate a difference between post-syntactic compounds and instances of exceptional particle omission, based on the acceptability of the following examples of casual speech (14a) and a newspaper headline (14b).

(14)a. Tanaka-kun_ moo   kono hon_ katta-ka-na?

   Tanaka-Mr. already   this book   bought-Q-I.wonder

   'I wonder if Tanaka already bought this book.'

   Cf. Tanaka-kun-wa moo   kono hon-o katta-ka-na?

   Tanaka-Mr.-TOP already this book-ACC bought-Q-I.wonder

 b. Syusyoo_ Pari_ tootyaku

   premier   paris   arrive

   'Prime Minister Arrives in Paris'

   Cf. Syusyoo-ga Pari-ni tootyaku-suru.

   Premier-NOM paris-in arrive-do

Since the examples in (14) are phrases (or clauses) but not words, they allow

realization of their arguments without a restriction on the number of arguments such as

the Binary Branching Condition.

6.2.1.5 The First Sister Principle

S&K adopt the First Sister Principle (Roeper and Siegel 1978) as a constraint on the possible range of arguments that N-V compounds can incorporate. That is, the Principle predicts that a verb is allowed to combine only with its first sister noun in the N-V compounds. If a transitive verb is given, it can be combined with its object but not with the subject. For example, *oya-nakase* ('make one's parents cry'; lit. parent-make.cry) cannot be interpreted as 'parents make someone cry' since it incorporates a direct object but not a subject.

S&K claim that the same principle holds in post-syntactic compounds, based on their judgment of (15c) as unacceptable.

(15)a. Sooseki-ga   syeikusupia-o   kenkyuu-tyuu-ni, …

   Soseki-NOM Shakespeare-ACC research-during-in

   'While Soseki was studying Shakespeare'

b. Sooseki-ga [syeikusupia: kenkyuu]-tyuu-ni, …

Soseki-NOM Shakespeare: research-during-in

c. *Syeikusupia-o [Sooseki: kenkyuu]-tyuu-ni, …

Shakespeare-ACC Soseki: research-during-in

(15b) is used to show that, as part of a post-syntactic compound, an argument-taking

noun *kenkyuu* 'research' can incorporate its object noun *Syeikusupia* 'Shakespeare'.

(15c) is, in contrast, used to show that it cannot incorporate its subject noun *Sooseki*

'Soseki Natsume'.

6.2.1.6 Lexical Idiosyncrasies

S&K assume that lexical word formation in general is lexically governed and that

lexical compounds are constrained by word-internal harmony of lexical strata. In

English, some affixes require Latinate stems (i.e. *–ity*), while others require stems of

Old English origin (i.e. *-ness*).

S&K claim that the same type of constraint holds in post-syntactic compounds in Japanese. They assume that post-syntactic compounds undergo a constraint such that native words cannot be combined with non-native words (i.e. Sino-Japanese words or Western loanwords). For example, according to S&K, (16b) is unacceptable, since the argument-taking noun, *koonyuu* 'purchase', is a Sino-Japanese word but the incorporated noun, *hon* 'book', is a native word. In contrast, (16a) is acceptable, since the Sino-Japanese argument-taking noun, *koonyuu*, forms a compound with an incorporated noun, *syoseki* 'book', which is a Sino-Japanese word.

(16)a. [syoseki: koonyuu]-no sai

　　book: purchase-NO   occasion

　　'on the occasion of purchasing books'

　b. [hon: koonyuu]-no   sai (→ unacceptable in S/K's judgment)

　　book: purchase-NO occasion

6.2.2 Phrasal Properties of Post-syntactic Compounds

Next, let us review the data used to illustrate phrasal properties of post-syntactic compounds as the result of application of the following criteria: phrasal accentuation, inbound anaphoric island, and phrasal recursivity.

6.2.2.1 Phrasal Accentuation

The most remarkable difference between post-syntactic compounds and lexical compounds can be seen in their phonological patterns: the syntactic compounds preserve accent patterns associated with their constituent nouns, whereas the lexical compounds as a whole have their own accent patterns as single words (cf. 5.1). For instance, a post-syntactic compound, [*ainugo*: *kenkyuu*] 'research on Ainu', in (3) preserves accent patterns associated with their constituent nouns, *ainugo* 'Ainu language' and *kenkyuu* 'research', both of which have no accent (or pitch fall from

High to Low) and are made up of four mora associated with the pitch pattern LHHH,

as shown below (cf. each morae is divided by vertical lines).

(17)a.	a	i	nu	go	#	ke	n	kyu	u
	L	H	H	H		L	H	H	H

(N.B. # stands for a phonological word boundary.)

That is, the constituent nouns are pronounced just in the same way as their

corresponding phrases, *ainugo-no/o kenkyuu* 'research on Ainu', in TMCs in (1) and

(2), as shown below.

(17)b.	a	i	nu	go	no/o	ke	n	kyu	u
	L	H	H	H	H/H	L	H	H	H

Meanwhile, a lexical compound, *ainugo-kenkyuu* 'Ainu studies', as shown below,

obtains a new accent (or a pitch fall), which is represented as ('), as a single (complex)

word[50].

(17)c.	a	i	nu	go	ke'	n	kyu	u
	L	H	H	H	H	L	L	L

6.2.2.2 Inbound Anaphoric Island

To demonstrate the phrasal behavior of post-syntactic compounds, S&K adopt

Anaphoric Island Constraint (Postal 1969, cf. Bresnan and Mchombo 1995) as a

criterion of wordhood. It assumes that part of a word cannot hold an anaphoric

relationship with another item. For example, part of a lexical compound, *hai-zara* 'ash

tray', cannot have an anaphoric form such as **sore-zara* '(lit.) it-tray' or **hai-sore*

'(lit.) ash-it'. This constraint is applied to (part of) a lexical compound as in (18c) but

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[50] Members of lexical compounds are connected by hyphens (-), while members of the alleged
post-syntactic compounds are connected by colons (:).

not to (part of) a phrase as in (18a). The same constraint is not applied to (part of) a

post-syntactic compound (18b), which is, therefore, taken as a phrase rather than a

single word.

(18)a. Taroo-wa   senzitu   tyuukosya$_i$-o   hanbai-no sai-ni,

　　　Taro-TOP the.other.day used.car-ACC   sell-NO   occasion-on

　　　sorera$_i$-no itidai-o   kowasite simatta.

　　　them-GEN one.car-ACC damage   ended.up

　　　'The other day, on the occasion of selling used cars, Taro ended up damaging

　　　one of them.'

　　b. Taroo-wa senzitu   [tyuukosya$_i$: hanbai]-no sai-ni,

　　　Taro-TOP the.other.day   used.car: sell-NO   occasion-on

　　　sorera$_i$-no itidai-o   kowasite simatta.

　　　them-GEN one.car-ACC damage   ended.up

c. *Amerika-de-wa, [tyuukosya$_i$-hanbai]-o suru toki-wa,

America-in-TOP   used.car-sell-ACC   do   when-TOP

sorera$_i$-ni   hosyoo-o   tuke nakerebanaranai.

them-on   guarantee-ACC put   must

'*In America, when you do used car$_i$ sales, you must put a guarantee on

them$_i$.'

A lexical compound, *tyuukosya-hanbai* 'used car sales', in (18c) does not allow its

subpart to be an antecedent of a pronoun (i.e. *sorera* 'them'). In contrast, a phrase,

tyuukosya-o hanbai 'to sell a used car', in (18a) allows its subpart to be an antecedent

of the pronoun. Likewise, a post-syntactic compound, [*tyuukosya$_i$: hanbai*] 'sales of

used cars', in (18b) also allows its subpart to be an antecedent of the pronoun.

6.2.2.3 Phrasal Recursivity

S&K assume the No Phrase Constraint (Botha 1984; cf. Phrasal Recursivity

Bresnan and Mchombo 1995) to demonstrate that word formation rules apply only to

lexical categories. That is, they assume that phrasal categories cannot be embedded in

a single word. For example, a constituent noun of a lexical compound, *uma* 'horse' in

uma-nori 'horse-riding', cannot be modified by a phrasal modifier such as an adjective,

ookina 'big' (i.e. *[[ookina uma]-nori]* '*[[big horse] riding]'). This constraint is

assumed to be relevant to a lexical compound (19c) but irrelevant to a phrase (19a). It

is not applied to post-syntactic compounds (20a-c), which are, therefore, taken as

phrases rather than single words.

(19)a. utukusii   Yooroppa-o   ryokoo-no sai,

    beautiful Europe-ACC   travel-NO occasion,

    'on the occasion of traveling beautiful Europe'

b. [[utukusii Yooroppa]: [ryokoo]]-no sai, (→ unacceptable in S&K's judgment)

c. *[[utukusii Yooroppa]-ryokoo]-no sai,

   cf. Yooroppa-ryo'koo 'travel around Europe'

(20)a. [[$_{NP}$ [$_D$ Kono] zikken]: syuuryoo]-go-ni, ii peepaa-ga kake-sooda.

   This experiment:finish-after-in, good paper-NOM write.can-seem

   'After this experiment is completed, it appears that I can write a good paper.'

b. [[$_{NP}$ [$_{IP}$ Ima yatteiru] zikken]: syuuryoo]-go-ni, …

    now doing experiment:finish-after-in,

    'After the present experiment is over,…'

c. ….[[$_{NP}$ [$_{NP}$ Simizu-si no] hatugen]: syuuryoo]-go, …

   … Shimizu-Mr.-GEN argument:finish-after,…

   'After Mr. Shimizu's argument was finished, …'

Part of a lexical compound, *yooroppa* 'Europe' in *yooroppa-ryokoo* 'travel around Europe', cannot be modified by an adjective, *utukusii* 'beautiful', as in (19c). In

contrast, part of a phrase, *yooroppa* 'Europe' in *yooroppa-o ryokoo* 'to travel Europe',

can be modified by the adjective, as in (19a). Likewise, part of a post-syntactic

compound, *zikken* 'experiment' or *hatugen* 'argument' in [*zikken/hatugen*: *syuuryoo*]

'the end of the experiment/argument', can be modified by a determiner, kono 'this', a

clause, *ima yatteiru* '(someone) is doing (it) now', or a noun phrase, *simizu-si no* 'Mr.

Shimizu's', as in (20a-c).

Surprisingly, S&K's judgment of (19b), which involves modification of the first

constituent-noun of post-syntactic compound by adjective, is not acceptable. But, my

judgment allows it as acceptable.

6.2.2.4 Honorification

S&K assume that Subject Honorification cannot be applied to part of a word.

Subject Honorification is a syntactic rule such that a V(erb) has an honorific form such

as *o/go-V-ni naru* when it is used to express a speaker's respect for an action caused by

the subject NP, which refers to a superior or honorable person[51]. For instance, when a

speaker expresses his respect for Mr. Yamada's writing a book, he/she says,

Yamada-san-ga hon-o o-kaki-ni naru 'Mr. Yamada writes a book'. It contrasts with the

situation where the speaker neutrally expresses John's writing a book (i.e. *John-ga*

hon-o kaku 'John writes a book').

The Subject Honorification is not applied to a lexical compound (21c) but

applied to a phrase (21a). The same rule can be applied to a post-syntactic compound

(21b), which is, thus, taken as a phrase rather than a single word[52].

(21)a. Ueda-sensei-ga   Yooroppa-o go-ryokoo-tyuu-ni,

Ueda-prof-NOM Europe-ACC HON-travel-during-in

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[51] More accurately, an honorific form of verb is made up of an infinitive form (or *renyookei*) of a verb or a Sino-Japanese verbal noun, which is prefixed by *o-* or *go-* and followed by *–ni naru*, which is, in turn, can be analyzed a particle *–ni* and a verb *naru* 'become'. The prefix *o-* is used if the subsequent verb is a native word, while the prefix *go-* is used if it is a Sino-Japanese verbal noun (S-J VN). A *go +* S-J VN sequence is not necessarily followed by *–ni naru* but can be followed by a copula *da* 'be' (e.g. *go-kenkyuu-da* 'to do research').

[52] In (21a, b), a *go +* S-J VN sequence (cf. footnote 8), *go-ryokoo* 'travel', is not followed by even a copula. Rather, it seems to form a S-J VN complex with a TM *–tyuu* 'during', which is followed by a copula. The copula *–ni* in (21a, b) is its adverbial form, which can be replaced by a predicative form *–da*, when it is used in a main clause (cf. *Ueda-sensei-ga Yooroppa(-o) go-ryokoo-tyuu-da.* 'Prof. Ueda is traveling Europe.').

'While Prof. Ueda was traveling Europe'

b. Ueda-sensei-ga [[Yooroppa]: [go-ryokoo]]-tyuu-ni,

c. *Ueda-sensei-ga [Yooroppa-go-ryokoo]-tyuu-ni,

Since Subject Honorification is a syntactic rule, it cannot be applied to (i.e. a predicative part of a lexical compound, *ryokoo* 'travel' in *yooroppa-ryokoo* 'travel around Europe', as in (21c). In contrast, it can be applied to a verbal predicate in a phrase, *ryokoo* in *yooroppa-o ryokoo-tyuu-ni* 'while (someone) travels Europe', as in (21a). The same rule can be applied to a predicative part of a post-syntactic compound, *ryokoo* in [[*yooroppa*]: [*ryokoo*]] 'traveling Europe', as in (21b).

6.3 Post-syntactic Compounding as Case-particle Omission in Mixed Categories

6.3.1 Toward a Mixed Category Analysis

So far, I have reviewed S&K (1988)'s (and Kageyama 1993's) argument for post-syntactic compounds[53]. In this section, I present a motivation for my analysis, providing a critical view about S&K's discussion. S&K's account is unsatisfactory in two respects: 1) non-lexical properties of post-syntactic compounds, and 2) no consideration (or a wrong characterization) about possible environments where post-syntactic compounds appear.

Contrary to S&K's claim that post-syntactic compounds are associated with lexical properties, I argue that they are associated with non-lexical (or phrasal) properties, on the basis of different criteria of wordhood or lexical integrity. With regard to the criteria of lexical integrity (Bresnan and Mchombo 1995), the alleged

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[53] In what follows, we include Kageyama (1993)'s study in the citation of S&K.

post-syntactic compounds behave like phrases or a sequence of two consecutive, full-fledged words, in a consistent way. S&K themselves use the two of the criteria, inbound anaphoric islands and phrasal recursivity, to argue for phrasal properties of post-syntactic compounds. It is claimed that part of a lexical compound cannot participate in an anaphoric process (e.g. *McCarthyism* vs. *himisim*), but part of a post-syntactic compound (i.e. *tyuukosya* 'used car') can, as shown in (18b), repeated below.

(22) Taroo-wa senzitu   [tyuukosya$_i$: hanbai]-no sai-ni,   (=18b)

    Taro-TOP the.other.day   used.car: sell-NO   occasion-on

    sorera$_i$-no itidai-o   kowasite simatta.

    them-GEN one.car-ACC damage   ended.up

    'The other day, on the occasion of selling used cars, Taro ended up damaging

      one of them.'

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Next, it is claimed that part of a lexical compound disallows embedding of syntactic

phrasal modifiers (e.g. *[[_AP_ quite happi]-ness]), but part of a post-syntactic compound

can, as shown in (19b) and (20b, c), repeated below.

(23)a. [[_NP_ [_AP_ utukisii] Yooroppa]: [ryokoo]]-no sai,   (=19b)

      beautiful Europe-ACC   travel-NO occasion,

      'on the occasion of traveling beautiful Europe'

  b. [[_NP_ [_IP_ Ima yatteiru] zikken]: syuuryoo]-go-ni, …   (=20b)

      now doing experiment:finish-after-in,

      'After the present experiment is over,…'

  c. ….[[_NP_ [_NP_ Simizu-si no] hatugen]: syuuryoo]-go, … (=20c)

      … Shimizu-Mr.-GEN argument:finish-after,…

      'After Mr. Shimizu's argument was finished, …'

In addition to inbound anaphoric islands and phrasal recursivity, I can use other

criteria such as gapping and conjoinability to test phrasal properties of post-syntactic

compounds. As for gapping, it is claimed that part of a lexical compound cannot

undergo a syntactic process such as gapping, but part of a post-syntactic compound (i.e.

taizai 'stay') can, though Kageyama (1993)'s judgment of the datum involving gapping

is unacceptable, as shown in (9), repeated below.

(24) Syusyoo-wa [Rondon: ~~taizai]-tyuu-ni~~,   zoosyoo-wa   [Pari: taizai]-tyuu-ni,

premier-TOP London: stay-during-in,   Finance.minister-TOP Paris: stay-during-in,

sono sirase-o   kiita. (= 9)

that news-ACC heard

'The Prime Minister heard the news during his stay in London, and the Finance

Minister did so.'

In (24), part of an alleged post-syntactic compound, *taizai* 'stay' in [*Rondon*: *taizai*]

'staying in London', is elided, so that the alleged compound cannot maintain its

alleged lexical status.

Likewise, it is claimed that part of a lexical compound disallows a syntactic

process like conjoining (or coordintation), but part of a post-syntactic compound (i.e.

kenkyuu 'research') allows it.

(25) John-ga   [ainugo: kenkyuu-to tyoosa]-no   sai-ni,

John-NOM Ainu: research-CONJ survey-NO occasion-on

'On the occasion of John's research and survey on Ainu'

In (25), part of an alleged post-syntactic compound, *kenkyuu* 'research' in [*ainugo*:

kenkyuu] 'research on Ainu', can be conjoined with another argument-taking noun,

tyoosa 'survey'.

As above, the results of application of the criteria of lexical integrity as well as the

fact on phrasal accentuation (cf. 6.2.2.1) suggest that the alleged post-syntactic

compounds are not words but phrases (or a sequence of two words).

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Moreover, I can argue against two apparent lexical properties, exclusion of particles and lexical idiosyncrasies, discussed by S&K. The following is my counterargument against the exclusion of particles (cf. 6.2.1.1). Contrary to S&K's claim, I do not regard the absence of particles in lexical compounds as 'omission', since a particle cannot be attached to a noun before a lexical compounding is done. For instance, a N-V compound, *yume-miru* 'to dream', in (6b), is formed by direct concatenation of a noun and a verb in the lexicon without attachment of a particle. Evidence for direct concatenation is the compound accent such as *yume-mi'ru*, which cannot be assigned after a phrasal accent that is assigned to a phrase like *yume'-o mi'ru* 'have a dream'. Furthermore, the so-called *rendaku*, sequential voicing, which is commonly assumed to happen within a (complex) word but not within a phrase (Kubozono 1994, among others), can be seen in a N-V compound, *tabi-datu* 'to set out on a journey'. Compare the voiced [d] in the compound with the non-voiced [t] in a phrase like *tabi-ni tatu* 'to set out on a journey'. Therefore, there should be no particle to be omitted within a lexical compound.

In contrast, I can regard the absence of particle in the alleged post-syntactic compounds as '(legitimate) omission'. S&K assume that a post-syntactic compound is formed by a particle deletion, which happens after the particle is syntactically realized in a phrase and phrasal phonology assigns a phrasal accent to the phrase. The particle deletion can be taken as 'omission', since there should be a particle to be omitted. Thus, S&K's assumption that legitimate particle omission is equally involved in lexical compounds and post-syntactic compounds is incorrect, so that I can conclude that S&K's argument for exclusion of particles based on the assumption is invalid.

I also have a counterargument against lexical idiosyncrasies of post-syntactic compounds (cf. 5.2.2.1.1.5). S&K's argument is based on the assumption that lexically governed word formation (e.g. lexical compounding) is constrained by word-internal harmony of lexical strata. It is assumed that post-syntactic compounds undergo a constraint such that native words cannot be combined with non-native words (i.e. Sino-Japanese words or Western loanwords). Recall the example (16b), which involves a native noun, *hon* 'book' corresponding to a Sino-Japanese noun, *syoseki*, (cf. 16a)

and a Sino-Japanese host noun, *koonyuu* 'purchase'.

(16)a. [syoseki: koonyuu]-no sai

    book: purchase-NO   occasion

    'on the occasion of purchasing books'

  b. [hon: koonyuu]-no   sai (→ unacceptable in S&K's judgment)

    book: purchase-NO occasion

However, as Ohara (2000) argues, the same constraint can be seen in the following examples involving case-particle omission in casual speech. (26a) contains a Sino-Japanese noun, *syoseki* 'book', and a native verb, *katta* 'bought', while (26b) involves the same native verb and a native noun, *hon* 'book'.

(26)a. *syoseki_ katta?

    Book   bought

'Did you buy a book?'

b. hon_ katta?

The lexical strata harmony constraint does not seem to be relevant even to the alleged post-syntactic compounds. My judgment is that (16b) is acceptable. Moreover, part of a post-syntactic compound can have an anaphoric form, a native word.

(27) John-wa yatto sono syoseki$_i$-o mituketa. Sikasi, [sore$_i$: koonyuu]-no sai-ni,

John-TOP finally that book-ACC found but it: purchase-NO occasion-on

kare-wa saihu-o mottei-nai koto-o omoidasita.

He-TOP wallet-ACC have-not NML-ACC remembered

'John finally found the book. But, he remembered that he did not have a

wallet with him on the occasion of purchasing it.'

In (27), a part of a post-syntactic compound, *syoseki* 'book', can be replaced by a

pronoun, *sore* 'it', which is a native word and is co-indexed with the antecedent

syoseki, even if the host argument-taking noun is a Sino-Japanese noun, *koonyuu*

'purchase'. Since the pronoun replacement is highly productive, a native pronoun word

replaced by a bare argument noun must always form an alleged post-syntactic

compound with a Sino-Japanese argument-taking noun.

Next, let us move on to the second point that S&K cannot explain satisfactorily.

S&K do not consider possible environments where the alleged post-syntactic

compounds appear. To identify conditions on post-syntactic compounding and to

explain what principles govern the conditions, Kageyama (1993) lists possible

environments for post-syntactic compounds and their kin. He provides a thorough list

of relevant constructions or expressions, but it lacks an important point of view. The

constructions relevant to post-syntactic compounds seem to be, to a large extent,

associated with **mixed categories**, constructions in which a single word heads both a

nominal and verbal projection (Bresnan 1997, Malouf 2000). They are, in fact, headed

by a single predicate (V) and its arguments are associated with both verbal and

nominal case (vc, nc), which are assigned in both verbal and nominal projection, respectively, in Japanese, as shown below.

(28)

```
                    S
              ╱     |     ╲
          NP-vc   NP-nc     V
```
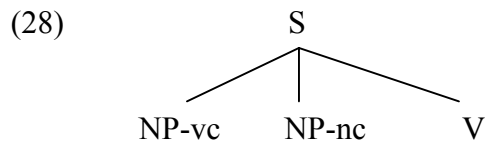
For instance, post-syntactic compounds that I have seen in this section, as in (3), correspond to the Temporal Morpheme Constructions (TMCs) as in (1) and (2). Kageyama's list includes the Nominalized Adjective Construction (29a), but do not accommodate all of their case marking patterns. It does not include Purpose Expressions (29b). I will discuss these mixed categories in Chapter 7.

(29)a. Nominalized Adjective Constructions (Morimoto 1996)

John-ga   [Mary-to   sono   eega(-o/no)   mi-ta-sa-ni],

John-NOM Mary-with   the   movie(-ACC/GEN)   watch-want.to-NML-for

(gakkoo-o sabot-te simatta.)

school-ACC cut-TE finished

'(John cut school) for he wanted to watch the movie with Mary.'

b. Purpose Expressions (Miyagawa 1987, Matsumoto 1996)

John-ga   [Hokudai-de ainugo(-o/no)   kenkyuu-ni]   Nihon-ni kita.

John-NOM H.Univ-at Ainu(-ACC/GEN) research-PURP Japan-to came

'John came to Japan to study Ainu at Hokkaido University'

In addition to TMCs, these mixed categories allow particle omission without any constraint.

Kageyama's list also contains the following expressions as other possible environments for post-syntactic compounds, though he ignores the fact that they can be associated with both verbal and nominal case.

(30)a. Argument-taking adjectival nouns

[Nihongo(-ni/-no)   koyuu]-no   tokutyoo

Japanese-DAT/-GEN unique-GEN characteristics

'characteristics unique to Japanese'

b. Phrasal affixes

[biiru(-o/-no)   nomi-hoodai]

beer(-ACC/-GEN) drinking-with.no.restriction

'drinking beer as much as you like'

c. Miscellaneous nominal expressions

[Syookaku(-ga/-no)   naki-ato]-no   rakugokai

Shokaku(-NOM/-GEN) passed.away-after-GEN comic.storytelling.world

'the society of Japanese comic-storytelling that was sustained after Shokaku

passed away'

The reason why the alleged post-syntactic compounds appear in these particular

environments should be explained on the basis of the general property shared with the

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environments. I will explain the reason on the basis of structural factors associated

with mixed categories in the next subsection.

6.3.2 My Proposals

In the last sub-section, I suggested a regular correspondence between apparent

post-syntactic compounding and mixed categories. Then, the question is what the exact

source of the correspondence is. Here, I assume that the correspondence is triggered by

a structural factor. In particular, my hypothesis is that legitimate particle omission can

take place due to the **adjacency** condition of the extended head in mixed categories (cf.

(2.42b)). That is, my account of particle omission in mixed categories is based on

application of the extended head theory (Bresnan 1997) to mixed categories in

Japanese, conditions on legitimate particle omission, and conditions on mixed

categories.

First, let us summarize the extended head theory for mixed categories. To reflect

the intuition that mixed categories are constructions in which a single word apparently

heads both verbal and nominal projections, Bresnan (1997) proposes a modified

version of the Extended Head Theory, as follows (cf. Morimoto 1996).

(31) **Extended Head Theory** (modified)

  a. A functional category F0 and its sister correspond to the same f-structure.

  b. A <u>lexical</u> category <u>L0</u> and its adjacent sister correspond to the same
      f-structure.

  c.   Every lexical category has a(n extended) head.

      (X is an extended head of Y if X corresponds to the same f-structure as Y, X is

      of the same/nondistinct category type as Y, <u>or X is a morphological</u>

      <u>derivative of a category identical/nondistinct from the phrase Y</u>, and every

      node other than Y that dominates X also dominates Y.)

By (31b), a lexical category X^0 and its sister YP correspond to the same f-structure.

That is, both X^0 and YP are annotated by ↑=↓ at c-structure. By (31c), X^0 is an extended head of Y^0, the head of YP, under the conditions. Here, since X^0 is the head of YP as well as the head of XP, Y^0 is redundant and unnecessary. The redundant/ unnecessary node Y^0 is allowed to be optional by the principle of the Economy of Expression.

(32) Economy of Expression (Bresnan 2001: 91): All syntactic phrase structure nodes

   are optional and are not used unless required by independent principles

   (completeness, coherence, and semantic expressivity).

Here, based on my investigation of mixed categories in Chapter 2, I assume that mixed categories in Japanese are generally verbal projections headed by single verbal heads, which are morphological derivatives of nouns. Accordingly, a schematic c-structure and its corresponding f-structure can be represented as follows.

(33)a. c-structure

$$\text{VP}_{f1}$$

↑=↓

NP   V'$_{f2}$

↑=↓   ↑=↓

NP$_{f4}$ V^0$_{f3}$

N - af

John-ga   Ainugo-no   kenkyuu-tyuu

John-NOM   Ainu-GEN   research-during
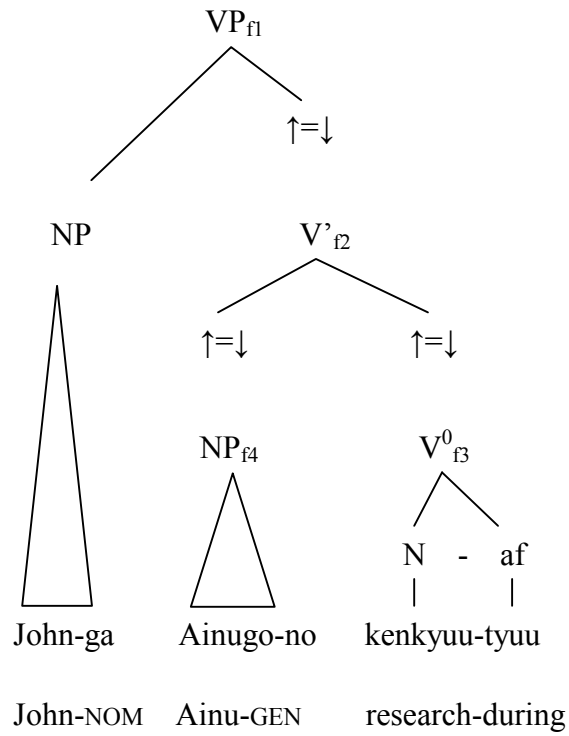
'during John's research on Ainu'

b. f-structure

$$f1,f2,f,3,f4: \begin{bmatrix} \text{PRED ['DURING<RESEARCH<SUBJ,OBJ>']} \\ \text{SUBJ} \dots. \\ \text{OBJ \quad ['AINU']} \end{bmatrix}$$
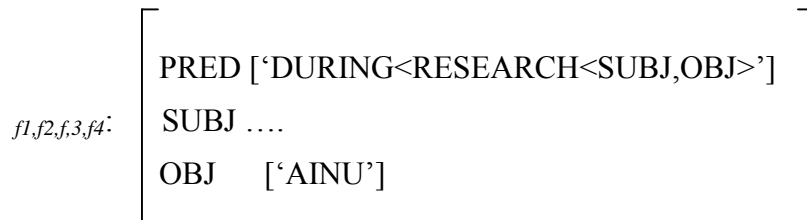
The c-structure and the f-structure in (33) are allowed by the extended head theory (31).

By (31b), a lexical category V_0, *kenkyuu-tyuu* 'during research', and its sister NP,

ainugo-no 'of Ainu language', in a c-structure (33a) correspond to the same f-structure

(33b). By (31c), the lexical category V_0 is an extended head of the sister NP; the V_0 is

a morphological derivative of a category non-distinct from the NP (i.e. the V_0 is

derived from an argument-taking noun, *kenkyuu* 'research'); and every node other than

NP that dominates V_0 also dominates NP (i.e. VP and V' dominate both NP and V_0).

Among the syntactic structures as above, the syntactic unit V' in (33a) is particularly

important to my discussion. I will refer to it as **extended phrase** for convenience.

Next, let us propose legitimate particle omission in mixed categories. In general,

the conditions on particle omission can be summarized as follows.

(34) Particles can be omitted legitimately if and only if they do not have to mark

    a.   a semantic case,

    b.   a nominal case, and

c.   a specific grammatical function of host NP.

In other words, the first condition (34a) means that particles that mark semantic case

(e.g. direction –*e*, source *-kara*, limit *-made*, comitative *-to*, location (of existence) *-ni*,

location (of action) –*de*, etc.) cannot be omitted.

(35)a. John-ga gakkoo-*(kara) eki-*(made) hasitta.

John-NOM school-from station-to ran

'John ran from school to station.'

  b. John-ga Mary-*(to) kekkon-sita.

John-NOM Mary-with marriage-did

'John married Mary.'

Thus, case-particle omission happens only to a structural case.

The second condition (34b) suggests that case-particles cannot be omitted if they

serve to indicate that their host NPs appear in nominal projections (cf. Kageyama and Shibatani 1989). That is, case-particles that mark a structural verbal case (i.e. case-particles that indicate their host NPs appear in verbal projections; e.g. nominative, accusative) can be omitted (in informal expressions), while case-particles that mark a structural nominal case (i.e. case-particles that indicate their host NPs appear in nominal projections; e.g. genitive) cannot.

(36)a. John-(ga) ainugo-(o) kenkyuu-sita-no?

　　　John-NOM Ainu-ACC research-did-NML

　　　'Did John study Ainu?'

　　b. [NP John-*(no) ainugo-*(no) kenkyuu]-no kekka-ga deta

　　　John-GEN Ainu-GEN research-GEN result-NOM came.out

　　　'The result of John's research on Ainu was obtained.'

The last condition (34c) pertains to the crucial function of structural verbal case

particles. Following the basic idea of the Constructive Case Theory (Nordlinger 1997),

I assume that the crucial function of structural verbal case particles is to carry

information on grammatical functions (GFs). For example, a nominative case-particle

–*ga* carries information such that the host NP serves as a subject (or an object of a

stative predicate); an accusative –*o* carries information such that the host NP serves as

an object (or an oblique argument which expresses a path of motion), etc. Thus, normal

sentences which involve structural verbal case-particles do not allow case-particle

omission in principle.

The fact that exceptional case-particle omission is allowed in casual speech can be

explained, if I assume that a speaker and a hearer tend to share non-linguistic

information on events and event-participants associated with linguistic expressions in

causal speech. It is reasonable to think that a match between linguistic information (i.e.

subcategorization frames of predicates) and non-linguistic information on events and

event-participants allows argument NPs to retrieve proper GF information, without the

aid of case-particles. Nevertheless, the non-linguistic information on events and

event-participants is less reliable than the linguistic GF information brought about by case-particles, so that case-particle omissions that are dependent on the non-linguistic information are exceptional, at best.

A genitive case-particle *no* that appears in the extended phrase (33a) satisfies all conditions in (34), so that it can be omitted legitimately. First, it satisfies (34a), since it does not mark a semantic case but a structural case. Secondly, it satisfies (34b), since it appears under a verbal projection, which is supposed to be marked with a verbal case. Finally, it satisfies (34c), since it does not serve to distinguish a specific GF such as subject or object morphologically. That is, the particle *no* can be used to mark both the subject and the object.

The following constraints on MC-marked TMCs are relevant to my account for lexical/compound-like properties of post-syntactic compounds.

(37) Constraints on MC-marked TMCs

    a.   No intervening modifier in extended phrases: both verb-modifiers and

noun-modifiers cannot intervene an extended head and its sister.

b. No transitive subject in extended phrases: Transitive subject NPs cannot

appear in extended phrases.

As I have already seen in Chapter 2.7, MC-marked TMCs show a constraint on the

position for syntactic modifiers, as in (37a). For example, an adjective, *kibisii* 'severe',

and an adverb, *kibisiku* 'severely', cannot occur within an extended phrase, as in (38a,

b). In contrast, the adverb is allowed to occur outside of the extended phrase, as in

(38c).

(38) a. *John-ga   [sono ronbun-no   <u>kibisii</u>   hihan-go(-ni)], <MC>

          John-NOM   the paper-GEN   severe   criticism-after(-at),

          'after John's severe criticism of the paper'

    b. *John-ga   [sono ronbun-no   *kibisiku*   Hihan-go(-ni)],   <MC>

          John-NOM   the paper-GEN   severely   criticism-after(-at),

c.   John-ga   <u>kibisiku</u>   [sono ronbun-no   hihan-go(-ni)],   <MC>

John-NOM   severely   the paper-GEN   criticism after(-at),

'after John criticized the paper severely'

As for the constraint (37b), I have already seen a related property of MC-marked TMCs in Chapter 3 such that their subject must be marked with a verbal case such as nominative. Such a property is illustrated by the subject *John* in (39a) and (39b). The constraint (37b) captures a more general property of MC-marked TMCs. As shown in (39c), MC-marked TMCs do not allow their nominative-marked subject to occur within an extended phrase.

(39)a. John-ga [ainugo-no kenkyuu-tyuu],

John-NOM Ainu-GEN research-mid

'while John is studying Ainu'

b. *Ainugo-o [John-no kenkyuu-tyuu],

  Ainu-ACC John-GEN research-mid

c. *Ainugo-no [John-ga kenkyuu-tyuu],

  Ainu-GEN John-NOM research-mid

I assume that these two constraints on mixed categories in Japanese are consequences of the **adjacency condition on extended heads**. Recall the definition of extended head in (31b), "a lexical category L0 and its adjacent sister correspond to the same f-structure". The adjacency condition requires no intervening element within an extended phrase and gives rise to the constraints (37a, b). Also, the adjacency condition explains the apparent lexical properties of the extended phrase, since it requires a c-structure fragment tighter than a normal phrasal unit.

6.3.3 My Account for Compound-like Properties of Post-syntactic Compounds

Now, I am ready to account for the apparent lexical properties of the alleged post-syntactic compounds, on the basis of my mixed category hypothesis. Since I have already argued against two of the lexical properties, exclusion of particles and lexical idiosyncrasies, I will focus on morphological integrity (and its kin, exclusion of phrases from heads), Binary Branching, and the First Sister Principle, in this subsection.

6.3.3.1 Re: Morphological Integrity

Apparent morphological integrity associated with the alleged post-syntactic compounds can be explained by the constraint (37a), no intervening modifier in extended phrases. Recall the relevant data, repeated below.

(40) *[Yooroppa: <u>nonbiri</u>: ryokoo]-tyuu-ni   (= 7b)

      Europe: leisurely: travel-during-in

      'in the middle of traveling Europe leisurely'

(41)a. *[Hokkaido: [$_{VP}$ nonbirito ryokoo]]-tyuu-ni, (=11a)

      Hokkaido: leisurely travel-during-at

      'while (someone) travels to Hokkaido leisurely,'

  b. *[kinenhin: [$_{VP}$ nyuusyoosya-ni zootei]]-no sai-ni (= 11b)

      souvenirs: prizewinner-to present-NO occasion-on

      'on the occasion of presenting souvenirs to prizewinners'

      N.B. Brackets represent apparent post-syntactic compounds.

These examples contain intervening adverbial elements or VC-marked NPs (i.e.

nonbiri(to) 'leisurely', *nyuusyoosya-ni* 'prizewinner-to') between argument-taking

nouns and bare argument nouns. The unacceptability of these examples can be

explained by the following analyses of case-particle omission in the corresponding

MC-marked TMCs.

(42)a. *(John-ga) [v' Yooroppa(-no) <u>nonbiri</u> ryokoo-tyuu-ni] (cf. 7b)

(John-NOM) Europe(-GEN) leisurely travel-mid-in

'in the middle of (John's) traveling Europe leisurely'

b. *(John-ga) [v' Hokkaido(-no) <u>nonbirito</u> ryokoo-tyuu-ni] (cf. 11a)

(John-NOM) Hokkaido(-GEN) leisurely travel-mid-in

'while (John) travels to Hokkaido leisurely,'

c. *(John-ga) [v' kinenhin(-no) <u>nyuusyoosya-ni</u> zootei-no-sai-ni] (cf. 11b)

(John-NOM) souvenirs(-GEN) prizewinner-to present-NO-occasion-on

'on the occasion of (John's) presenting souvenirs to prizewinners'

N.B. Brackets with V' represent extended phrases.

As in (42), the corresponding MC-marked TMCs form extended phrases in which

syntactic modifiers occur. The occurrence of syntactic modifiers in extended phrases is

prohibited by the constraint (37a). Thus, the examples in (42) are not acceptable. The

syntactic modifiers can be licensed outside of the extended phrases, as follows.

(43)a. (John-ga)   <u>Nonbiri</u>   [_{V'} Yooroppa(-no)   ryokoo-tyuu-ni]   (cf. 42a)

     (John-NOM)   leisurely   Europe(-GEN)   travel-mid-in

     'in the middle of (John's) traveling Europe leisurely'

  b. (John-ga)   <u>Nonbirito</u>   [_{V'} Hokkaido(-no)   ryokoo-tyuu-ni] (cf. 42b)

     (John-NOM)   leisurely   Hokkaido(-GEN) travel-mid-in

      'while (John) travels to Hokkaido leisurely,'

  c. (John-ga)   <u>Nyuusyoosya-ni</u>   [_{V'} kinenhin(-no)   zootei-no-sai-ni] (cf. 42c)

     (John-NOM)   prizewinner-to   souvenirs(-GEN)   present-NO-occasion-on

     'on the occasion of (John's) presenting souvenirs to prizewinners'

    As for an example involving gapping, repeated below, its acceptability cannot be

explained if the elided part is a part of a compound.

(44) Syusyoo-wa [Rondon: ~~taizai] tyuu-ni~~, zoosyoo-wa [Pari: taizai]-tyuu-ni,

premier-TOP London: stay-during-in, Finance.minister-TOP Paris: stay-during-in,

sono sirase-o kiita. (= 9)

that news-ACC heard

'The Prime Minister heard the news during his stay in London, and the Finance

Minister did so.'

In contrast, the acceptability of (44) can be explained if the elided part is a part of

extended phrase, as follows.

(45) Syusyoo-wa [$_{V'}$ Rondon(-de-no) ~~taizai-tyuu-ni~~],

premier-TOP London(-at-GEN) stay-mid-in,

zoosyoo-wa Pari(-de-no) taizai-tyuu-ni,

Finance.minister-TOP Paris(-at-GEN) stay-mid-in,

sono sirase-o   kiita. [54]

that news-ACC heard

6.3.3.2 Re: Binary Branching Constraint

The following examples are used by S&K to argue that post-syntactic compounds

obey the Binary Branching Constraint like lexical compounds.

(46)a. Sooseki-ga [syeikusupia: kenkyuu]-tyuu-ni, … (13b)

Soseki-NOM Shakespeare: research-mid-in

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[54] We regard the case particle –de-no in (45) as marking a structural case rather than a semantic case.
The same morpheme is used to mark a semantic case such as locative or instrumental in a nominal
projection. It corresponds to a particle –de in the verbal counterpart.

(i)a. Hokkaidoo-de-no kenkyuu
      Hokkaido-LOC-GEN research   'research in Hokkaido'
   b. Hokkaido-de kenkyuu-suru
      Hokkaido-LOC research-do   '(to) do research in Hokkaido'

Unlike the semantic case-particle, –de-no in (45) corresponds to a particle used to mark a structural case
such as dative in the verbal counterpart.

(ii)a. Syusyoo-wa rondon-<u>ni</u> taizai-tyuu-ni, …
       Premier-TOP London-DAT stay-mid-in   'In the middle of his stay in London, the Prime
                                              Minister…'

'during Soseki studies Shakespeare'

b. *[Sooseki: syeikusupia: kenkyuu]-tyuu-ni, … (13c)

Soseki: Shakespeare: research-mid-in

Apparently, the unacceptability can be attributed to incorporation of the subject, *Sooseki* 'Soseki (Natsume)', in addition to the object, *syeikusupia* '(William) Shakespeare'. The incorporation of both subject and object leads to ternary branching.

In my analysis, the unacceptability of (46b) can be explained by the constraint (37b), no transitive subject in extended phrases, and the assumption that legitimate case-particle omission is licensed in extended phrases. I can analyze the same examples in (46) as follows.

(47)a. Sooseki-ga   [$_{V'}$ syeikusupia(-no)   kenkyuu-tyuu-ni], … (13b)

Soseki-NOM Shakespeare(-GEN) research-mid-in

'during Soseki studies Shakespeare'

b. Sooseki#(-ga) [$_{V'}$ syeikusupia(-no)   kenkyuu-tyuu-ni], … (13c)

Soseki(-NOM) Shakespeare(-GEN) research-mid-in

N.B. exceptional case-particle omission is represented as #(*particle*).

In (47a), a case-particle can be legitimately omitted in the extended phrase, as it satisfies all conditions in (34). However, in (47b), a case-particle for the subject *Sooseki* cannot be omitted legitimately, since it occurs outside of the extended phrase. The subject cannot occur within the extended phrase, due to the constraint (37b).

6.3.3.3 Re: First Sister Principle

The following examples are used by S&K to argue that post-syntactic compounds obey the First Sister Principle like lexical compounds.

(48)a. Sooseki-ga [syeikusupia: kenkyuu]-tyuu-ni, … (= 15b)

Soseki-NOM Shakespeare: research-during-in

'While Soseki was studying Shakespeare'

b. *Syeikusupia-o [Sooseki: kenkyuu]-tyuu-ni, … (= 15c)

Shakespeare-ACC Soseki: research-during-in

As noted in the previous section, the unacceptability of (48b) can apparently be attributed to incorporation of the subject, *Sooseki* 'Soseki (Natsume)' rather than the object, *syeikusupia* '(William) Shakespeare'. S&K claim that the incorporation of the subject into a post-syntactic compound violates the First Sister Principle, since the subject is not the first sister of the argument-taking noun, *kenkyuu* 'research'.

In my analysis, the unacceptability of (48b) can be explained by the constraint (37b), no transitive subject in extended phrases. I can analyze the same examples in (48) as follows.

(49)a. Sooseki-ga　[syeikusupia(-no) kenkyuu-tyuu-ni], … (cf. 15b)

Soseki-NOM Shakespeare(-GEN) research-mid-in

'While Soseki was studying Shakespeare'

b. *Syeikusupia-o　[Sooseki(-no) kenkyuu-tyuu]-ni, …(cf. 15c)

Shakespeare-ACC Soseki(-GEN) research-mid-in

In (49a), a case-particle can be legitimately omitted in the extended phrase, as it satisfies all conditions in (34). However, in (47b), a case-particle for the subject *Sooseki* cannot be omitted legitimately, since the subject is *Shakespeare* prohibited from occurring within an extended phrase by (47b).

6.4　Against　Alternative　Accounts　for　Post-syntactic Compounds

In this section, reviewing two major responses to S&K's post-syntactic compound

hypothesis (Ohara 2000 and Spencer 1991), I argue that these alternative hypotheses are invalid.

6.4.1 Ohara (2000): A Unified Account of Case Particle Omission

In the first response to S&K's hypothesis, Ohara (2000) proposed an alternative referred to here as a unified case-particle omission hypothesis. She argues that apparent lexical properties of post-syntactic compounds can be explained by general constraints on case-particle omission alone. She proposes the following general constraints on case-particle omission.

(50)a. Adjacency: case-particle omission of direct internal arguments is possible only if

they are adjacent to predicates.

b. Left-periphery: case-particle omission of topicalized arguments is possible only

if they appear at the sentence-initial position.

c. No bare subject: case-particle omission of subject arguments is disallowed.

The constraint (50a), Adjacency, and the constraint (50b), Left-periphery, explain case-particle omission of direct internal arguments. For instance, according to her, goal arguments, a type of direct internal arguments, can omit their case particles if they are <u>adjacent</u> to predicates.

(51)a. Hanako-ga   kinoo   London(-ni/e) itta-n   da-tte.

　　Hanako-NOM yesterday London(-to/to) went-NML COP-COMP

　　'I heard that Hanako went to London yesterday.'

b. Hanako-ga   London_ kinoo   itta-n   da-tte.

　　Hanako-NOM London_ yesterday went-NML COP-COMP

　　(→ unacceptable in O's judgment)

In (51a), the goal argument, *London* 'London', is adjacent to the predicate, *itta* 'went', so that the particle *ni* (or *e*) can be omitted. However, in (51b), the goal argument is not adjacent to the predicate due to an intervening adverb, *kinoo* 'yesterday', so that the particle *ni* (or *e*) cannot be omitted, according to her judgment.

As for case-particle omission from object arguments, another type of direct internal arguments, Ohara does not provide evidence that the arguments cannot do without case particles unless they are adjacent to predicates. Instead, showing the following examples, she claims that they do not involve case-particle omission from object arguments but the bare argument NPs are topicalized. Since the topicalized arguments appear at the sentence initial position, they obey the Left-periphery constraint (50b).

(52)a. Kono hon_ moo yonda?

This book already read

'Have you read this book already?'

b. Ano kuruma_ Taroo-ga katta-n da-tte.

That car Taro-nom bought-nml cop-comp

'I heard that Taro bought that car.'

In (52a, b), the topicalized bare NPs, *kono hon* 'this book' and *ano kuruma* 'that car',

occupy a left-peripheral position.

The constraint (50c), No bare subject, captures Ohara's judgment of the following

examples.

(53)a. Taroo_ kuruma-o katta-n   dat-te. (→ sounds odd (??) in O's judgment)

Taro_ car-ACC   bought-NML COP-COMP

'I heard that Taro bought a car.'

b. Kuruma-o Taroo_ katta-n   dat-te. (→ unacceptable in O's judgment)

car-ACC   Taro_   bought-NML COP-COMP

In (53a, b), the bare subject, *Taroo* 'Taro', is not allowed regardless of where it

appears.

The constraint (50c) is also consistent with Saito (1985)'s observation in which

wh-words corresponding to the subject arguments (e.g. *dare-ga* 'who-Nom') cannot

drop their case-particles in contrast to *wh*-words corresponding to the object arguments

(e.g. *nani-o* 'what-Acc'), which can drop their case-particles under the constraint

(50b).

(54)a. Dare_ hasitta-no?   (→ unacceptable in S/O's judgment)

　　　who　ran-Q

　　　 'Who ran?'

　b. Nani_ yonda-no?

　　　what　read-Q

　　　 'What did (you) read?'

According to Saito/Ohara, the *wh*-words, *dare* and *nani*, in (54a, b) are not taken as topic NPs because indefinite NPs disallow attachment of the topic marker *wa* (i.e. **Dare-wa hasitta-no*? **Nani-wa yonda-no*?). Thus, Saito and Ohara both conclude that a subject argument does not allow case-particle omission, unlike an object argument.

Ohara argues that the data collected by S&K, which are used to support apparent lexical properties of post-syntactic compounds (cf. 5.2.2), can be explained on the basis of the three constraints in (50). For instance, the example (7b), which is used to illustrate morphological integrity, is explained by violation of the Adjacency constraint (50a). That is, a syntactic element, *nonbiri* 'leisurely', prevents a direct internal argument, *Yooroppa* 'Europe', and a predicative element, *ryokoo* 'travel', from being adjacent.

(7)b. *[Yooroppa: <u>nonbiri</u>: ryokoo]-tyuu-ni

      Europe: leisurely: travel-during-in

      'During traveling Europe leisurely'

Likewise, the Adjacency explains unacceptability of an example involving gapping (9) and of examples involving exclusion of phrases from heads (11a, b), since these examples also involve syntactic intervention between a direct internal argument and an argument-taking noun[55].

Let us review the example (8), which is used to illustrate that instances of exceptional case-particle omission (i.e. newspaper headlines) that allow syntactic intervention between bare argument NPs and argument-taking nouns, Ohara takes it as an instance of case-particle omission from a topicalized NP rather than a direct internal argument (i.e. *syusyoo* 'premier' is a topic rather than the subject of an unaccusative predicate, *kikoku* 'return home'), so that (8) obeys the Left-periphery constraint (50b).

(8) Syusyoo_   asu   kikoku.

    Premier tomorrow return.home

    'Prime Minister to return home tomorrow'

---

[55] Ohara's judgment of (9) is unacceptable like Kageyama (1993)'s.

Turning to the example (13c), which is used to illustrate the Binary Branching Condition, Ohara claims that the sentence-initial argument, *Sooseki*, cannot be taken as a topic or as a direct internal argument but should be regarded as a subject, which disallows particle omission. Thus, (13c) is claimed to violate the No bare subject constraint (50c).

(13)c. *[Sooseki: syeikusupia: kenkyuu]-tyuu-ni, …

     Soseki: Shakespeare: research-during-in

     'While Soseki was studying Shakespeare,'

6.4.2 Against Ohara (2000)

With respect to Ohara's unified case-particle omission hypothesis, I have a general objection and particular objections. A general objection is that her theory identifies legitimate case-particle omission in MC-marked TMCs with exceptional

case-particle omission in casual speech (cf. 5a). As I have discussed, the legitimate

case-particle omission, which is involved in MC-marked TMCs does not seem to cause

a change in style. For example, compare (3a) with (1b).

(1)b.   John-ga   ainugo-no   kenkyuu-tyuu/-go, …   [MC]

         John-NOM   Ainu-GEN   research-mid/-after

         'during/after John's research of Ainu'

(3)a.   John-ga   [ainugo: kenkyuu]-tyuu/-go, …

          John-NOM   Ainu: research-mid/-after

The expression in (3a) is interchangeable with the one in (1b) wherever the latter is

used. The only difference is whether there is a particle between *ainugo* and *kenkyuu*.

This type of case-particle omission can be taken as legitimate. In contrast, as S&K

claim, normal sentences, which can be used formally, cannot omit case-particles

without changing their style into an informal one. Or, conversely, expressions

involving case-particle omission, which can be used informally, cannot be used as a formal expression. For example, case-particles should not be omitted from (55a) in a formal style, whereas each expression in (55b-d) should not be used in a formal style without recovering case particles.

(55)a. John-ga   ainugo-o   kenkyuu-sita.

   John-NOM   Ainu-ACC   research-mid/-after

   'during/after John's research of Ainu'

   b. John-ga   ainugo_   kenkyuu-sita.

   c. John_   ainugo-o   kenkyuu-sita.

   d. John_   ainugo_   kenkyuu-sita.

Unlike legitimate case-particle omission, the one in (55b-d) is taken as exceptional in that it is not allowed without a change in style. Ohara's unified account for case-particle omission misses this important distinction.

My particular objections to Ohara's analysis pertain to individual constraints on case-particle omission (50). First, I do not assume the Adjacency condition (50a), based on my observation of the datum (51b), which is undoubtedly acceptable as an instance of exceptional case-particle omission.

(56) Hanako-ga   London#(-ni/e) kinoo   itta-n   da-tte.   (cf. 51b)

    Hanako-NOM London(-to/to) yesterday went-NML COP-COMP

    'I heard that Hanako went to London yesterday.'

The acceptability of (56) suggests that a type of direct internal argument can dispense with a case particle even if it is not adjacent to a predicate. As for the examples in (52) that appear to involve case-particle omission from object arguments, Ohara claims that they are, in fact, examples involving topicalized bare NPs.

(52)a. Kono hon_ moo yonda?

This book_ already read

'Have you read this book already?'

b. Ano kuruma_ Taroo-ga katta-n da-tte.

That car Taro-nom bought-nml cop-comp

'I heard that Taro bought that car.'

In other words, Ohara takes elided particles in (52a, b) as topic *wa* rather than accusative *o*.

However, this account is not available when I deal with an acceptability of a bare object argument NP, which is not adjacent to a predicative element and occurs in a non-topic position (i.e. an object position). In (57), the bare object NPs, *kono hon* 'this book' and *ano kuruma* 'that car', cannot be taken as topic NPs, since they can be followed by a contrast particle *wa* rather than a topic particle *wa*, as in (58).

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(57)a. Kimi-ga kono hon_ itiniti-de yonda-no?

      you-NOM this book_ one.day-in read-NML

      'Did you read this book in one day?'

  b. Taroo-ga ano kuruma_ kinoo katta-n da-tte.

      Taro-NOM that car yesterday bought-NML COP-COMP

      'I heard that Taro bought that car.'

(58)a. Kimi-ga kono hon-<u>wa</u> itiniti-de yonda-no?   [*wa*: contrast]

      you-NOM this book-CONT one.day-in read-NML

      'Did you read this book (but not another book) in one day?'

  b. Taroo-ga ano kuruma-<u>wa</u> kinoo katta-n da-tte.   [*wa*: contrast]

      Taro-NOM that car-CONT yesterday bought-NML COP-COMP

      'I heard that Taro bought that car (but did not buy another car) yesterday.'

    Next, I do not assume the No Bare Subject condition (50c), based on my

judgment of the data in (53) and (54a), which involve a bare subject NP.

(53)a. Taroo_ kuruma-o katta-n dat-te.

   Taro car-ACC bought-NML COP-COMP

   'I heard that Taro bought a car.'

   b. Kuruma-o Taroo_ katta-n date.

(54)a. Dare_ hasitta-no?

   who   ran-Q

    'Who ran?'

Suggesting that my judgment about (54a) seems to be supported by many native speakers, Mihara (1994) argues that there exist bare subject NPs by showing an environment where the subject NP cannot be marked with the topic *wa*.

(59)a. Kimi, [Taroo-ga/*wa kekkon-sita koto] sitteru?

   You Taro-NOM/*TOP marriage-did NML   know

   'Do you know that Taro got married?'

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b. Kimi, [Taroo_ kekkon-sita koto] sitteru?

You   Taro_   marriage-did NML   know

An embedded subject cannot be marked with a topic *wa*, as in (59a). In the

environment, a case particle for the subject, *ga*, can be omitted as in (59b). This fact

clearly suggests that the No Bare Subject constraint (50c) is not adequate.

My general and particular objections lead to the conclusion that Ohara (2000)'s

unified account for case-particle omission is not tenable. Nevertheless, I can share with

her the view that the alleged post-syntactic compounds cannot share lexical properties

with lexical compounds but can share phrasal properties with corresponding

constructions.

6.4.3 Spencer (1991): A Phonological Word Hypothesis

Another reaction to the post-syntactic compound hypothesis is Spencer (1991)'s

speculation: the alleged post-syntactic compounds are phonological words. He roughly

characterizes the phonological words as potential words, which are freely formed by

general principles, have a compositional interpretation, and cannot be listed in the

lexicon. He only suggests that his rough characterization of phonological words is

compatible with the alleged post-syntactic compounds.

6.4.4 Against Spencer(1991)

Spencer's speculative idea that post-syntactic compounds are phonological words

seems to encourage S&K's modular theory of word formation, especially, the idea of

compounding at a phonological level of grammar. However, I cannot give the status of

phonological word to the output strings of the apparent phonological compounding.

Recall a distinction between words and phrases from a phonological point of view,

which I discussed in Chapter 5. I assume that phonological words are associated with

word accent patterns. If more than one accent is preserved in a phonological string, the

string should be taken as a phonological phrase rather than phonological words. I

discussed the following examples in Chapter 5.

(60)a. (Sattyaa-se'iken)

Thatcher-political.power   'the Thatcher administration'

b. (Sat'tyaa)(syusyoo)

Thatcher premier   'The Prime Minister Thatcher'

A compound, *sattyaa-se'iken* (LHHH-HLLL), is associated with a single set of

phonological word boundaries which is represented by a set of parentheses, as in (60a),

since neither N1 (i.e. *sa'ttyaa*: HLLL) nor N2 (i.e. *seiken*: LHHH) preserves its own

accent pattern, rather both are assigned a single word-accent. In contrast, a compound,

sa'ttyaa syusyoo (HLLL LHH), is associated with two sets of phonological word

boundaries, as in (60b), since both N1 and N2 (i.e. *syusyoo*: LHH) preserve their own

accent patterns.

Concerning the accent patterns associated with the alleged post-syntactic compounds, they pattern with phonological phrases as in (60b).

(61)　(ainugo) (kenkyuu)

　　Ainu.language research　　'research on Ainu'

　　where each member, *ainugo* and *kenkyuu*, preserves its own accent pattern (i.e.

　　both are associated with unaccented patterns).

Here, I encounter a contradiction. Compounding is a word formation process, wherever it happens. However, the alleged phonological compounding serves to form a phrase rather than a word phonologically. The contradiction leads to the conclusion that Spencer (1991)'s account is inadequate.

6.5 Remaining Problems

Lastly, I will consider two remaining problems for future research. One problem

is that the alleged post-syntactic compounds are claimed to be associated with genitive

case-particle omission in NPs headed by argument-taking nouns (Kageyama and

Shibatani 1989, Kageyama 1993). For example, the bracketed N: N sequences in (62)

correspond to the NPs made up of a noun with genitive particle and an

argument-taking noun in (63).

(62)a.　…[sin-kuukoo: kensetsu]-ni hantai-suru

new-airport construction-DAT opposition-suru

'oppose the construction of the new airport'

 b.　[Jukensee: zooka]-ni tomonatte,…

examinee: increase-DAT accompanied.with

'as the number of examinees increases'

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(63)a.   …sin-kuukoo-no kensetsu-ni hantai-suru

new-airport-GEN construction-DAT opposition-suru

'oppose the construction of the new airport'

  b. Jukensee-no zooka-ni tomonatte,…

examinee-GEN increase-DAT accompanied.with

'as the number of examinees increases'

The N:N sequences in (62) can be taken as involving legitimate case-particle omission

from their corresponding NPs, since the former can be associated with the latter

without a change in style. The existence of the N: N sequences in NPs poses a problem

to my mixed category analysis, since they are not mixed categories but just normal

NPs. Genitive particles omitted from the NPs should serve as nominal case, which

indicates that the host NP is under a nominal projection, so that they violate a condition

of legitimate case-particle omission (34b).

    A possible way to avoid the problem is to distinguish genitive case-particle

omissions in NPs from those in mixed categories. In fact, they differ in regularity. The

genitive case-particle omission is less regular than that in mixed categories (cf.

Kageyama and Shibatani 1989). For example, compare possible genitive case-particle

omissions in mixed categories (64a, 65a) with impossible omissions in NPs (64b, 65b).

(64)a. kooen(-no)   sanpo-tyuu

    park(-GEN) walk-during

    'during walking the park'

  b. kooen*(-no) sanpo-wa tanosii

    park(-GEN) walk-TOP be.fun

    'walking the park is fun'

(65)a. suugaku(-no)   benkyoo-tyuu

    math(-GEN) study-during

    'during studying math'

b. suugaku*(-no) benkyoo-wa tanosii

park(-GEN) walk-TOP be.fun

'studying math is fun'

In spite of the difference in regularity, I still have to answer the questions: why genitive case-particles are legitimately omitted from NPs and how to distinguish the case-particle omission in NPs and in mixed categories? I leave the questions for future research.

Another problem is that the alleged post-syntactic compounds are claimed to be associated with verbal case-particle omission. For example, Kageyama (1993) suggests that case-particle omission in the following context can also be taken as involving post-syntactic compounding.

(66) NP₁-*o* NP₂-*ni* construction (cf. Muraki 1991, Teramura 1992)

    a. Kanozyo-wa [zaisan(-o)   meate]-ni,

      She-TOP   property(-ACC) purpose-NI

      sono roozin-to   kekkon-sita.

      that old.man-with marriage-did

      'She got married to the old man for his property.'

   b. bizin-kyoosi-ga   [akudoo(-o)   aite]-ni

      beauty-teacher-NOM naughty.child(-ACC) opponent-NI

      katuyaku-suru   eiga

       play.an.active.part-do movie

      'a movie in which a beautiful teacher is active to educate naughty children as

       her students'

  c. Sensei-wa [siryoo(-o)   katate-ni]   kyoositu-ni   haitta.

    Teacher-TOP material(-ACC) one.hand-NI classroom-in entered

    'The teacher entered a classroom, holding materials in his hand'

This type of case-particle omission also might be distinguishable from the case-particle

omission in mixed categories because of their difference in regularity. That is, the

former is less regular than the latter.

(67)a. John-wa kono zizitu#(-o) tegakari-ni kasetu-o tateta.

  John-TOP this fact-ACC clue-NI hypothesis-ACC built

  'John proposed a hypothesis based on this fact.'

 b. Mary-wa byooki#(-o) riyuu-ni kesseki-sita.

  Mary-TOP illness-ACC reason-NI absence-did

  'Mary was absent for the reason that she was ill.'

Another difference is that the constructions in (66) do not involve argument-taking

nouns. The bracketed parts in (66) are claimed to be associated with covert light verbs

or functional verbs (Muraki 1991). For example, the bracketed parts in (66) can be

associated with a hypothetical verbs, which are parenthesized, as follows.

(68)a. Kanozyo-wa [zaisan(-o)   meate]-ni (site),

   She-TOP   property(-ACC) purpose-NI (doing)

   sono roozin-to   kekkon-sita.

   that old.man-with marriage-did

   'She got married to the old man for his property.'

 b. bizin-kyoosi-ga   [akudoo(-o)   aite]-ni (site)

    beauty-teacher-NOM naughty.child(-ACC) opponent-NI (doing)

    katuyaku-suru   eiga

     play.an.active.part-do movie

    'a movie in which a beautiful teacher is active to educate naughty children as

     her students'

 c. Sensei-wa   [siryoo(-o)   katate-ni] (motte)   kyoositu-ni   haitta.

    Teacher-TOP material(-ACC) one.hand-NI (having) classroom-in entered

     'The teacher entered a classroom, holding materials in his hand'

I also leave the investigation on this type of case-particle omission for future research.

Chapter 7

Control Structures and Mixed Categories in Japanese

So far, I have examined Temporal Morpheme Constructions (TMCs) as a representative mixed category in Japanese. However, the mixed category constructions are not limited to TMCs. As I suggested in Chapter 1.2, there are other constructions that behave like TMCs with respect to case marking patterns. In particular, I have already shown the following case marking variations in **Purpose Expressions (PEs)** and **Nominalized Adjective Constructions (NACs)**.

(1.8) Purpose Expressions (Miyagawa 1987, Matsumoto 1996)

  a. John-ga   [Hokudai-de ainugo-o   kenkyuu-ni]   Nihon-ni kita. <VC>

    John-NOM Hokkaido.Univ-at Ainu-ACC research-PURP Japan-to came

    'John came to Japan to study Ainu.at Hokkaido University'

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b. John-ga   [Hokudai-de ainugo-no kenkyuu-ni] Nihon-ni   kita <MC>

John-NOM Hokkaido.Univ-at Ainu-GEN research-PURP Japan-to came

c. John-ga   [Hokudai-de-no ainugo-no kenkyuu-ni] Nihon-ni   kita <NC>

John-NOM Hokkaido.Univ-at-GEN Ainu-GEN research-PURP Japan-to came

(1.9) Nominalized Adjective Constructions (Morimoto 1996)

a. John-ga   [Mary-to   sono   eega-ga/o   mi-ta-sa-ni], <VC>

John-NOM Mary-with   the   movie-NOM/ACC   watch-want.to-NML-for

(gakkoo-o sabot-te simatta.)

school-ACC cut-TE finished

'(John cut school) for he wanted to watch the movie with Mary.'

b. John-ga   [Mary-to sono eega-no   mitasa-ni], …   <MC>

John-NOM   Mary-with the movie-GEN   watch-want.to-NML-for

c. John-ga   [Mary-to-no sono eega-no   mitasa-ni], … <NC>

John-NOM   Mary-with-GEN   the movie-GEN   watch-want.to-NML-for

These two constructions involve **control** structures in which an unexpressed subject (i.e. the **controlled element**) of a **controlled clause** is co-referential with a matrix subject (i.e. **controller**). Within their controlled clauses (i.e. bracketed parts in (1.8) and (1.9)), they allow VC-, MC-, and NC-marking, respectively. They differ from TMCs only in that their unexpressed subjects cannot be case-marked. Instead, a complement other than a direct internal argument can have either a (semantic) VC or a (semantic) NC. In (1.8), a Locative complement is marked by either a Locative VC (i.e. *-de* 'at, in') or its NC counterpart (i.e. *-de-no* '(lit.) at-GEN'), which is formed by attaching a Genitive particle, *no,* to the Locative particle, *de*. Similarly, in (1.9), a Companion complement is marked by either a VC, *-to* 'with', or a NC, *-to-no* (lit. 'with-NEG').

The purpose of this Chapter is to explain case-marking properties of these constructions with a special attention to mixed case marking, on the basis of my head sharing analysis. In addition to the case-marking properties, I will examine some morphological and syntactic characteristics of these constructions and try to explain

their relation to case-marking variations (especially, to mixed case marking). Particularly, I examine their clausality (i.e. whether they are bi-clausal or mono-clausal), their control types (i.e. whether they involve functional or anaphoric control), and the grammatical wordhood of their predicative elements (i.e. whether they are made up of one word or two and whether they are part of a complex predicate or not).

In what follows, I will examine PEs first, and then turn to NACs. My discussion is organized as follows. After introducing the basic characteristics of PEs, I discuss an important difference in observation between previous studies and my study. I claim that my consideration of mixed case marking reveals case-marking properties of PEs in a rigorous way. Next, I summarize the results of previous studies on clausal ambiguity of PEs, and present a classification of PEs, based on their clausality as well as their case-marking variations. PEs are classified into mono-clausal structures and bi-clausal structures regarding their clausality. The mono-clausal PEs are sub classified into those which allows only VC-marking and those which allows only NC-marking. The

bi-clausal PEs allow both VC-marking and MC-marking. Then, I discuss a correspondence between my classification of PEs and other syntactic characteristics of PEs. The mono-clausal PEs that allow only VC-marking correspond to complex predicate structures. The mono-clausal PEs that allow only NC-marking correspond to anaphoric control structures. The bi-clausal PEs that allow both VC- and MC-marking correspond to functional control structures. Lastly, I present my syntactic analysis of PEs, which is similar to my analysis of TMCs (Chapter 4), considering a possibility of the formal account of PE's case-marking properties and their relation to clausality, control types, and morphology. Following the discussion of PEs, NACs are also discussed in a parallel fashion.

7.1 Basic Characteristics of Purpose Expressions

First, let us introduce PEs briefly. They are grammatical constructions headed by a class of **verbs of motion** (e.g., *kuru* 'come', *iku* 'go'), which take a complement that

is used to express a purpose of motion and serves as a controlled clause in a control

structure in addition to a complement that is used to expresses a goal of motion. The

purpose complement is made up of a Complex Event Nominal (CEN: Grimshaw 1990),

which is suffixed by a **purpose marker** *ni* '(in order) to' and complements of the CEN.

The CEN is an argument-taking noun such as a Sino-Japanese verbal noun (e.g.

kenkyuu 'research'), a nominalized native V-V compound (e.g. *uke-tori* 'receipt'), and

a Western loanword (e.g. *kopii* 'copy'). Instead of the CEN, the purpose complement

can be made up of the nonfinite form (= *renyookei*) of a verb (i.e. *kai* 'to buy') suffixed

by a purpose marker and complements of the verb.

(1)a. John-ga   Hokkaidoo-e [ainugo-o   kenkyuu-ni]   itta.

   John-NOM Hokkaido-to Ainu-ACC   research-PURP went

   'John went to Hokkaido to study Ainu.'

  b. John-ga   zimusyo-ni   [syorui-o   uke-tori-ni]   itta.

   John-NOM office-to   document-ACC   receiving-PURP went

'John went to the office to receive documents.'

c. John-ga   tosyokan-ni   [ronbun-o   kopii-ni]   itta.

John-NOM   library-to   article-ACC copy-PURP went

'John went to the library to copy articles.'

(2) John-ga   B&N-e   [hon-o   kai-ni]   itta.

John-NOM B&N-to book-ACC   to.buy-PURP went

'John went to B&N to buy a book.'

In (1), PEs are headed by a verb of motion, *itta* 'went', which takes a Goal argument,

NP-*e/-ni* 'to NP', and a Purpose complement, which is headed by a CEN such as

kenkyuu 'research' (1a), *uke-tori* 'receipt' (1b), and *kopii* 'copy' (1c), or by the

nonfinite form of a verb, *kai* 'to buy' (2), each of which is suffixed by a purpose

marker *-ni*.

Predicative elements (i.e., CENs or nonfinite verbs) in Purpose complements

subcategorize for a subject NP, which is co-referential with the matrix subject NP,

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which is, in turn, subcategorized for by a matrix predicate (i.e., a verb of motion). Thus,

PEs involve control structures which involve an unexpressed complement subject NP,

commonly known as PRO, which is co-referential to the matrix subject (Miyagawa

1987). For example, the PE (1a) is made up of two predicative elements in (3a, b), both

of which subcategorize for an Agent argument. The Agent argument of the main

predicate *itta* is overtly realized in syntax, while the Agent argument of the CEN

kenkyuu is not. Instead of the Agent argument, it is commonly assumed that the

pronominal anaphor PRO, which is co-indexed with the matrix subject, occupies the

subject position for the Purpose complement, as shown in (4).

(3)a. itta 'went',   V <Agent, Goal>

   b. kenkyuu 'research', N <Agent, Theme>

(4) [IP John$_i$-ga   Hokkaidoo-e [IP PRO$_i$ ainugo-o   kenkyuu-ni]   itta].

   John-NOM Hokkaido-to Ainu-ACC   research-PURP went

   'John went to Hokkaido to study Ainu.'

In what follows, I refer to the Purpose Complement as **controlled clause**, the

unexpressed subject as **controlled element**, and the matrix subject as **controller**,

following Bresnan (1982).

   I deal with PEs that involve a CEN as a predicative element but not PEs that

involve nonfinite forms of verbs, since the former allow a case alternation (cf. (1) and

(1')), whereas the latter do not, except for VC-marking (cf. (2) and (2')).

(1')a. John-ga   Hokkaidoo-e [ainugo-no   kenkyuu-ni]   itta.

      John-NOM Hokkaido-to Ainu-GEN   research-PURP went

      'John went to Hokkaido to study Ainu.'

   b. John-ga   zimusyo-ni   [syorui-no   uke-tori-ni]   itta.

      John-NOM office-to   document-GEN   receiving-PURP went

      'John went to the office to receive documents.'

   c. John-ga   tosyokan-ni [ronbun-no   kopii-ni]   itta.

      John-NOM   library-to   article-GEN copy-PURP went

'John went to the library to copy articles.'

(2')* John-ga   B&N-e   hon-no   kai-ni   itta.

John-NOM B&N-to book-GEN   to.buy-PURP went

'John went to B&N to buy a book.'

7.2 On the Potential Case-marking Properties of Controlled Clauses in Purpose Expressions

As discussed in Chapter 1.2.1, a controlled clause must have at least two (non-controlled) case-marked arguments if we are to identify the presence of Mixed Case. This point was not fully considered by many previous studies. In the literature (Iida 1987, Sells 1990, Manning 1993, Ohara 2000, Hoshi 2003), case alternation in a pair of PEs like (5a, b) has been examined.

(5)a. John-ga   ainugo-o   kenkyuu-ni   kita.

    John-NOM Ainu-ACC research-PURP came

    'John came to study Ainu.'

  b. John-ga   ainugo-no kenkyuu-ni   kita

    John-NOM Ainu-GEN research-PURP came

In (5), case alternation can be seen in the object NP (i.e. *ainugo*) under the controlled

clause. A Nominative case for the subject NP (= *John*) is licensed under the main

clause. However, as I discussed in 1.2.1, one cannot tell whether (5b) involves mixed

case marking until he/she observes case marking on another complement in the

controlled clause. In other words, it is possible to explain the case alternation on the

object NP in (5) by assuming the following categorial difference in the controlled

clauses.

(6)a. John-ga　　[VP ainugo-o　　kenkyuu-ni]　　kita.

　　　John-NOM Ainu-ACC research-PURP came

　　　'John came to study Ainu.'

　b. John-ga　　　[NP ainugo-no kenkyuu-ni]　　　kita

　　　John-NOM Ainu-GEN research-PURP came

In (6), nothing interesting happens to the controlled clauses, except for derivational

morphology of their predicative elements. In (6a), a VC-marked object NP is licensed

since it appears within a verbal projection. In (6b), a NC-marked object NP is licensed

since it appears within a nominal projection. The categorial difference can be caused

by a predicative element, *kenkyuu-ni*, which undergoes a categorial change in

morphological derivation. That is, *kenkyuu-ni* in (6a) can be taken as a verb, while

kenkyuu (or *kenkyuu-ni*) in (6b) as a noun. In fact, adverbs but not adjectives can

modify the predicative element in (6a), whereas adjectives but not adverbs can modify

the predicative element in (6b, b').

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(7)a. John-ga   ainugo-o   kuwasiku/*kuwasii kenkyuu-ni   kita.

John-NOM Ainu-ACC minutely/*minute research-PURP came

'John came to study Ainu in detail.'

b. John-ga   ainugo-no kuwasii/*kuwasiku kenkyuu-ni   kita

John-NOM Ainu-GEN minute/*minutely research-PURP came

'John came for a detailed research on Ainu.'

b'. John-ga   kuwasii/*kuwasiku ainugo-no kenkyuu-ni   kita

John-NOM minute/*minutely Ainu-GEN research-PURP came

In contrast, if a complement of a CEN other than the object is taken into consideration, one can expect the following case-marking variations within the controlled clause.

(8)a. John-ga …[compl-vc ainugo-o kenkyuu-ni] …kita.   [VC]

b. John-ga …[compl-vc ainugo-no kenkyuu-ni] …kita.   [MC]

c. John-ga …[compl-nc ainugo-no kenkyuu-ni] …kita.　[NC]

(N.B. compl: complement, vc: verbal case, nc: nominal case)

In particular, it is important that one can expect a possibility of MC-marking in the

controlled clause, as in (8b). The case-marking variations of the controlled clauses in

(8) suggest their categorial differences. In (8a, b), the controlled clauses are verbal

projections headed by verbs, while the controlled clause in (8c) is a nominal projection.

Here, let us make a slight modification in terminology. Since the term "clause" is

commonly reserved for a constituent structure which involves a verbal projection with

tense, it is not a good idea to refer to the bracketed part in (8c) as a controlled clause,

due to the lack of verbal properties and tense. Instead, I can refer to it as a **controlled**

phrase.

In addition to an extra complement within a controlled clause/phrase, it is

important for my data to include another matrix element (e.g. a Goal argument of the

main predicate of PE), because it serves to identify the left edge of a controlled clause.

As I discuss in the following section, it is important to find the left edge of a controlled

clause, since it makes a clause boundary of a controlled clause more explicit, so that

the potential case-marking properties of the controlled clause can be unmasked. For

example, the structure (8b) alone cannot represent an acceptable MC-marked PE.

(9)a.??John-ga …[hokudai-de ainugo-no kenkyuu-ni] …kita.

    John-NOM …[Hokkaido.Univ-at Ainu-GEN research-PURP]…came

    "*John came at Hokkaido Univ. to study Ainu."

The unacceptability of (9a) can be attributed to hearers' comprehension of the sentence

structure. Given the sentence (9a), one can analyze it as follows.

(9)b.*John-ga …hokudai-de [ainugo-no kenkyuu-ni] …kita.

    John-NOM …Hokkaido.Univ-at [Ainu-GEN research-PURP]…came

c.*John-ga …hokudai-de ainugo-no [kenkyuu-ni kita].

John-NOM …Hokkaido.Univ-at Ainu-GEN [research-PURP came]

In the first analysis (9b), on one hand, the locative phrase, *hokudai-de*, is taken as a

matrix element, but the main predicate is a motion verb, which cannot take a locative

phrase instead of a direction or a goal argument.

(10) John-ga hokudai-e/-ni/*-de kita.

John-NOM Hokkaido.Univ.-DIR/-GOAL/*-LOC came

'John came to/*at Hokkaido University.'

Thus, the unacceptability of (9b) is the same kind as the one in (10). On the other hand,

the second analysis (9c) is unique to PE, as I see later. In the analysis, one can take the

bracketed part as a **complex predicate**. The complex predicate is a syntactic unit that

behaves like one word in syntax, though it is morphologically made up of two separate

words. If the bracketed part in (9c) is taken as a complex predicate, NC-marking on the

object NP, *ainugo-no*, cannot be licensed, since it is not a morphological derivative,

which allows an extended head, which is, in turn, the source of mixed categories or

mixed case marking (see Chapter 4, the definition of the modified extended head).

To avoid the analyses in (9b, c) and obtain the analysis (9a) for an acceptable

MC-marked PE, I must accommodate a matrix element in the structure (8b). For

instance, one can obtain an acceptable MC-marked PE, if a Direction/Goal argument

for the main predicate (e.g. *Nihon-e* 'to Japan') in the sentence (9a) is added between

the main predicate and the CEN + purpose marker, *kenkyuu-ni*.

(11) John-ga [hokudai-de ainugo-no kenkyuu-ni] nihon-e kita.

John-NOM [Hokkaido.Univ-at Ainu-GEN research-PURP] Japan-to came

"John came to Japan to study Ainu at Hokkaido Univ."

The acceptability of (11) suggests that the explicit left edge of a controlled clause can

help us to find the potential case-marking property of the controlled clause in PE.

Consequently, in the following discussion, I will examine the data as follows.

(1.8)a. John-ga   [Hokudai-de ainugo-o   kenkyuu-ni]   Nihon-ni kita. <VC>

   John-NOM Hokkaido.Univ-at Ainu-ACC research-PURP Japan-to came

   'John came to Japan to study Ainu.at Hokkaido University'

   b. John-ga   [Hokudai-de ainugo-no kenkyuu-ni] Nihon-ni   kita <MC>

   John-NOM Hokkaido.Univ-at Ainu-GEN research-PURP Japan-to came

   c. John-ga   [Hokudai-de-no ainugo-no kenkyuu-ni] Nihon-ni   kita <NC>

   John-NOM Hokkaido.Univ-at-GEN Ainu-GEN research-PURP Japan-to came

7.3 Clausality of Purpose Expressions

In the last section, I noted that, to determine clausality, the observed data must

accommodate an extra complement in both a controlled clause and a main clause. In

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particular, it is important to accommodate an extra complement other than the subject

and the purpose complement in a main clause to consider the clausality of a PE. By the

term **clausality**, I mean the perception of a clausal or sentential boundary. The higher

or stronger the clausality is, the more explicit or the clearer the clausal boundary can be

perceived. The notion of clausality is very important for evaluation of the syntactic

structure of PEs, which can be ambiguous between mono-clausal and bi-clausal,

depending on the word order of sentence-internal elements. I will discuss this point in

the following paragraphs.

7.3.1 Mono-clausal vs. Bi-clausal Purpose Expressions

In the literature, PE's structural ambiguity has been studied (Miyagawa 1987,

Matsumoto 1996). A PE can be either mono-clausal or bi-clausal. The 'sentence hood'

or 'clause hood' is tested by the clause-mate condition on licensing of a NPI, *sika*

(Muraki 1978): the NPI *sika* is licensed by a negative morpheme within a minimal

clause, conveying the meaning "only". For example, in (12a-d), a NPI is licensed by a

negative morpheme, *-(a)na-*, since both occur within the same clause.[56] However, in

(12e-g), the NPI is not licensed by the negative morpheme since each occurs in a

different clause.

(12)a. John-<u>sika</u> [Mary-ga   pizza-o taberu]-to   iw-<u>ana</u>-katta.

   John-NPI   [Mary-NOM pizza-ACC eat.NPST]-COMP say-NEG-PAST

   'Only John said that Mary ate pizza.'

  b. John-wa [Mary-<u>sika</u> pizza-o tabe-<u>nai</u>]-to   itta.

   John-TOP [Mary-NPI pizza-ACC eat-NEG.NPST]-COMP   say.PAST

   'John said that only Mary ate pizza.'

  c. John-wa [Mary-ga pizza-<u>sika</u> tabe-<u>nai</u>]-to   itta.

   John-TOP [Mary-NOM pizza-NPI eat-NEG.NPST]-COMP   say.PAST

   'John said that Mary ate only pizza.'

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[56] Both NPIs and negative morphemes are underlined in the examples.

d. John-wa [Mary-ga pizza-o taberu]-to-<u>sika</u> iw-<u>ana</u>-katta.

John-TOP [Mary-NOM pizza-ACC eat.NPST]-COMP-NPI say-NEG-PAST

'John only said that Mary ate pizza.'

e. *John-<u>sika</u> [Mary-ga pizza-o tabe-<u>nai</u>]-to itta.

John-NPI [Mary-NOM pizza-ACC eat-NEG.NPST]-COMP say.PAST

f. *John-wa [Mary-<u>sika</u> pizza-o taberu]-to iw-<u>ana</u>-katta.

John-TOP [Mary-NPI pizza-ACC eat.NPST]-COMP say-NEG-PAST

g. *John-wa [Mary-ga pizza-<u>sika</u> taberu]-to iw-<u>ana</u>-katta.

John-TOP [Mary-NOM pizza-NPI eat.NPST]-COMP say-NEG-PAST

Likewise, in PEs, a negative morpheme licenses a NPI if both occur in a

mono-clausal structure as in (13) and (14), whereas the negative morpheme disallows

the NPI if each occurs in a different clause of a bi-clausal structure as in (15).

(13)a. John-<u>sika</u>   ainugo-o   nihon-ni   kenkyuu-ni   ik-<u>ana</u>-katta.

John-NPI   Ainu-ACC   Japan-to   research-PURP   go-NEG-PAST

'Only John went to Japan to study Ainu.'

b. John-ga   ainugo-<u>sika</u>   nihon-ni   kenkyuu-ni   ik-<u>ana</u>-katta.

John-NOM   Ainu-NPI   Japan-to   research-PURP   go-NEG-PAST

'John went to Japan to study only Ainu.'

c. John-ga   ainugo-o   nihon-ni-<u>sika</u>   kenkyuu-ni   ik-<u>ana</u>-katta.

John-NOM Ainu-ACC Japan-to-NPI   research-PURP   go-NEG-PAST

'John went to only Japan to study Ainu.'

d. John-ga   ainugo-o   nihon-ni   kenkyuu-ni-<u>sika</u>   ik-<u>ana</u>-katta.

John-NOM   Ainu-ACC   Japan-to   research-PURP-NPI   go-NEG-PAST

'John went to Japan only to study Ainu.'

(14)a. John-<u>sika</u>   nihon-ni   ainugo-o   kenkyuu-ni   ik-<u>ana</u>-katta.

John-NPI   Japan-to   Ainu-ACC   research-PURP   go-NEG-PAST

'Only John went to Japan to study Ainu.'

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b. John-ga   nihon-ni-<u>sika</u> ainugo-o   kenkyuu-ni ik-<u>ana</u>-katta.

   John-NOM   Japan-to-NPI   Ainu-ACC   research-PURP go-NEG-PAST

   'John went only to Japan to study Ainu.'

c. John-ga   nihon-ni ainugo-<u>sika</u>   kenkyuu-ni   ik-<u>ana</u>-katta.

   John-NOM   Japan-to Ainu-NPI   research-PURP   go-NEG-PAST

   'John went to Japan to study only Ainu.'

d. John-ga   nihon-ni ainugo-o   kenkyuu-ni-<u>sika</u>   ik-<u>ana</u>-katta.

   John-NOM Japan-to   Ainu-ACC   research-PURP-NPI   go-NEG-PAST

   'John went to Japan only to study Ainu.'

(15)a. John-<u>sika</u> [PRO ainugo-o kenkyuu-ni]   nihon-ni ik-<u>ana</u>-katta. [57]

   John-NOM   Ainu-ACC research-PURP Japan-to go-NEG-PAST

   'Only John went to Japan to study Ainu.'

b. John-ga   [PRO ainugo-o kenkyuu-ni]-<u>sika</u> nihon-ni   ik-<u>ana</u>-katta.

   John-NOM   Ainu-ACC   research-PURP Japan-to-NPI   go-NEG-PAST

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[57] For convenience, we use PRO to represent unexpressed subject NPs in controlled clauses, though our LFG framework does not allow an empty category in constituent structure.

'John went to Japan only to study Ainu.'

c. John-ga   [PRO   ainugo-o   kenkyuu-ni]   nihon-ni-<u>sika</u>   ik-<u>ana</u>-katta.

John-NOM   Ainu-ACC   research-PURP   Japan-to-NPI   go-NEG-PAST

'John went only to Japan to study Ainu.'

d. *John-ga   [PRO   ainugo-<u>sika</u>   kenkyuu-ni]   nihon-ni   ik-<u>ana</u>-katta.

John-NOM   Ainu-NPI   research-PURP   Japan-to   go-NEG-PAST

Unlike the finite bi-clausal structures in (12), the PEs in (15) are not allowed to have

an unexpressed subject that takes a NPI marker (i.e., *PRO-*sika*). Also, they are not

allowed to have a controlled clause that contains a negative morpheme (i.e.,

kenkyuu-(a)na-ni, *kenkyuu-ni-(a)na*). Thus, I cannot check either NPI licensing

within the controlled clause or the co-occurrence of the NPI, which appears in the

controlled clause, with the negative morpheme, which appears in the matrix clause.

Nevertheless, the clear contrast between (15a-c) and (15d) seems to suggest the

existence of a clausal boundary in bi-clausal PEs.

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If the PEs in (13) and (14) differ from those in (15) in clausality, it is important to

notice that the PEs in (16a-c) correspond to the examples in (13) – (15), respectively,

and have no difference in cognitive meaning among the PEs. That is, it is interesting to

observe the fact that a PE's clausality differs depending on its word order, as follows.

(16)a. John-ga   ainugo-o   nihon-ni   kenkyuu-ni   itta.   [mono-clausal(1)]

    Taro-NOM Ainu-ACC   Japan-to   research-PURP   went

    'John went to Japan to study Ainu.'

  b. John-ga   nihon-ni   ainugo-o   kenkyuu-ni   itta. [mono-clausal(2)]

    John-NOM   Japan-to   Ainu-ACC   research-PURP   went

  c. John-ga   [PRO   ainugo-o   kenkyuu-ni]

    John-NOM   Ainu-ACC   research-PURP

    nihon-ni   itta.   [bi-clausal]

    Japan-to   went

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The crucial difference between mono-clausal and bi-clausal PEs in (16) is adjacency of

a motion verb (i.e. *itta*) and a CEN followed by a purpose marker (i.e. *kenkyuu-ni*). A

mono-clausal PE such as (16a) or (16b) requires the motion verb to be adjacent to the

preceding CEN + purpose marker (i.e. *kenkyuu-ni itta* 'went to study'). In contrast, a

bi-clausal PE such as (10c) does not have such an adjacency requirement.

Following Matsumoto (1996), I assume that the source of the correspondence

between PE's clausality and word order is **complex predicate formation**. That is, the

adjacency of two predicative elements in (16a, b) allows them to form a complex

predicate in syntax while the non-adjacency of the two predicative elements in (16c)

disallows them to form the complex predicate. Since the PEs in (16a, b) have only a

single predicate due to the complex predicate formation, they show mono-clausal

behaviors. In contrast, the PE in (16c) must have two predicative elements that head

each distinct clause, so that they show bi-clausal behaviors.

7.3.2 Clausal Ambiguity in Purpose Expressions

As above, the complex predicate formation is an important factor to distinguish the clausality of PEs.Based on their complex predicate formation, the PEs in (16a, b) can be equally taken as mono-clausal or bi-clausal; nevertheless, one must distinguish them. Following Matsumoto (1996), I assume that (16a) is unambiguously mono-clausal, but (16b) is ambiguous between mono-clausal and bi-clausal. Moreover, I assume that the clausal (dis-)ambiguity of PEs in (16a, b) is related to the difference in their word order. In (16a), a matrix element, *nihon-ni*, follows an element of the controlled clause, *ainugo-o*, while, in (16b), their order is reverse. The word order difference is associated with the following analyses.

(16)a'. John-ga ~~[ainugo-o~~ <u>nihon-ni</u> ~~kenkyuu-ni]~~ itta. [mono-clausal]

Taro-NOM Ainu-ACC Japan-to research-PURP went

'John went to Japan to study Ainu.'

b'. John-ga   nihon-ni   [ainugo-o   kenkyuu-ni]   itta. [bi-clausal]

John-NOM   Japan-to   Ainu-ACC   research-PURP   went

That is, as in (16a'), one must interpret the sentence (16a) as mono-clausal, because the underlined matrix element, *nihon-ni*, cannot occur within a controlled clause, which contains a CEN and its complements. Thus, the clausal boundaries in (16a'), which surround the CEN and its complement, must not be drawn and are represented as double strikethrough. In contrast, as in (16b'), one can interpret the sentence (16b) as biclausal, since there is no matrix element intervening between elements in a controlled clause.

The fact regarding NPI licensing itself does not suggest the difference in clausal (dis-)ambiguity in (16a, b), since both PEs shows the same mono-clausality. However, I can argue for their difference in clausal (dis-)ambiguity. One of the arguments is based on the possibility of mixed case marking or mixed category. As I discussed before, a complex predicate cannot satisfy a morphological condition on the extended

head. By the definition of the modified extended head theory (4.4'), repeated below,

only morphological derivatives can be qualified as an extended head.

(4.4') **Extended Head Theory (modified)**

    (i)   A functional category F0 and its sister correspond to the same

               f-structure.

    (ii)   A <u>lexical</u> category <u>L0</u> and its adjacent sister correspond to the same

               f-structure.

    (iii)   Every lexical category has a(n extended) head.

           (X is an extended head of Y if X corresponds to the same f-structure as

            Y, X is of the same/nondistinct category type as Y, <u>or X is a</u>

            <u>morphological derivative of a category identical/nondistinct from the</u>

            <u>phrase Y</u>, and every node other than Y that dominates X also

            dominates Y.)

Since complex predicates cannot be taken as morphological derivatives, it is predicated that PEs that involve complex predicates cannot have extended heads, which are the source of mixed categories or mixed case marking. The predication is borne out by the following examples of possibilities for mixed case marking.

(17)a. *John-ga   ainugo-no   nihon-ni   [kenkyuu-ni   itta].   [mono-clausal]

      Taro-NOM Ainu-GEN   Japan-to   research-PURP   went

      'John went to Japan to study Ainu.'

  b. *John-ga   ainugo-o   nihon-e-no   [kenkyuu-ni   itta].   [mono-clausal]

      Taro-NOM Ainu-GEN   Japan-to   research-PURP   went

(18) John-ga   nihon-ni   [ainugo-no   kenkyuu-ni]   itta.   [bi-clausal]

     John-NOM   Japan-to   Ainu-ACC   research-PURP   went

As shown in (17a, b), neither the object of the controlled clause (i.e. *ainugo*) nor the matrix element adjacent to the CEN (i.e. *nihon-ni*) in (16a) is disallowed to be marked

with Genitive case. The impossibility of mixed case marking can be explained by assuming that the bracketed unit serves as a complex predicate in (17a, b). In contrast, as shown in (18), the object of the controlled clause in (16b) is allowed to be marked with Genitive case. The possibility of mixed case marking can be explained by assuming that the bracketed unit serves as an independent clause headed by an extended head. Regarding the possibility of mixed case marking, (16b) behaves like the bi-clausal counterpart (16c), as follows.

(19) John-ga   [PRO   ainugo-no   kenkyuu-ni]

    John-NOM   Ainu-GEN   research-PURP

    nihon-ni   itta.   [bi-clausal]

    Japan-to   went

Another argument for the clausal (dis-)ambiguity of PE is based on the licensing of a locative phrase. Recall that I discussed that (9b) is taken as unacceptable because

the matrix motion verb (i.e. *kita* 'came') cannot license a locative phrase (i.e.

hokudai-de 'at Hokkaido Univ.'), which is a complement of the CEN (i.e. *kenkyuu*

'research'), in the same way as a simplex sentence (10).

(9)b.*John-ga …hokudai-de [ainugo-no kenkyuu-ni] …kita.

John-nom …Hokkaido.Univ-at [Ainu-gen research-purp]…came

'*John came at Hokkaido Univ. to study Ainu.'

(10) John-ga hokudai-e/-ni/*-de kita.

John-NOM Hokkaido.Univ.-DIR/-GOAL/*-LOC came

'John came to/*at Hokkaido University.'

As shown in (10), the motion verb can license a directional/goal phrase (i.e.

hokudai-e/-ni) instead of the locative phrase.

This fact of the locative phrase licensing can also be used to distinguish between

mono-clausal and bi-clausal PEs. Since a locative phrase is licensed by a CEN and a

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directional/goal phrase is licensed by a matrix motion verb, it is predicated that a

bi-clausal PE can occur with both the locative phrase and the directional/goal phrase,

while a mono-clausal PE can occur with only the directional/goal phrase. This

prediction is borne out, as follows.

(20)a. *John-ga ainugo-o nihon-ni <u>hokudai-de</u> [kenkyuu-ni itta].   [mono-clausal]

    Taro-NOM Ainu-ACC   Japan-to Hokkaido.Univ-at research-PURP   went

    'John went to Japan to study Ainu at Hokkaido University.'

  b. *John-ga ainugo-o <u>hokudai-de</u> nihon-ni [kenkyuu-ni itta].   [mono-clausal]

    Taro-NOM Ainu-ACC Hokkaido.Univ-at Japan-to research-PURP   went

  c. *John-ga <u>hokudai-de</u> ainugo-o nihon-ni [kenkyuu-ni itta].   [mono-clausal]

    Taro-NOM Hokkaido.Univ-at Ainu-ACC Japan-to research-PURP   went

(21)a. John-ga   [PRO   <u>hokudai-de</u> ainugo-o   kenkyuu-ni]

    John-NOM   Hokkaido.Univ-at Ainu-ACC   research-PURP

nihon-ni   itta.   [bi-clausal]

　Japan-to   went

 b. John-ga   [PRO   ainugo-o <u>hokudai-de</u>   kenkyuu-ni]

　John-NOM   Ainu-ACC Hokkaido.Univ-at research-PURP

　nihon-ni   itta.   [bi-clausal]

　Japan-to   went

The data in (20a-c) suggest that a locative phrase cannot occur with an unambiguous

mono-clausal PE such as (16a). In contrast, the data in (21a, b) suggest that a locative

phrase can occur with a bi-clausal PE such as (16c), being licensed by a CEN.

As for a structurally ambiguous PE such as (16b), it marginally allows a locative

phrase if clausal boundaries of a controlled clause is made explicit by taking a pause or

by a phrase-final particle such as *ne* 'you know'. Otherwise, the PE becomes less

acceptable.

(22)a. (?) John-ga   nihon-ni(-ne/_) [hokudai-de ainugo-o

John-NOM   Japan-to(-you.know/PAUSE)   Hokkaido.Univ-at Ainu-ACC

kenkyuu-ni](-ne/_)   itta(-yo).   [bi-clausal]

research-PURP(-you.know/PAUSE)   went(-I.tell.you)

'I am telling you, John went to Japan, you know, to study Ainu at Hokkaido

University.'

b. (?) John-ga   nihon-ni(-ne/_) [ainugo-o hokudai-de

John-NOM   Japan-to(-you.know/PAUSE)   Ainu-ACC Hokkaido.Univ-at

kenkyuu-ni](-ne/_)   itta(-yo).   [bi-clausal]

research-PURP(-you.know/PAUSE)   went(-I.tell.you)

This marginal co-occurrence of the locative phrase seems to be a clear indication of the

clausal ambiguity associated with (16b). Based on these two arguments, I distinguish

an unambiguously mono-clausal, complex predicate PE (16a) from a structurally

ambiguous PE (16b).

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7.3.3 Word Order and Clausality in Purpose Expressions

So far, I have discussed that PEs, which share the same cognitive meaning, can be

classified into three clause-types, based on their word order. The correlation between

the word order and the clausality of PEs can be captured by the following two

conditions.

(23)a. Adjacency: PEs can be mono-clausal if their two predicative elements (i.e. a

CEN + purpose marker and a motion verb) are adjacent. Otherwise, they must

be bi-clausal.

c.   Intervention: PEs must be mono-clausal if their matrix element intervenes

between a CEN and its complement.

The following table shows that PEs can be classified into three clause-types on the

basis of these two conditions.

(24)

	Adjacency (23a)	Intervention (23b)
Mono-clausal PE (16a)	√	√
Ambiguous PE (16b)	√	X
Bi-clausal PE (16c)	X	X

As I mentioned at the beginning of this section, the notion of clausality depends on one's perception of a clausal boundary. The clausality or the perceivable clausal boundary of a given PE is determined by the conditions in (23), taking the surface word order as a clue. In particular, the existence of the ambiguous PE suggests a close relation of the sentence perception to syntactic structures of PEs.

7.3.4 Clausality and Case Marking Properties in Purpose Expressions

In Section 6.2, I discussed potential case marking properties of PEs, and in this section, I have discussed their clausality. In this subsection, I consider the correlation between the case marking properties and the clausality of PEs.

As I have already discussed, unambiguously mono-clausal PEs disallow mixed case marking (cf. (17)) and licensing a locative phrase as an element of a controlled clause (cf. (20)). These facts suggest that unambiguously mono-clausal PEs are not relevant to my discussion, because they involve only simplex verbal projections that exclude mixed categories or potential case-marking variations. In addition, ambiguous PEs can also be excluded from my discussion, if they are construed as mono-clausal, complex-predicate PEs, in the same way as the unambiguously mono-clausal PEs. Consequently, what I discuss in this study is limited to bi-clausal PEs as well as ambiguous PEs, which are construed as bi-clausal.

Apparently, the bi-clausal PEs allow the following case marking variations.

(25)a. John-ga   [hokudai-de   ainugo-o   kenkyuu-ni]

   John-NOM   Hokkaido.Univ..-at Ainu-ACC   research-PURP

   nihon-ni   itta.   <VC>

   Japan-to   went

   'John went to Japan to study Ainu at Hokkaido Univ..'

  b. John-ga   [hokudai-de ainugo-no   kenkyuu-ni]

   John-NOM   Hokkaido Univ.-at Ainu-GEN research-PURP

   nihon-ni   itta.   <MC>

   Japan-to went

   'John went to Japan to study Ainu at Hokkaido Univ.'

 c. John-ga [hokudai-de-no ainugo-no kenkyuu-ni]

   John-NOM Hokkaido Univ.-at-GEN Ainu-GEN research-PURP

nihon-ni   itta.   <NC>

Japan-to went

(26)a. (?)John-ga   nihon-ni   [hokudai-de   ainugo-o

John-NOM   Japan-to Hokkaido Univ.-at Ainu-ACC

kenkyuu-ni]   itta.

research-PURP   went   <VC>

'John went to Japan to study Ainu at Hokkaido Univ.'

b. (?)John-ga   nihon-ni   [hokudai-de   ainugo-no

John-NOM   Japan-to Hokkaido Univ.-at Ainu-GEN

kenkyuu-ni]   itta.

research-PURP   went   <MC>

c. John-ga   nihon-ni   [hokudai-de-no   ainugo-no

John-NOM   Japan-to Hokkaido Univ.-at-GEN Ainu-ACC

kenkyuu-ni]   itta.

research-PURP   went   <NC>

The data (25) appear to show unambiguously bi-clausal PEs such as (16c) can license pure VC-marking (25a), pure NC-marking (25c), and MC-marking (25b) in their controlled clauses/phrases. Likewise, the data (26) appear to show that ambiguous bi-clausal PEs such as (16b) can license the same case marking variations, if they are construed as bi-clauses.

In spite of the apparent case marking variations in (25, 26), a NC-marked PE cannot be regarded as a bi-clausal PE, since it involves a controlled phrase rather than a controlled clause. As I have already discussed, the NC-marked PE involves a nominal projection as a purpose complement. Since the nominal projection has no clause hood, the NC-marked PE must be mono-clausal. Thus, brackets in (25c, 26c) do not represent clause boundaries but indicate phrasal boundaries for noun phrases.

(27)a. John-ga [NP hokudai-de-no ainugo-no kenkyuu-ni]

John-NOM Hokkaido Univ.-at-GEN Ainu-GEN research-PURP

nihon-ni   itta.   <NC>

Japan-to went

b. John-ga   nihon-ni   [NP hokudai-de-no   ainugo-no

John-NOM   Japan-to Hokkaido Univ.-at-GEN Ainu-ACC

kenkyuu-ni]   itta.

research-PURP   went   <NC>

Though they share the unambiguous mono-clausality, the NC-marked PEs such as

(25c, 26c) must be distinguished from the complex predicate PE such as (16a) in some

respects. First, the former PE allows only NC-marking in the controlled phrase, while

the latter PE allows only VC-marking. Secondly, the latter must satisfy the stronger

word order condition (23b) on mono-clausality (i.e. Intervention), whereas the former

must not. Lastly, the latter but not the former forms a complex predicate in that each

predicative element in the former licenses grammatical case in each projection while

both predicative elements in the latter license grammatical case in the shared

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projection.

As above, considering case-marking properties in addition to clausality, the classification of PEs in (24) can be revised as follows.

(28)

		Adjacency (23a)	Intervention (23b)	Case
Mono-clausal PE	Complex predicate (16a)	√	√	VC only
	MC-marked PE (25c)	X	X	NC only
	MC-marked PE (26c)	√	X	
Ambiguous PE (16b)		√	X	(VC only, VC or MC)
Bi-clausal PE (16c)		X	X	VC or MC

In the following discussion, I will chiefly examine the bi-clausal PE from a viewpoint

of mixed categories. Nevertheless, I will include the NC-marked PE in my discussion to find the similarity between PEs and Temporal Morpheme Constructions and to classify the PEs' control types. In any case, I largely disregard the complex predicate PE due to the lack of case-marking variations. Also, I ignore the ambiguous PE due to the redundancy.

7.4 Shared Properties in Purpose Expressions and Temporal Morpheme Constructions

In the last section, I discussed the clausality of PEs and its correlation to their word order and case marking properties. As a result, I found that it is important for the study of mixed categories to examine the bi-clausal PE primarily. In addition, I observed case marking variations in the PE's controlled clause/phrase, which are similar to those in Temporal Morpheme Constructions, as follows.

(25)a. John-ga   [hokudai-de   ainugo-o   kenkyuu-ni]

   John-NOM   Hokkaido.Univ..-at Ainu-ACC   research-PURP

   nihon-ni   itta.   <VC>

   Japan-to   went

   'John went to Japan to study Ainu at Hokkaido Univ..'

  b. John-ga   [hokudai-de ainugo-no   kenkyuu-ni]

   John-NOM   Hokkaido Univ.-at Ainu-GEN research-PURP

   nihon-ni   itta.   <MC>

    Japan-to went

   'John went to Japan to study Ainu at Hokkaido Univ.'

  c. John-ga [hokudai-de-no ainugo-no kenkyuu-ni]

   John-NOM Hokkaido Univ.-at-GEN Ainu-GEN research-PURP

   nihon-ni   itta.   <NC>

   Japan-to went

In this section, I will see the shared properties associated with PEs and Temporal Morpheme Constructions by examining the wordhood and the category of the head elements in PEs. The result motivates the application of my head sharing analysis and my theory of case to PEs.

To begin with, let us examine the wordhood of the purpose marker of PE. The purpose marker behaves like a suffix in VC- and MC-marked PEs, while it behaves like a full-fledged word in NC-marked PEs. The wordhood of the purpose marker is tested by inbound anaphoric islands and phrasal recursivity. The criterion of inbound anaphoric islands is used to show that subparts of words cannot be replaced by anaphoric forms. For example, the CEN, *kenkyuu* 'research', in (25) cannot be replaced by a pronoun, *sore* 'it, that', in a VC- or MC-marked PE such as (29a), but it can be replaced by the pronoun in a NC-marked PE such as (29b).

(29)a. *John-ga   [_{VP} hokudai-de ainugo-o/-no   <u>sore</u>-ni]

　　　John-NOM   Hokkaido Univ.-at Ainu-ACC/-GEN   it-PURP

nihon-ni   itta.

Japan-to   went   <VC/MC>

'John went to Japan for the purpose of that of Ainu at Hokkaido Univ.'

b. John-ga [PP [NP hokudai-de-no ainugo-no sore] ni]

John-NOM Hokkaido Univ.-at-GEN Ainu-GEN it-PURP

nihon-ni   itta.

Japan-to went   <NC>

The criterion of phrasal recursivity is used to show that subparts of words disallow deep embedding of phrasal modifiers. For example, a CEN, *kenkyuu*, in (25) alone disallows its modification by an adjective, *kuwashii* 'detailed', in a VC-/MC-marked PE such as (30a), while it allows its modification by the adjective in a NC-marked PE such as (30b).

(30)a. *John-ga [ᵥₚ hokudai-de ainugo-o/-no kuwasii kenkyuu-ni]

John-NOM   Hokkaido Univ.-at Ainu-ACC/-GEN detailed research-PURP

nihon-ni   itta.

 Japan-to went   <VC/MC>

 'John went to Japan to study Ainu at Hokkaido Univ.'

 b. John-ga [ₚₚ[ₙₚhokudai-de-no ainugo-no kuwasii kenkyuu] ni]

John-NOM Hokkaido Univ.-at-GEN Ainu-GEN detailed research-PURP

 nihon-ni itta.

 Japan-to went   <NC>

Next, let us examine the category of the head elements of PEs. Modification by

adjectives and adverbs is a major criterion to distinguish nouns and verbs: Nouns are

modified by adjectives but not by adverbs, while verbs are modified by adverbs but not

by adjectives. In VC- or MC-marked PEs, a head (i.e. a CEN followed by a purpose

marker) behaves like a verb, since it is modified by an adverb but not by an adjective,

though adverbs cannot occur immediately before the head in MC-marked PEs. For

example, a VC-marked PE (31a) allows its head to be modified by an adverb, *kuwasiku*,

not by an adjective, *kuwasii*. Though a MC-marked PE does not allow modification by

adjuncts immediately before the head as in (31b), it allows its head to be modified by

the adverb not by the adjective from the other position as in (31b').

(31)a. John-ga [$_{VP}$ hokudai-de ainugo-o kuwasiku/*kuwasii kenkyuu-ni]

    John-NOM   Hokkaido Univ.-at Ainu-ACC in.detail/*detailed research-PURP

    nihon-ni   itta.

    Japan-to went   <VC >

    'John went to Japan to study Ainu in detail at Hokkaido Univ.'

  b. *John-ga [$_{VP}$ hokudai-de ainugo-no kuwasiku/kuwasii kenkyuu-ni]

    John-NOM   Hokkaido Univ.-at Ainu-GEN in.detail/detailed research-PURP

    nihon-ni   itta.

    Japan-to went   <MC>

b'. John-ga [VP hokudai-de kuwasiku/*kuwasii ainugo-no kenkyuu-ni]

   John-NOM   Hokkaido Univ.-at in.detail/*detailed Ainu-GEN research-PURP

   nihon-ni   itta.

   Japan-to went   <MC>

In contrast, a CEN behaves like a noun in NC-marked PEs, since it is modified by an

adjective but not by an adverb.

(32) John-ga [PP[NPhokudai-de-no ainugo-no kuwasii/*kuwasiku kenkyuu] ni]

   John-NOM Hokkaido Univ.-at-GEN Ainu-GEN detailed research-PURP

    nihon-ni itta.

    Japan-to went   <NC>

    'John went to Japan for the detailed research on Ainu at Hokkaido Univ.'

By the distribution of focus particles such as *wa* [topic or contrast], *mo* 'also', and

sae 'even', I can distinguish postpositions (or nouns) and verbs. A focus particle

follows postpositions (or nouns) rather than verbs. For example, a focus particle, *mo*

'also', follows a postposition, *ni* 'to' or *to* 'with', as in (33a, b). However, it does not

follow a verb, *itta* 'went', as in (33c).

(33)a. John-ga Kyoto-ni-mo itta.

      John-NOM Kyoto-to-also went

      'John went (not only to somewhere else but also) to Kyoto.'

  b. John-ga Mary-to-mo atta.

      John-NOM Mary-with-also saw

      'John saw (not only someone else but also) Mary.'

  c. *John-ga Kyoto-ni itta-mo.

      John-NOM Kyoto-to-also went-also

      'John (did not only something else but also) went to Kyoto.'

In a VC- or MC-marked PE, the focus particle does not follow the head, as in (34a),

while, in a NC-marked PE, it follows the purpose marker, as in (34b).

(34)a. *John-ga   [vp hokudai-de ainugo-o/-no   kenkyuu-ni]-mo

    John-NOM Hokkaido.Univ.-at Ainu-ACC/-GEN research-PURP-also

    nihon-ni   itta.   <VC/MC>

    Japan-to   went

    'John went to Japan (not only to do something else but also) to study Ainu at

     Hokkaido Univ.'

  b. John-ga [pp[np hokudai-de-no ainugo-no kenkyuu] ni]-mo

    John-NOM Hokkaido Univ.-at-GEN Ainu-GEN research-PURP-also

    nihon-ni   itta. [NC]

    Japan-to   went

Based on the results of the examination above as well as the facts related to

case-marking, I can argue that VC- or MC-marked PEs are headed by a verb, which is made up of a CEN followed by a purpose marker, while NC-marked PEs have a head element, which is made up of two full-fledged words, a noun (i.e. a CEN) and a postposition (i.e. a purpose marker). These properties of PEs are almost the same as those of Temporal Morpheme Constructions, which can be handled by my head sharing analysis of mixed categories and my theory of case.

7.5 Control Types in Purpose Expressions

I have so far discussed PE's case-marking properties, clausality, and morphological and categorial properties of head elements. I have seen that my study of PE needs to deal with bi-clausal PEs, which license VC-marking or MC-marking in the controlled clauses, and mono-clausal PEs, which license NC-marking in the controlled phrases, as shown in (25), repeated below.

(25)a. John-ga   [hokudai-de   ainugo-o   kenkyuu-ni]

John-NOM   Hokkaido.Univ..-at Ainu-ACC   research-PURP

nihon-ni   itta.   <VC>

Japan-to   went

'John went to Japan to study Ainu at Hokkaido Univ..'

b. John-ga   [hokudai-de ainugo-no   kenkyuu-ni]

John-NOM   Hokkaido Univ.-at Ainu-GEN research-PURP

nihon-ni   itta.   <MC>

Japan-to went

c. John-ga [hokudai-de-no ainugo-no kenkyuu-ni]

John-NOM Hokkaido Univ.-at-GEN Ainu-GEN research-PURP

nihon-ni   itta.   <NC>

Japan-to went

These two types of PEs are distinguished with regard to clausality, case/category in the

controlled clauses, and morphological structures of heads, as follows.

(35) Two types of PEs

	Clausality	Case/Category	heads
a.	Mono-clausal	NC / NP	2 words (N+P)
b.	Bi-clausal	VC or MC / VP	1 word (V)

In this section, I discuss control types of PEs as the last grammatical property

associated with them and argue that the two types of PEs in (35) can also be

distinguished with regard to the control types. In particular, I argue that the bi-clausal

PE (35b) has a functional control structure while the mono-clausal NC-marked PE

(35a) has an anaphoric control structure, following the distinction between functional

and anaphoric control in LFG (Bresnan 1982, 2001, Kroeger 2004, Falk 2001).

7.5.1 Functional vs. Anaphoric Control

First, let us introduce functional and anaphoric control briefly. In general, LFG does not assume empty categories, so that I do not assume an empty pronoun as a controllee, which is co-referential to (= controlled by) a subject of the main predicate (i.e. controller) at constituent structure. Rather, the control relation is represented at f-structure in LFG. **Functional control** is a control relation such that a f-structure of the controller is identified with a f-structure of the controllee. That is, a grammatical function such as SUBJ(ect) for a main predicate is identified with a valueless grammatical function SUBJ in a predicate complement (XCOMP) or a predicate adjunct (XADJ). For instance, a present participle in English, *visiting Fred* in *Susan kept visiting Fred*, can be assigned the following f-structure (Bresnan 2001: 297).

(36) Susan kept visiting Fred. (f-structure)

$$
\begin{bmatrix}
\text{PRED} & \text{'keep<(↑SUBJ)(↑XCOMP)>'} \\
\text{TENSE} & \text{PAST} \\
\text{SUBJ} & [\text{"Susan"}] \\
\text{XCOMP} & \begin{bmatrix} \text{SUBJ} \\ \text{PRED} & \text{'visit<(↑SUBJ)(↑OBJ)>'} \\ \text{OBJ} & [\text{"Fred"}] \end{bmatrix}
\end{bmatrix}
$$
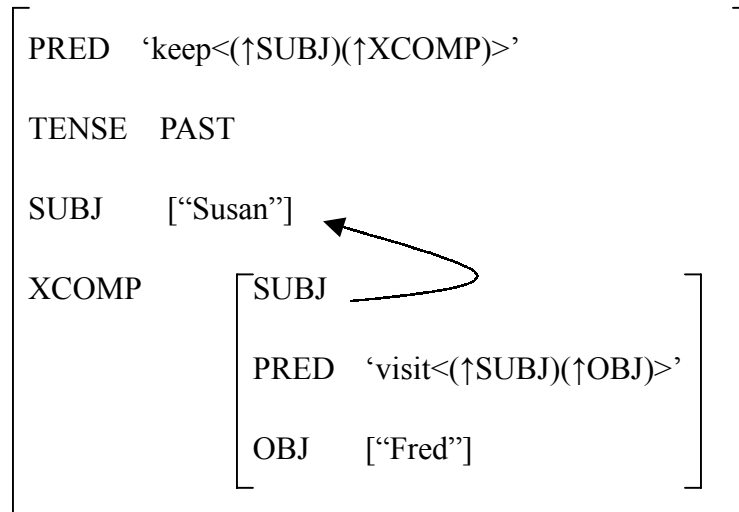
In (36), the SUBJ, *Susan*, of the main predicate, *keep*, is identified with the SUBJ of the predicate complement, *visit*.

Anaphoric control is a control relation such that a referential index of a controller and a controllee is identified like pronominal binding. That is, a referential index for a f-structure of an unexpressed controllee (i.e. PRO) is identified with an index for a f-structure of a controller. For example, a gerund in English, *visting Fred* in *Susan discussed visiting Fred*, can be assigned the following f-structure (Bresnan 2001: 297).

(37) Susan discussed visiting Fred. (f-structure)

$$
\begin{bmatrix}
\text{SUBJ} & [\text{``Susan}_i\text{''}] \\
\text{PRED} & \text{`discuss<(↑SUBJ)(↑OBJ)>'} \\
\text{TENSE} & \text{PAST} \\
\text{OBJ} & \begin{bmatrix}
\text{POSS} & \\
\text{SUBJ} & \longrightarrow [\text{PRED 'PRO}_i\text{']} \\
\text{PRED} & \text{`visiting<(↑SUBJ)(↑OBJ)>'} \\
\text{OBJ} & [\text{``Fred''}]
\end{bmatrix}
\end{bmatrix}
$$
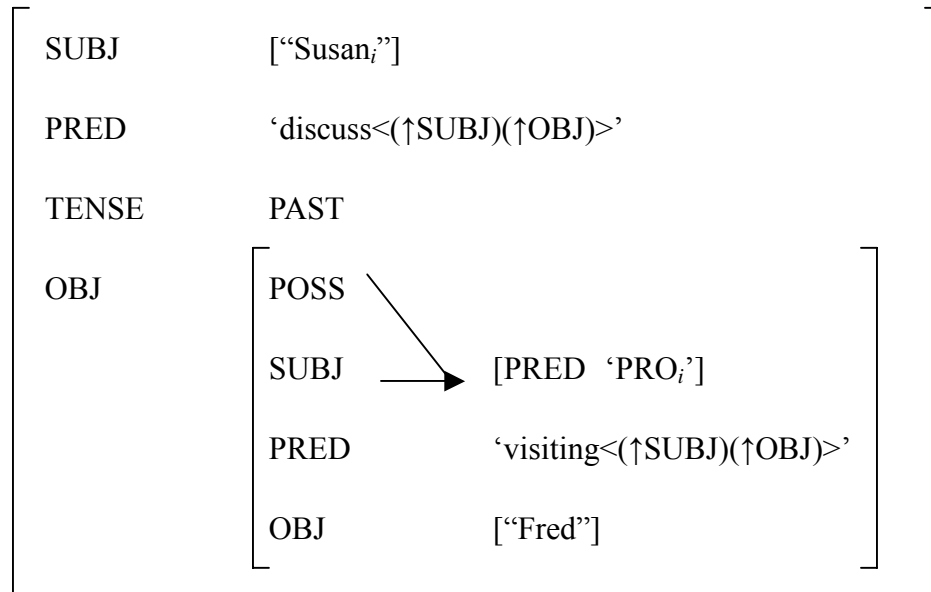
In (37), a referential index ($_i$) for the f-structure of the unexpressed SUBJ (i.e. PRO) of the gerund, *visiting*, is identified with an index for the f-structure of the SUBJ of the main predicate, *Susan*.

7.5.2 Arguments for Control Types in Purpose Expressions

In what follows, I argue for the functional control analysis of bi-clausal PEs (35a) and the anaphoric control analysis of mono-clausal NC-marked PEs (35b), on the basis

of the following properties (Mohanan 1983, Kroeger 2004, Bresnan 2001).

(38)

	functional control	anaphoric control
a. overt subject NPs	Impossible	Possible
b. overt pronouns	Impossible	Possible
c. arbitrary control	Impossible	Possible
d. controller	a specific GF only	Various GFs ok
e. locality	Local	Long Distance ok

First, functional control has no independent SUBJ in the predicate complement while

anaphoric control has an independent SUBJ, which happens to be a null pronoun, in

the predicate complement (Kroeger 2004: 129). Consequently, as in (38a), functional

control disallows overt subject NPs while anaphoric control allows them as well as

unexpressed subjects. For example, present participles disallow their overt subject NPs

as in (39b), but gerunds allow them as in (40b).

(39)a. While defending himself, Arthur committed perjury.

b. *While Arthur defending himself, Susan committed perjury.

(40)a. Praising himself always makes me sick.

b. John's praising himself always makes me sick.

Likewise, controlled clauses in the bi-clausal PEs disallow their overt subject NPs (e.g.

John-ga) as in (41b), whereas controlled phrases in the mono-clausal NC-marked PEs

allow their overt subject NPs (e.g. *John-no*) as in (42b).

(41)a. Mary-wa [hokudai-de ainugo-o/no   kenkyuu-ni]   nihon-ni   itta.

   M-TOP   H.Univ..-at   A-ACC/GEN   research-PURP Japan-to   went

      'Mary went to Japan to study Ainu at Hokkaido Univ.'

b. *Mary-wa [John-ga hokudai-de ainugo-o/no kenkyuu-ni]   nihon-ni   itta.

   M-TOP   J-NOM   H.Univ..-at   A-ACC/GEN   research-PURP Japan-to   went

      '*Mary went to Japan for John to study Ainu at Hokkaido Univ.'

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(42) a. Mary-wa [hokudai-de-no ainugo-no   kenkyuu-ni]   nihon-ni   itta.

M-TOP   H.Univ..-at-GEN   A-GEN   research-PURP   Japan-to   went

'Mary went to Japan to study Ainu at Hokkaido Univ.'

b. Mary-wa [John-no hokudai-de-no ainugo-no kenkyuu-ni]   nihon-ni   itta.

M-TOP   J-GEN   H.Univ..-at-GEN A-GEN   research-PURP Japan-to   went

'Mary went to Japan for the purpose of John's research on Ainu at

Hokkaido Univ.'

Secondly, the same difference in (in)dependency of the SUBJ in the predicate

complement also leads to a distinction such that functional control disallows

replacement of the controllee by an overt pronoun while anaphoric control allows it, as

in (38b). For example, present participles disallow overt pronominal controllees as in

(43b), but gerunds allow them as in (44b).

(43)a. Hearing the warning, John dodged the falling brick.

b. *Him/he hearing the warning, John dodged the falling brick.

(44)a. Praising himself got John into trouble.

b. His praising himself got John into trouble.   (Kroeger 2004: 128)

Likewise, bi-clausal PEs disallow overt pronominal controllees (e.g. *kanojo-ga*) as in

(45b), whereas mono-clausal NC-marked PE allows them (e.g. *kanojo-no*) as in (46b).

(45)a. Mary-wa [hokudai-de ainugo-o/no   kenkyuu-ni]   nihon-ni   itta.

M-TOP   H.Univ..-at   A-ACC/GEN   research-PURP Japan-to   went

'Mary went to Japan to study Ainu at Hokkaido Univ.'

b. *Mary-wa [kanojo-ga hokudai-de ainugo-o/no kenkyuu-ni]   nihon-ni   itta.

M-TOP   she-NOM   H.Univ..-at   A-ACC/GEN   research-PURP Japan-to   went

'Mary went to Japan for her to study Ainu at Hokkaido Univ.'

(46) a. Mary-wa [hokudai-de-no ainugo-no   kenkyuu-ni]   nihon-ni   itta.

M-TOP   H.Univ..-at-GEN   A-GEN   research-PURP   Japan-to   went

'Mary went to Japan to study Ainu at Hokkaido Univ.'

b. Mary-wa [kanojo-no hokudai-de-no ainugo-no kenkyuu-ni]   nihon-ni   itta.

M-TOP   she-GEN   H.Univ..-at-GEN A-GEN   research-PURP Japan-to   went

'Mary went to Japan for the purpose of her research on Ainu at Hokkaido

Univ.'

Thirdly, as in (38c), controllers are obligatory, that is, no arbitrary control is possible in a functional control. Anaphoric control allows itself to have no controller and its controllee to have an interpretation of arbitrary reference. For example, present participles are obligated to have a controller as in (47a) while gerunds allow themselves to have no controller as in (47b).

(47)a. *While praising oneself/himself, the situation may become ludicrous.

b. Praising oneself is frowned upon. (Kroeger 2004: 128)

In Japanese, controlled clauses in bi-clausal PEs cannot occur in an environment where the obligatory control is not available, while controlled phrases in mono-clausal NC-marked PEs can occur. Such an environment includes an adjunct position for non-motion verbs.

(48)a. *A-daigaku-wa [hokudai-de ainugo-o/no   kenkyuu-ni]

A-Univ.-TOP   H.Univ..-at   A-ACC/GEN   research-PURP

sikin'enjo-o   sinakatta.

financial-support-ACC did.not.do

'A-Univ. did not offer a financial support for the purpose of research on

Ainu at Hokkaido Univ.'

b. A-daigaku-wa [hokudai-de-no ainugo-no   kenkyuu-ni]

A-Univ.-TOP   H.Univ..-at-GEN   A-GEN   research-PURP

sikin'enjo-o   sinakatta.

financial-support-ACC did.not.do

    'A-Univ. did not offer a financial support for the purpose of research on

     Ainu at Hokkaido Univ.'

In (48b), the subject of main predicate (i.e. A-Univ.) is not counted as a controller of

the Purpose Complement. The controllee is interpreted with arbitrary reference (i.e.

anybody can do research on Ainu).

    Fourth, controllers must bear a specific GF such as SUBJ in functional control,

while they can have various GFs in anaphoric control, as in (38d).

(49) Addressing himself/*herself to the senate, Nero blamed his mother for the fire.

(50) a. John denied voting for himself.

    b. Presenting himself to the duchess got Peter into trouble.

    c. Locking his cousins in the basement is Henry's idea of a good joke.

As in (49), the controller of a present participle must be a subject of the matrix clause.

The controller of a gerund may be a SUBJ (50a), an OBJ (50b), and even a possessor

(50c).

Likewise, the controller of the controlled clause in the bi-clausal PE must be a

subject of the matrix clause, while the controller of the controlled phrase in the

mono-clausal NC-marked PE can serve as another GF. Thus, only the controlled phrase

can occur in an environment where an object of the matrix clause controls it as in (51b).

It contrasts with the former complement, which cannot occur in the same environment,

as in (51a).

(51)a. *Hokudai-wa Nihon-de ainugo-o/no kenkyuu-ni

   H-Univ.-TOP Japan-at A-ACC/GEN research-PURP

John-o maneita.

John-ACC invited

'Hokkaido University invited John to study Ainu in Japan.'

b. Hokudai-wa   Nihon-de-no   ainugo-no kenkyuu-ni

H-Univ.-TOP Japan-at-GEN   A-GEN   research-PURP

John-o maneita.

John-ACC invited

'Hokkaido University invited John for him to study Ainu in Japan.'

Lastly, functional control must be local while it is possible to have long distance

anaphoric control, as in (38e). For example, the controller of a present participle must

be an element of the immediate matrix clause, so that it cannot be an element of higher

clause as in (52a). However, the controller of a gerund may be an element of higher

clause than the immediate matrix clause, as in (52b).

(52)a. John asked his brother to inform their clients that, while surrendering

herself/*himself/*themselves to the police was necessary.

b. John asked his wife to explain to their clients why surrendering

himself/herself/themselves to the police was necessary.

(Kroeger 2004: 128)

In Japanese, the bi-clausal PE cannot have a controller that is an element of a higher

clause than the immediate matrix clause. Thus, in (53a), the controller of the bi-clausal

PE is limited to the subject of the immediate matrix clause (i.e. Bill), so that only the

reading (i) is possible. In contrast, the mono-clausal NC-marked PE can have a

controller that is an element of a clause higher than the immediate matrix clause. Thus,

in (53b), the controller of the mono-clausal NC-marked PE is not only the subject of

the immediate matrix clause, as in the reading (i), but also an element or elements in a

higher clause than the immediate matrix clause, as in the reading (ii) and (iii), if an

appropriate context is given.

(53)a. John-wa Mary-ni [Bill-ga   [hokudai-de ainugo-o/no   kenkyuu-ni]

J-TOP   M-to B-NOM   H.Univ..-at   A-ACC/GEN   research-PURP

nihon-ni   iku]   to   itta.

Japan-to   go.NPST COMP said

'(i) John said to Mary that Bill goes to Japan to study Ainu at Hokkaido Univ.'

'(ii) *John said to Mary that Bill goes to Japan for the purpose of her research

on Ainu at Hokkaido Univ..'

'(iii) *John said to Mary that Bill goes to Japan for the purpose of their (John

and Mary's) research on Ainu at Hokkaido Univ..'

b. John-wa Mary-ni [Bill-ga   [hokudai-de-no ainugo-no   kenkyuu-ni]

J-TOP   M-to B-NOM   H.Univ..-at-GEN   A-GEN   research-PURP

nihon-ni   iku]   to   itta.

Japan-to   go.NPST COMP said

'(i) John said to Mary that Bill goes to Japan to study Ainu at Hokkaido Univ.'

'(ii) John said to Mary that Bill goes to Japan for the purpose of her research

on Ainu at Hokkaido Univ..'

'(iii) John said to Mary that Bill goes to Japan for the purpose of their (John

and Mary's) research on Ainu at Hokkaido Univ..'

In conclusion, one can see that the bi-clausal PE and the mono-clausal

NC-marked PE show the five distinct properties of functional and anaphoric control in

(38), respectively. This result verifies my functional control analysis of the bi-clausal

PE and anaphoric control analysis of the mono-clausal NC-marked PE.

7.5.3 A LFG Control Analysis of Purpose Expressions

Now, let us consider structural representations for two control-types of PEs. I

must assign bi-clausal PEs functional-control structures and mono-clausal NC-marked

PEs anaphoric-control structures. For example, a bi-clausal PE (25a) can be associated

with the following relevant syntactic representations.[58]

(54) Bi-clausal PE (functional control)
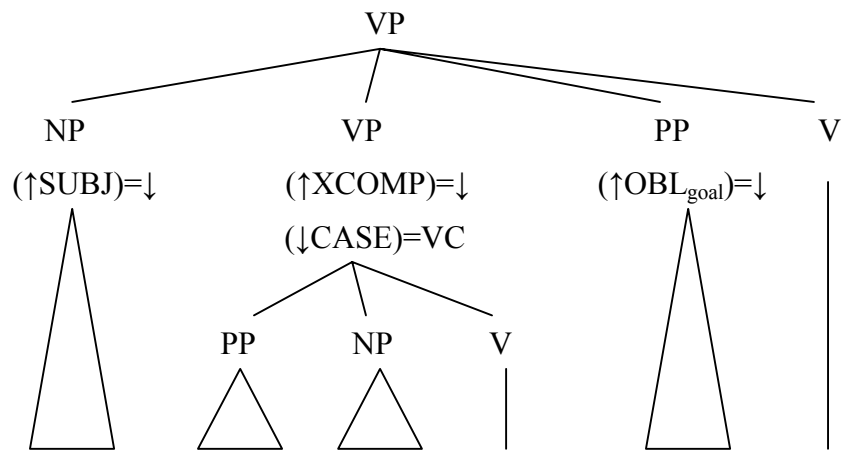
a. c-structure

John-ga   hokudai-de ainugo-o kenkyuu-ni   nihon-ni   itta. (= 25a)

J-NOM   H.Univ..-at A-ACC research-PURP Japan-to   went

'John went to Japan to study Ainu at Hokkaido Univ.'

---

[58] The syntactic structures for PEs shown below are partially represented. Irrelevant parts are omitted or abbreviated for convenience.

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b. f-structure

$$
\left[
\begin{array}{ll}
\text{PRED} & \text{'go} <(\uparrow\text{SUBJ})(\uparrow\text{OBL}_{goal})(\uparrow\text{XCOMP})>' \\[2ex]
\text{SUBJ} & \left[\begin{array}{ll} \text{PRED} & \text{'John'} \\ \text{CASE} & \text{NOM} \end{array}\right] \\[3ex]
\text{OBL}_{goal} & [\text{PRED} \quad \text{'Japan'}] \\[2ex]
\text{XCOMP} & \left[\begin{array}{ll} \text{PRED} & \text{'to-study} <(\uparrow\text{SUBJ})(\uparrow\text{OBJ}) (\uparrow\text{OBL}_{loc})>' \\ \text{SUBJ} & \underline{} \\ \text{OBJ} & [\text{PRED} \quad \text{'Ainu'}] \\ \text{OBL}_{loc} & [\text{PRED} \quad \text{'Hokkaido Univ.'}] \end{array}\right]
\end{array}
\right]
$$

As shown in (54a), the c-structure for the bi-clausal PE (25a) involves a controlled

clause, which is a verbal projection that lacks a position for the unexpressed subject. In

the f-structure (54b), the SUBJ, *John*, of the main predicate, *itta 'went'*, is identified

with the SUBJ of the predicate complement, *kenkyuu-ni 'to study'*.

A mono-clausal NC-marked PE (25c) can be assigned the following relevant

syntactic representations.

(55) Mono-clausal NC-marked PE (anaphoric control)

a. c-structure

```
                              VP
           _____/ /|_____
          /               /  |  \        \
        NP             PP        PP        V
    (↑SUBJ)=↓    (↑OBLpurp)=↓  (↑OBLgoal)=↓
                    ___/\___
                   /        \
                  NP         P
              (↓CASE)=NC
              __/ | \__
             /    |    \
            PP   NP     N
```

$(\uparrow SUBJ)=\downarrow$ $(\uparrow OBL_{purp})=\downarrow$ $(\uparrow OBL_{goal})=\downarrow$

$(\downarrow CASE)=NC$

John-ga   hokudai-de-no ainugo-no kenkyuu ni   nihon-ni   itta. (=25c)
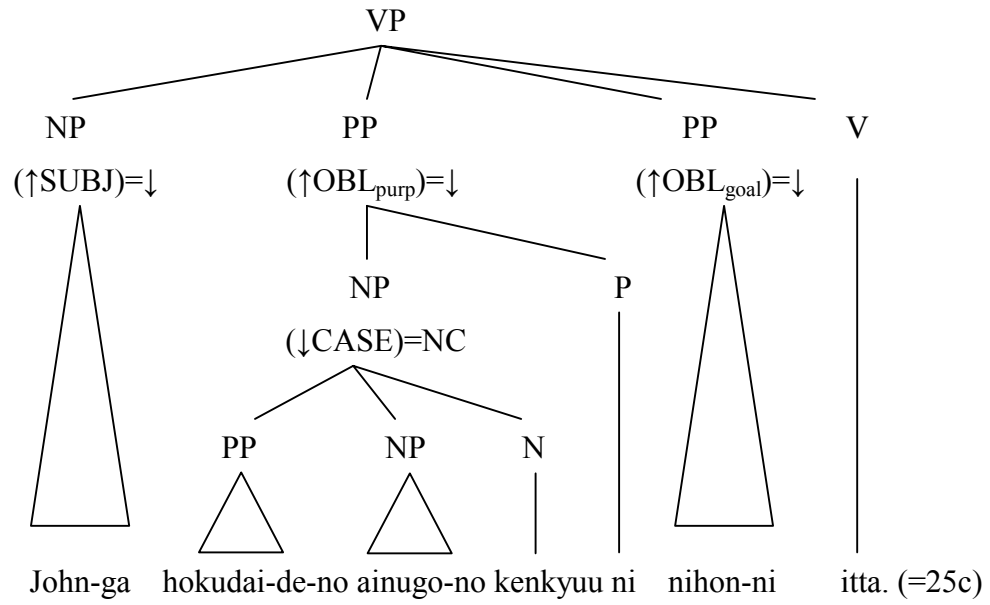
J-NOM   H.Univ.-at-GEN   A-GEN research PURP   Japan-to   went

'John went to Japan for studying Ainu at Hokkaido Univ.'
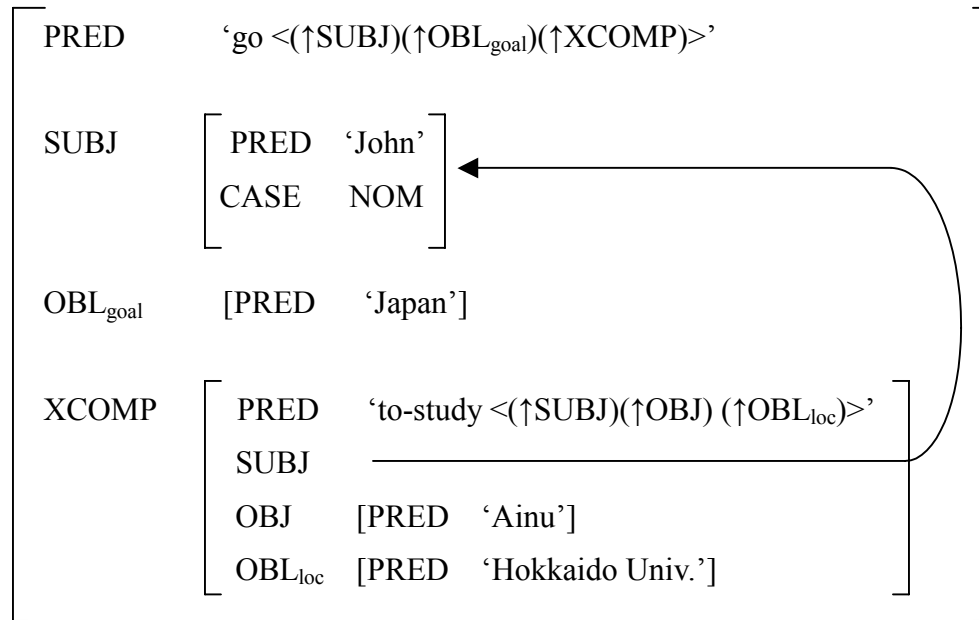
b. f-structure

$$
\begin{bmatrix}
\text{PRED} & \text{`go} <(\uparrow\text{SUBJ})(\uparrow\text{OBL}_{\text{goal}})(\uparrow \text{OBL}_{\text{purp}})>\text{'} \\
\\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{`John}_i\text{'} \\ \text{CASE} & \text{NOM} \end{bmatrix} \\
\\
\text{OBL}_{\text{goal}} & [\text{PRED} \quad \text{`Japan'}] \\
\\
\text{OBL}_{\text{purp}} & \begin{bmatrix}
\text{PRED} & \text{`research} <(\uparrow\text{SUBJ})(\uparrow\text{OBJ})(\uparrow\text{OBL}_{\text{loc}})>\text{'} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{`PRO}_i\text{'} \\ \text{CASE} & \text{GEN} \end{bmatrix} \\
\text{OBJ} & [\text{PRED} \quad \text{`Ainu'}] \\
\text{OBL}_{\text{loc}} & [\text{PRED} \quad \text{`Hokkaido Univ.'}]
\end{bmatrix}
\end{bmatrix}
$$

As shown in (55a), the c-structure for the mono-clausal NC-marked PE (25c) involves

a nominal projection that is made up of a CEN, *kenkyuu* 'research', and its NC-marked

arguments, but lacks a position for its unexpressed subject. In the f-structure (55b), a

referential index ($_i$) for the f-structure of the unexpressed SUBJ (i.e. PRO) of the CEN,

kenkyuu 'research', is identified with an index for the f-structure of the SUBJ of the

main predicate, *John*.

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As for a bi-clausal MC-marked PE (25b), I assume a head sharing analysis (i.e. Bresnan 1997's modified extended head theory) for the controlled clause in the same way as Temporal Morpheme Constructions, which allow MC-marking on their arguments (cf. Chapter 4), on the basis of the fact that it shows grammatical behaviors associated with mixed categories.

(56) Bi-clausal MC-marked PE (functional control)

a. c-structure


```
                              VP
          ┌───────────────────┼──────────────────┐
          NP                  VP              PP      V
      (↑SUBJ)=↓           (↑XCOMP)=↓      (↑OBL_goal)=↓
                       ┌──────┼──────┐
                       PP     NP     V
                              ↑=↓
                               |
                              NP
                          (↑OBJ)=↓
                        (↓CASE)=GEN
```

John-ga   hokudai-de   ainugo-no kenkyuu-ni   nihon-ni   itta. (= 36c)

J-NOM   H.Univ.-at   A-GEN   research-PURP Japan-to   went

'John went to Japan to study Ainu at Hokkaido Univ.'

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b. f-structure

$$
\begin{bmatrix}
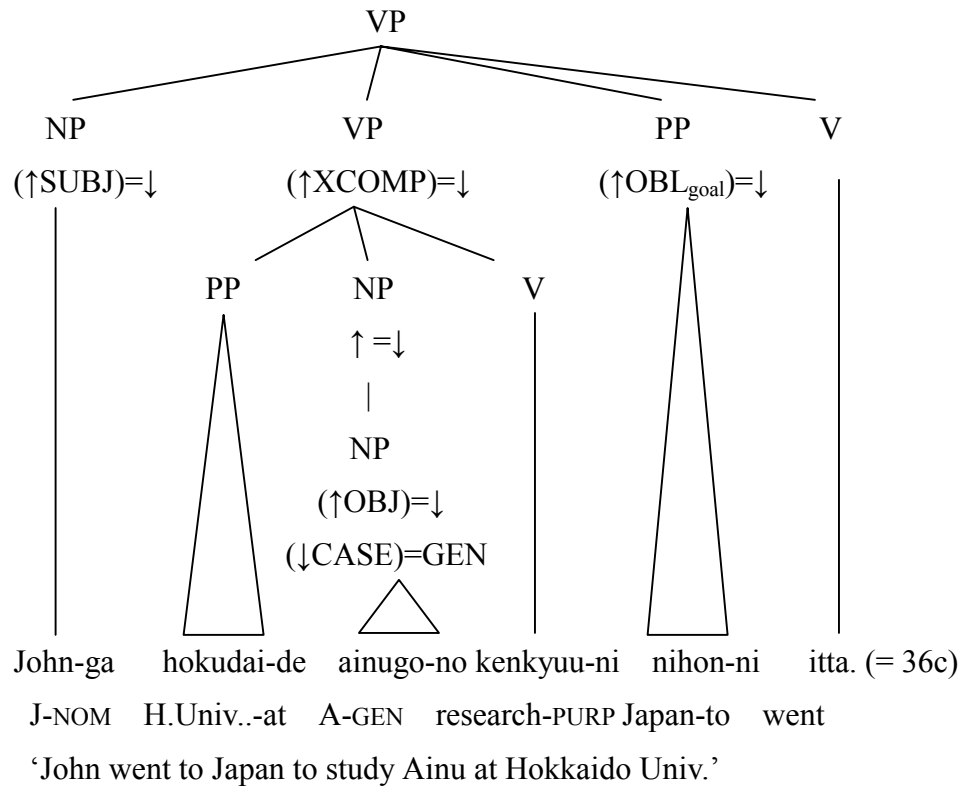\text{PRED} & \text{'go} <(\uparrow\text{SUBJ})(\uparrow\text{OBL}_{\text{goal}})(\uparrow\text{XCOMP})>\text{'} \\[2ex]
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'John'} \\ \text{CASE} & \text{NOM} \end{bmatrix} \\[3ex]
\text{OBL}_{\text{goal}} & [\text{PRED} \quad \text{'Japan'}] \\[2ex]
\text{XCOMP} & \begin{bmatrix}
\text{PRED} & \text{'to-study} <(\uparrow\text{SUBJ})(\uparrow\text{OBJ})\ (\uparrow\text{OBL}_{\text{loc}})>\text{'} \\
\text{SUBJ} & \underline{\qquad\qquad} \\
\text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'Ainu'} \\ \text{CASE} & \text{GEN} \end{bmatrix} \\
\text{OBL}_{\text{loc}} & [\text{PRED} \quad \text{'Hokkaido Univ.'}]
\end{bmatrix}
\end{bmatrix}
$$

As shown in (56a, b), a verbal head, *kenkyuu-ni* 'to study', and its sister NP, *ainugo-no* 'of Ainu', are mapped to the same f-structure within a f-structure for the predicate complement.

The distinction between functional and anaphoric control captures different case features associated with the subject of the controlled clause/phrase. In a NC-marked controlled phrase, the unexpressed subject must be associated with a nominal case feature such as GEN. In a VC- or MC-marked controlled clause, the unexpressed

subject must be associated with a verbal case feature such as NOM. The difference in

case-marking on the subject of controlled clause/phrase can be predicted by a

distinction such that "f-structure attributes like CASE are expected to be shared in

functional control, but not anaphoric control (Bresnan 2001: 298)."

7.5.4 On Purpose Expressions with Complex Predicates

Then, what about the control status of mono-clausal complex predicate PEs? I

have assumed that it is associated with a simple verbal projection headed by a verbal

complex predicate. The complex predicate analysis explains the mono-clausal

VC-marked PE's properties: 1) mono-clausal behaviors, 2) an adjacency requirement

for the CEN + Purpose Marker and the motion verb, 3) a ban on the occurrence of

locative phrases, 4) and a ban on MC-marking in the controlled clause. I do not go into

the issue of complex predicate in this thesis, but assume the following structural

representations for the mono-clausal VC-marked PEs, adopting Matsumoto (1996)'s

analysis.

(57) Mono-clausal VC-marked PEs (complex predicate)

 a. c-structure

```
                              VP
        ┌──────────┬──────────┬────────────────────┐
       NP          NP         PP                    V*
   (↑SUBJ)=↓   (↑OBJ)=↓   (↑OBL_goal)=↓          ┌──────┴──────┐
       △          △           △                  V             V
                                                 │             │
    John-ga     ainugo-o     nihon-ni      [kenkyuu-ni     itta]. (= 10a)

    John-NOM    Ainu-ACC     Japan-to       research-PURP went
```
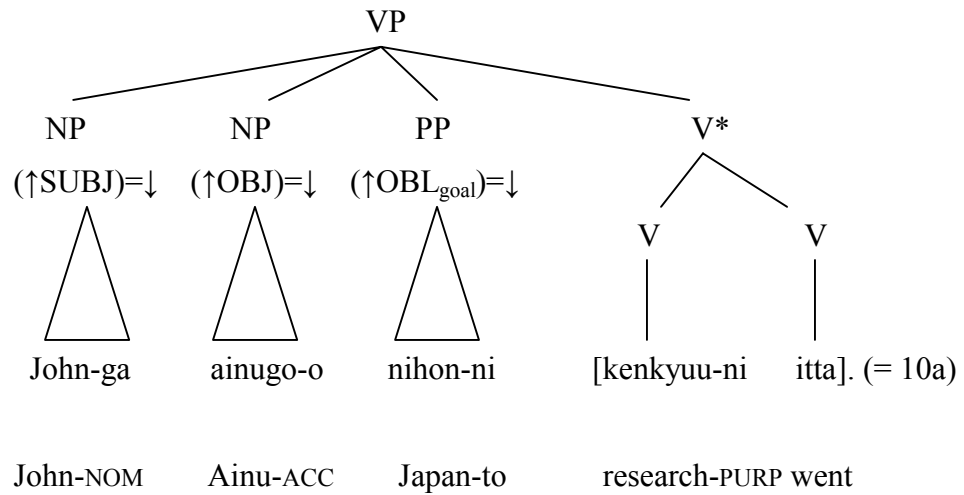
 'John went to Japan to study Ainu.'

 b. f-structure

$$
\begin{bmatrix}
\text{PRED} & \text{'go-to-study} <(\uparrow\text{SUBJ})(\uparrow\text{OBL}_{goal})(\uparrow\text{OBJ})>\text{'} \\
\\
\text{SUBJ} & [\text{PRED} \quad \text{'John'}] \\
\text{OBL}_{goal} & [\text{PRED} \quad \text{'Japan'}] \\
\text{OBJ} & [\text{PRED} \quad \text{'Ainu'}]
\end{bmatrix}
$$

In the c-structure (57a), the CEN + Purpose Marker and a motion verb, *kenkyuu-ni itta* 'went to study', form a syntactic unit that behaves like a word in syntax. Following Matsumoto (1996), which adopts Booij (1982)'s idea, I represent the syntactic unit as V*, taking it as a word-like unit that is formed in syntax. In the f-structure (57b), the complex predicate, *kenkyuu-ni itta*, subcategorizes SUBJ, OBJ, and OBLgoal. The subcategorized arguments are realized in the same clause headed by the complex predicate at c-structure and f-structure, respectively.

My complex predicate analysis can exclude the possibility of control structure analysis from this kind of mono-clausal VC-marked PE. Since the complex predicate is not analyzed into two predicates, I cannot posit both arguments of the CEN (+Purpose Marker) such as SUBJ and OBJ and those of the motion verb such as SUBJ and OBLgoal, respectively. Accordingly, I can avoid assuming an unexpressed subject of the controlled clause and the controlled clause itself, the defining characteristics of control structure.

I can support the non-control analysis of the mono-clausal VC-marked PE by

arguing against both an anaphoric control and a functional control analysis. The argument against the anaphoric control analysis is based on the fact that the PE in question does not show properties of anaphoric control in (38). Rather, the PE's behavior with regard to the properties of anaphoric control can be explained on the basis of the complex predicate/mono-clausal analysis. That is, the mono-clausal VC-marked PE does not allow an overt subject NP or an overt pronoun in addition to the subject of matrix clause, as in (58) and (59), since it is mono-clausal. The property of arbitrary control is impossible, as in (60), since the mono-clausal VC-marked PE is a single clause involving a subject with a non-arbitrary referent and cannot have another subject that denotes an entity with an arbitrary reference. An element other than SUBJ cannot serve as an apparent missing subject of a CEN in the mono-clausal VC-marked PE, as in (61), since the SUBJ must be unique in mono-clauses. Moreover, the PE in question allows only a subject of immediate matrix clause, as in (62), since a predicate-argument relation must be local in mono-clauses.

(58)a. *Mary-wa <u>John-ga</u> ainugo-o nihon-ni kenkyuu-ni   itta.

   M-TOP   J-NOM   A-ACC   Japan-to research-PURP   went

   'Mary went to Japan for the purpose of John's research on Ainu.'

   b. *Mary-wa <u>John-ga</u> nihon-ni ainugo-o kenkyuu-ni   itta.

   M-TOP   J-NOM   Japan-to   A-ACC   research-PURP   went

   'Mary went to Japan for the purpose of John's research on Ainu.'

(59) a. *Mary-wa <u>kanojo-ga</u> ainugo-o nihon-ni kenkyuu-ni   itta.

   M-TOP   she-NOM   A-ACC   Japan-to research-PURP   went

   'Mary went to Japan for her to study Ainu.'

   b. *Mary-wa <u>kanojo-ga</u> nihon-ni ainugo-o kenkyuu-ni   itta.

   M-TOP   she-NOM   Japan-to   A-ACC   research-PURP   went

   'Mary went to Japan for her to study Ainu.'

(60)a. *A-daigaku-wa   ainugo-o   nihon-ni   kenkyuu-ni

   A-Univ.-TOP   A-ACC   Japan-to   research-PURP

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sikin'enjo-o   sinakatta.

financial-support-ACC did.not.do

'A-Univ. did not offer a financial support for the purpose of research on

Ainu.'

b. *A-daigaku-wa   nihon-ni   ainugo-o   kenkyuu-ni

A-Univ.-TOP   Japan-to   A-ACC   research-PURP

sikin'enjo-o   sinakatta.

financial-support-ACC did.not.do

'A-Univ. did not offer a financial support for the purpose of research on

Ainu.'

(61)a. *Hokudai-wa   ainugo-o   nihon-ni   kenkyuu-ni

H-Univ.-TOP   A-ACC   Japan-to   research-PURP

John-o maneita.

John-ACC invited

'Hokkaido University invited John to study Ainu to Japan.'

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b. *Hokudai-wa   nihon-ni   ainugo-o   kenkyuu-ni

H-Univ.-TOP   Japan-to   A-ACC   research-PURP

John-o maneita.

John-ACC invited

'Hokkaido University invited John to study Ainu to Japan.'

(62)a. John-wa Mary-ni [Bill-ga   ainugo-o   nihon-ni kenkyuu-ni

J-TOP   M-to   B-NOM   A-ACC   Japan-to research-PURP

iku]   to   itta.

go.NPST   COMP said

'(i) John said to Mary that Bill goes to Japan to study Ainu.'

'(ii) John said to Mary that Bill goes to Japan for the purpose of her research

on Ainu.'

'(iii) John said to Mary that Bill goes to Japan for the purpose of their (John

and Mary's) research on Ainu.'

b. John-wa Mary-ni [Bill-ga   nihon-ni   ainugo-o kenkyuu-ni

   J-TOP   M-to   B-NOM   Japan-to   A-ACC   research-PURP

    iku]   to   itta.

    go.NPST   COMP   said

'(i) John said to Mary that Bill goes to Japan to study Ainu.'

'(ii) John said to Mary that Bill goes to Japan for the purpose of her research

      on Ainu.'

'(iii) John said to Mary that Bill goes to Japan for the purpose of their (John

      and Mary's) research on Ainu.'

The unacceptability of the examples in (60) and (61) can also be explained by my

complex predicate analysis of the mono-clausal VC-marked PE, since the examples

involve only a part of the complex predicate.

   The data (58) – (62) do not suggest that the mono-clausal VC-marked PE has a

functional control structure, either. Rather, if it involves functional control, it must be a

logically implausible mono-clause that involves a VC-marked predicate complement

that does not form a clausal boundary. Instead, the data (58) – (62) can be explained by

my mono-clausal/complex predicate analysis of the mono-clausal VC-marked PE, as

illustrated in the last paragraph.

7.6 On the Correlation between Case Marking and Other Grammatical Properties in Purpose Expressions

So far, I have argued that two types of PEs, which share the same case-marking

and categorial properties as Temporal Morpheme Constructions, can be associated with

two different clausalities and two different control types. In this section, I consider a

possible explanation for the correlation between the case-marking (or categorial)

properties and the other grammatical properties such as clausalities and control types in

PEs. The correlation can be summarized as follows.

(63) Two types of PEs (revised)

	Clausality	Case/Category in Controlled Clauses/Phrases	Heads in Controlled Clauses/Phrases	Control Types
a.	Mono-clausal	NC / NP	2 words (N+P)	anaphoric
b.	Bi-clausal	VC or MC / VP	1 word (V)	functional

First, consider the correlation between case/category and clausality. On the one hand, VC-marked PEs are bi-clausal because they embed a verbal projection, which allows VC-marking in Japanese and is capable of the formation of a clause. MC-marked PEs are also bi-clausal, since they also embed a verbal projection, which is headed by a morphological derivative that allows an extended head, the source of mixed categories. On the other hand, NC-marked PEs are mono-clausal because they do not embed the verbal projection but involve a nominal projection, which allows NC-marking in Japanese but does not participate in the clause formation.

Next, consider the correlation between case/category and control. Regarding two

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types of PEs in Japanese, it appears that functional control structures involve verbal

projections as their controlled clauses, while anaphoric control structures involve

nominal projections as their controlled phrases. Likewise, in English, gerundive

phrases (i.e. anaphoric control structures) behave like nominal projections, but present

participials (i.e. functional control structures) do not. Bresnan (2001: 287-289)

demonstrates this point, based on the fact that the former can bear the SUBJ and OBJ

functions, be replaced by the pronoun *it*, and take a genitive specifier.

(64)a. Visiting Fred was discussed by Susan.

   b. *Visiting Fred was kept by Susan.

(65)a. Visiting Fred, Susan doesn't want to discuss it.

   b. *Visiting Fred, Susan doesn't want to keep it.

(66)a. Susan discussed our visiting Fred

   b. *Susan kept our visiting Fred.

In (64), the gerundive *visiting Fred* can be passivized because it can bear the SUBJ or the OBJ function, while the present participial *visiting Fred* cannot. (65) and (66) show that the '*it*' replacement and the genitive specifier are allowed in the gerundive but not in the present participial, respectively.

The correlation between anaphoric control and nominal properties and between functional control and verbal properties can be explained by their f-structure differences. In anaphoric control structures, an f-structure corresponding to the c-structure of a controlled phrase should be associated with a GF such as SUBJ or OBJ in the same way as an NP. In functional control structures, an f-structure corresponding to the c-structure of a controlled clause should be associated with an open function such as XCOMP or XADJ. Though the open function should be categorially flexible, it is associated with a predicate complement/adjunct. Thus, it can be associated with verbal properties. Incidentally, the correlation between control types and case marking is also obtained via the one between control types and categories.

It is not easy to explain the correlation between mixed category (or mixed case

marking) and functional control. One might explain that the mixed category or mixed case marking is licensed by the categorial flexibility of predicate complements (or adjuncts) in functional control structures. However, it is not sufficient, because the mixed category or mixed case marking is also allowed in non-control structures such as Temporal Morpheme Constructions and because it is allowed even in anaphoric control structures such as gerundive phrases in English. I might be able to maintain a hypothesized correlation between the categorial flexibility of predicate complements in functional control and the occurrence of mixed categories until one can find the evidence that functional control structures disallow mixed categories. Nevertheless, such a correlation seems to be just one of the conditions to license the occurrence of mixed categories.

7.7 Nominalized Adjective Constructions

In the rest of this chapter, I examine **Nominalized Adjective Constructions**

(**NACs**: cf. Sugioka 1986, Morimoto 1996), which Bresnan (1997: also Morimoto 1996) count as mixed categories that can be handled by her (or their) head sharing analysis. I will suggest that this construction can be handled in the same way as Purpose Expressions on the basis of their similarity regarding control structures and case-marking properties. In what follows, I will observe basic facts on NACs, discuss issues concerning their structures, and provide and defend my analysis.

7.7.1 Basic Facts

To begin with, let us introduce NACs briefly. The NACs are grammatical constructions predicated by a **desiderative adjective** (i.e. *hosii* 'want', V_{nonfin}-*tai* 'want to V'), which is nominalized by a suffix –*sa* and followed by an element that serves to indicate a reason or motivation (e.g. *ni*, *no amari* 'for').

(67)a. hosi-sa   ni/no amari

     want-NML for/for

     'for (someone) wants (something)'

  b. tabe-ta-sa   ni/no amari

     eat-want-NML for/for

     'for (someone) wants to eat (something)'

The desiderative adjective subcategorizes for the subject and the object, at least. A simple desiderative adjective, *hosii* 'want', subcategorizes for an object NP which is marked by a Nominative case-particle, *ga*, while a complex desiderative adjective, V-*tai* 'want to', an object NP which allows both a Nominative and an Accusative case-particle. Both desiderative adjectives also subcategorize for a subject NP, which is marked by a Nominative case-particle. The referent of the subject NP must be a speaker.

(68)a. Watasi/*John-ga   kane-ga/*o   hosii

　　　I/John-NOM   money-NOM/ACC   want.NPST

　　　'I want money.'

　 b. Watasi/*Mary-ga   keeki-ga/o   tabe-tai

　　　I/Mary-NOM   cake-NOM/ACC   eat-want.NPST

　　　'I want to eat cakes.'

However, once desiderative adjectives are nominalized by –sa, their object NPs are

marked by a genitive particle, no. Their subject NPs are also marked by a genitive

particle and are allowed to have a third person referent other than a speaker.

(69)a. watasi/John-no/*ga   kane-no/*ga/*o   hosi-sa(-ga/o …)

　　　I/John-GEN/NOM   money-GEN/NOM/ACC   want-NML(-NOM/ACC…)

　　　'my/John's desire for money'

b. watasi/Mary-no/*ga   keeki-no/*ga/*o   tabe-ta-sa(-ga/o …)

   I/Mary-GEN/NOM   cake-GEN/NOM/ACC   eat-want-NML(-NOM/ACC…)

   'my/Mary's desire to eat cakes'

Thus, the –*sa* nominalization of desiderative adjective itself does not contribute to VC-marking. The VC-marking of the arguments of the nominal is possible only if the nominal appears in a particular environment which involves an element indicating a reason or motivation (i.e. NAC). [59]

Unlike controlled clauses/phrases in Purpose Expressions, NACs do not serve as complements but are used as adjuncts (i.e. adverbial phrases), which modify a main clause. The subject of NACs is co-referential with the matrix subject NP, which is, in turn, subcategorized for by a matrix predicate. Thus, like Purpose Expressions, NACs

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[59] Our observation of the data in (69) is in line with Ishikawa (1985) and Morimoto (1996). They argue against Sugioka (1986)'s claim that –*sa* is a phrasal suffix so that the nominalized desiderative adjectives allow VC-marking in an environment like (i) other than NACs. Like Ishikawa and Morimoto, we do not take a VC-marking in (i) as possible but allow only a NC-marking as in (ii).

(i) *Hanako-ni ai-ta-sa   ga tunoru bakari da.
    Hanako-DAT meet-want-NML NOM increase ever   COP
    'My desire to meet Hanako gets stronger and stronger.'
(ii) Hanako-e-no   ai-ta-sa   ga tunoru bakari da.
     Hanako-DAT-GEN meet-want-NML NOM increase ever   COP

Kageyama (1980) also suggests that VC-marking in the nominalized desiderative adjectives is limited to NACs.

can also be taken as having **control** structures which involve an unexpressed subject

NP (i.e. PRO), which is co-referential to the matrix subject.

7.7.2 Case-marking Properties of Nominalized Adjective Constructions

NACs have the same case-marking properties as Purpose Expressions. I can

classify them into VC-marked (70a), MC-marked (70b), or NC-marked (70c),

regarding their case-marking properties.

(70)a. John-ga [tesuto-de ii ten-ga/o   tori-ta-sa-ni],

John-NOM test-on   good mark-NOM/ACC take-want.to-NML-for

(gakkoo-o sabot-te simatta.)   <VC>

school-ACC cut-TE finished

'(John has cut school) for he wanted to get a good mark on the exam.'

b. John-ga   [tesuto-de ii   ten-no   tori-ta-sa-ni],

John-NOM   test-on   good   mark-GEN   take-want.to-NML-for

(gakkoo-o sabot-te simatta.)   <MC>

school-ACC cut-TE finished

c. John-ga [tesuto-de-no ii   ten-no   tori-ta-sa-ni],

John-NOM   test-on-GEN   good mark-GEN   take-want.to-NML-for

(gakkoo-o sabot-te simatta.)   <NC>

school-ACC cut-TE finished

To understand potential case-marking properties of NACs, I can observe that, instead

of the unexpressed subject in them, a complement that expresses an abstract location

can receive either a verbal semantic case (i.e. *tesuto-de*) or the nominal counterpart (i.e.

tesuto-de-no).

7.7.3 Clausality in Nominalized Adjective Constructions

Regarding the clause-mate condition of NPI licensing, VC- or MC-marked NACs can be associated with clausal boundaries, as follows.

(71)a. John-<u>sika</u> [tesuto-de ii ten-ga/o/no tori-ta-sa-ni],

John-NPI test-on good mark-NOM/ACC/GEN take-want.to-NML-for

gakkoo-o sabor<u>ana</u>katta. <VC/MC>

school-ACC cut.NEG.PAST

'Only John cut school for he wanted to get a good mark on the exam.'

b. John-ga [tesuto-de ii ten-ga/o/no tori-ta-sa-ni],

John-NOM test-on good mark-NOM/ACC/GEN take-want.to-NML-for

gakkoo-<u>sika</u> sabor<u>ana</u>katta. <VC/MC>

school-NPI cut.NEG.PAST

'John cut only school for he wanted to get a good mark on the exam.'

c. *John-ga   [tesuto-de-<u>sika</u>   ii   ten-ga/o/no   tori-ta-sa-ni],

John-NOM   test-on- NPI   good mark-NOM/ACC/GEN   take-want.to-NML-for

gakkoo-o sabo<u>ran</u>akatta.   <VC/MC>

school-ACC cut.NEG.PAST

'John cut school for he wanted to get a good mark on only an exam.'

d. *John-ga   [tesuto-de   ii   ten-<u>sika</u>   tori-ta-sa-ni],

John-NOM   test-on   good mark-NPI   take-want.to-NML-for

gakkoo-o sabo<u>ran</u>akatta.   <VC/MC>

school-ACC cut.NEG.PAST

'John cut school for he wanted to get only a good mark on the exam.'

An NPI, *sika*, is licensed by a negative morpheme, *-ana-*, in (71a, b), since both

elements, which are underlined in the examples, appear in their main clauses (or

outside of the VC- or MC-marked NACs). However, the NPI is not licensed by the

negative morpheme in (71c, d), since the former appears within the NACs, while the

latter appears in the main clause.

As for NC-marked NACs, their clausality cannot be tested by the NPI licensing, for the same reason as that of the NC-marked Purpose Expressions (i.e. since the NPI particle, *sika*, is a VC-particle and never appears in a nominal projection). Nevertheless, the NC-marked NACs cannot be associated with clausal boundaries, since their NC-marking suggests that they are not verbal projections but nominal projections. Accordingly, the NC-marked NACs serve as controlled phrases rather than controlled clauses.

As a result, I can classify sentences in which NACs are embedded into either mono-clausal or bi-clausal: sentences with NC-marked NACs as in (70c) are mono-clausal while those with VC- or MC-marked NACs as in (70a, b) are bi-clausal.

7.7.4 Functional vs. Anaphoric Control

With regard to control types, VC- or MC-marked NACs (70a, b) can be associated

with functional control structures, while NC-marked NACs can be associated with

anaphoric control structures, in the same way as Purpose Expressions.

The control types of NACs can be distinguished by the criteria used for the

control-type distinction in Purpose Expressions, repeated below.

(45)

	functional control	anaphoric control
a. overt subject NPs	Impossible	possible
b. overt pronouns	Impossible	possible
c. arbitrary control	Impossible	possible
d. controller	a specific GF only	Various GFs ok
e. locality	Local	Long Distance ok

First, VC- or MC-marked NACs disallow overt subject NPs as in (72a, b), while

NC-marked NACs allow them as in (72c).

(72)a. *John-wa [Mary-ga   tesuto-de   ii   ten-ga/o   tori-ta-sa-ni],

John-TOP Mary-NOM   test-on   good mark-NOM/ACC   take-want.to-NML-for

(kan'ningu-o yurusita.)   <VC>

cheating-ACC allowed

'(John allowed Mary to cheat) for she wanted to get a good mark on the exam.'

b. *John-wa [Mary-ga   tesuto-de   ii   ten-no   tori-ta-sa-ni],

John-TOP Mary-NOM   test-on   good mark-GEN   take-want.to-NML-for

(kan'ningu-o yurusita.)   <MC>

cheating-ACC allowed

c. John-wa [Mary-no   tesuto-de-no   ii   ten-no   tori-ta-sa-ni],

John-TOP Mary-GEN test-on-GEN   good mark-GEN   take-want.to-NML-for

(kan'ningu-o yurusita.)   <NC>

cheating-ACC allowed

Secondly, VC- or MC-marked NACs disallow overt pronominal controllees as in

(73a, b), while NC-marked NACs allow them as in (73c).

(73)a. *John-wa [kare-ga   tesuto-de   ii   ten-ga/o   tori-ta-sa-ni],

      John-TOP he-NOM   test-on   good mark-NOM/ACC   take-want.to-NML-for

      (kan'ningu-o si-te simatta.)   <VC>

      cheating-ACC do-TE finished

      '(John has cheated) for he wanted to get a good mark on the exam.'

  b. *John-wa [kare-ga   tesuto-de   ii   ten-no   tori-ta-sa-ni],

      John-TOP he-NOM   test-on   good mark-GEN   take-want.to-NML-for

      (kan'ningu-o si-te simatta.)   <MC>

      cheating-ACC do-TE finished

  c. John-wa [kare-no   tesuto-de-no   ii   ten-no   tori-ta-sa-ni],

      John-TOP he-GEN   test-on-GEN   good mark-GEN   take-want.to-NML-for

      (kan'ningu-o si-te simatta.)   <NC>

       cheating-ACC do-TE finished

Thirdly, VC- or MC-marked NACs cannot occur in an environment where obligatory control is not available, as in (74a, b), while NC-marked NACs can, as in (74c).

(74)a. *[Tesuto-de   ii   ten-ga/o   tori-ta-sa-ni],

     test-on   good mark-NOM/ACC   take-want.to-NML-for

    (benkyoo-suru   no-wa   ii   koto   da.)   <VC>

     study-do.NPST NML-TOP good NML COP

   '(It is good for you to study) because of your desiring to get a good mark on

    exams.'

  b. *[Tesuto-de   ii   ten-no   tori-ta-sa-ni],

     test-on   good mark-GEN   take-want.to-NML-for

    (benkyoo-suru   no-wa   ii   koto   da.)   <MC>

     study-do.NPST NML-TOP good NML COP

   '(It is good for you to study) because of your desiring to get a good mark on

exams.'

c. [Tesuto-de-no   ii   ten-no   tori-ta-sa-ni],

  test-on-GEN   good mark-GEN   take-want.to-NML-for

  (benkyoo-suru   no-wa   ii   koto   da.)   <NC>

   study-do.NPST NML-TOP good NML COP

  '(It is good to study) because of desiring to get a good mark on exams.'

It is difficult to find the data that serve to support the fourth and fifth properties in (45), but at least, I can see that VC- or MC-marked NACs and NC-marked NACs show the three distinct properties (45a – c) of functional and anaphoric control in (45), respectively. This result verifies my functional control analysis of the former NACs and anaphoric control analysis of the latter NACs.

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7.7.5 Morphological and Categorial Properties of Nominalized Adjective Constructions

Morphologically, the head elements of VC- or MC-marked NACs (i.e. a nominalized desiderative adjective followed by a reason/motivation marker) form a single word (i.e. a verb), while those of NC-marked NACs are made up of two words (i.e. a noun and a postposition/particle). This can be proven as follows.

First, according to phrasal recursivity, one of the criteria of lexical integrity (Bresnan and Mchombo 1995), a phrasal modifier cannot modify part of a word. Given this criterion, one can expect that a phrasal modifier cannot modify only a nominalized desiderative adjective if it forms a single word with the subsequent reason or motivation marker, while the phrasal modifier can modify it if it serves as an independent noun. This expectation and the following data support my view that the nominalized desiderative adjective forms a single word with the reason/motivation marker in VC- or MC-marked NACs, while it is an independent noun in NC-marked

NACs.

(75)a. John-ga   [tesuto-de   {amari-ni/*amari-no}   ii   ten-ga/o

     John-NOM   test-on   {desperately/desperate}   good mark-NOM/ACC

     [tori-ta-sa-ni]],   (gakkoo-o   sabot-te simatta.)   <VC>

     [take-want.to-NML-for]   school-ACC cut-TE finished

    '(John has cut school) for he wanted desperately to get a good mark on the

      exam.'

  b. John-ga   [tesuto-de   {amari-ni/*amari-no}   ii   ten-no

     John-NOM   test-on   {desperately/desperate}   good   mark-GEN

     [tori-ta-sa-ni]],   (gakkoo-o sabot-te simatta.)   <MC>

     [take-want.to-NML-for]   school-ACC cut-TE finished

  c. John-ga   [tesuto-de-no   {*amari-ni/amari-no} ii   ten-no

     John-NOM   test-on-GEN   {desperately/desperate}   good mark-GEN

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[tori-ta-sa] [ni]],   (gakkoo-o sabot-te simatta.)   <NC>

[take-want.to-NML] [for]   school-ACC cut-TE finished

As in (75a, b), a phrasal modifier, *amari-no* 'desperate', which can modify a

nominalized desiderative adjective (e.g. *amari-no tori-ta-sa* 'a desperate wish to take'),

cannot modify it in VC- or MC-marked NACs. Instead, an adverb, *amari-ni*

'desperately' cannot modify a noun but modifies the whole sequence of nominalized

desiderative adjective and reason marker. In contrast, as in (75c), *amari-no* can modify

a nominalized desiderative adjective in NC-marked NACs, though *amari-ni* cannot.

Moreover, the same data in (75) can be used to show a categorial distinction

between VC-/MC-marked NACs and NC-marked NACs. The fact that an adverb can

modify the whole sequence of a nominalized desiderative adjective and the reason

marker as in (75a, b) suggests that the whole sequence serves as a verb. The fact that

an adjectival phrasal modifier can modify a nominalized desiderative adjective alone

as in (75c) suggests that the nominal alone serves as a noun.

One might interpret the datum (75c) as suggesting that the whole sequence of a nominalized desiderative adjective and reason marker is modified by an adjectival phrasal modifier. However, this possibility cannot be pursued. The independency of the nominalized desiderative adjectives is supported by the fact that they can be conjoined with another noun phrase in NC-marked NACs as in (76a) (cf. conjoinability: Bresnan and Mchombo 1995). The same conjoining is not possible in VC- and MC-marked NACs as in (76b).

(76)a. John-ga   [tesuto-de-no   ii   ten-no tori-ta-sa] to [tukare]

John-NOM   [test-on-GEN   good mark-GEN   take-want.to-NML] and [fatigue]

no-amari,   (gakkoo-o sabot-te simatta.)

for   school-ACC cut-TE finished

'(John has cut school) for he wanted to get a good mark on the exam and for he was tired.'

b. *John-ga   [tesuto-de   ii   ten-ga/o/no tori-ta-sa] to

John-NOM   [test-on-GEN   good mark-NOM/ACC/GEN   take-want.to-NML] and

[tukare] no-amari,   (gakkoo-o sabot-te simatta.)

[fatigue] for   school-ACC cut-TE finished

7.7.6 A LFG-Control Analysis of Nominalized Adjective Constructions

Lastly, I show the following syntactic representations for each type of NAC. First,

the c-structure and the f-structure for VC-marked NAC are given below.

(77) VC-marked NAC

a. c-structure


```
                              VP
          ┌────────────────────┼──────────────────────┐
         NP                   VP                      NP          V
      (↑SUBJ)=↓            (↑XADJ)=↓               (↑OBJ)=↓
                          (↓CASE)=VC
                      ┌───────┼───────┐
                     PP      NP       V
       △            △       △        |              △           |

   John-ga      tesuto-de   ii        tori-ta      gakkoo-o    sabot-te
   John-N       test-on     good      take-want.to school-A    have-TE
                            ten-ga/o  -sa-ni                   simatta
                            score-N/A -NML-for                 finished
```

'(John has cut school) for he wanted to get a good score on the exam.'

b. f-structure

$$
\begin{bmatrix}
\text{PRED} & \text{'have cut} <(\uparrow\text{SUBJ})(\uparrow\text{OBJ})>\text{'} \\[2ex]
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'John'} \\ \text{CASE} & \text{NOM} \end{bmatrix} \\[4ex]
\text{OBJ} & [\text{PRED} \quad \text{'school'}] \\[2ex]
\text{XADJ} & \begin{bmatrix} \text{PRED 'out-of-desire-to-get} <(\uparrow\text{SUBJ})(\uparrow\text{OBJ})\ (\uparrow\text{OBL}_{loc})>\text{'} \\ \text{SUBJ} \\ \text{OBJ} \quad \begin{bmatrix} \text{PRED} & \text{'score'} \\ \{\text{ADJ} & [\text{PRED} \quad \text{'good'}]\} \end{bmatrix} \\ \text{OBL}_{loc} \quad [\text{PRED} \quad \text{'test'}] \end{bmatrix}
\end{bmatrix}
$$

The VC-marked NACs involve an open adjunct (XADJ) whose unexpressed subject is

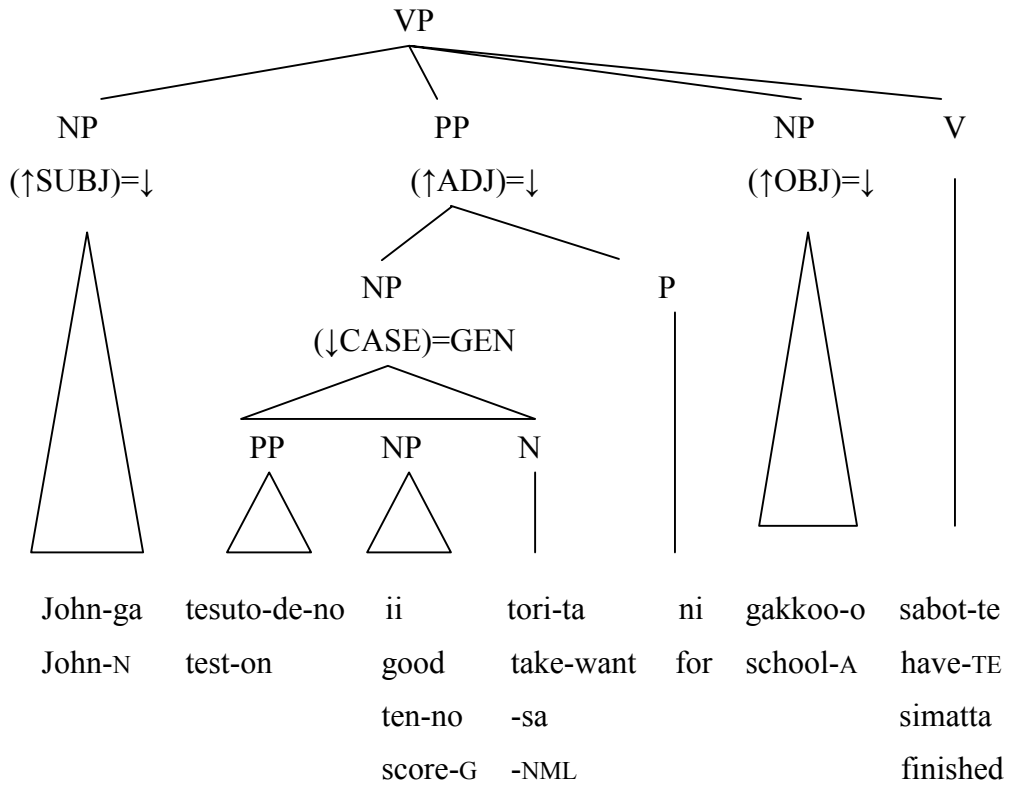identified with the matrix SUBJ as shown in (77b).

Next, the c-structure and the f-structure for NC-marked NACs are given below.

(78) NC-marked NAC

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a. c-structure

VP

NP (↑SUBJ)=↓   PP (↑ADJ)=↓   NP (↑OBJ)=↓   V

NP (↓CASE)=GEN   P

PP   NP   N

John-ga	tesuto-de-no	ii	tori-ta	ni	gakkoo-o	sabot-te
John-N	test-on	good	take-want	for	school-A	have-TE
	ten-no		-sa			simatta
	score-G		-NML			finished

'(John has cut school) for he wanted to get a good mark on the exam.'

b. f-structure

$$
\left[
\begin{array}{ll}
\text{PRED} & \text{'have cut} <(\uparrow\text{SUBJ})(\uparrow\text{OBJ})>\text{'} \\[1em]
\text{SUBJ} & \left[\begin{array}{ll} \text{PRED} & \text{'John}_i\text{'} \\ \text{CASE} & \text{NOM} \end{array}\right] \\[1em]
\text{OBJ} & [\text{PRED} \quad \text{'school'}] \\[1em]
\text{ADJ} & \left[\begin{array}{ll} \text{PRED 'out-of-desire-to-get} <(\uparrow\text{SUBJ})(\uparrow\text{OBJ}) (\uparrow\text{OBL}_{loc})>\text{'} \\ \text{SUBJ} \left[\begin{array}{ll} \text{PRED} & \text{'PRO}_i\text{'} \\ \text{CASE} & \text{GEN} \end{array}\right. \\ \text{OBJ} \left[\begin{array}{ll} \text{PRED} & \text{'score'} \\ \text{ADJ} & [\text{PRED} \quad \text{'good'}] \end{array}\right. \\ \text{OBL}_{loc} \quad [\text{PRED} \quad \text{'test'}] \end{array}\right]
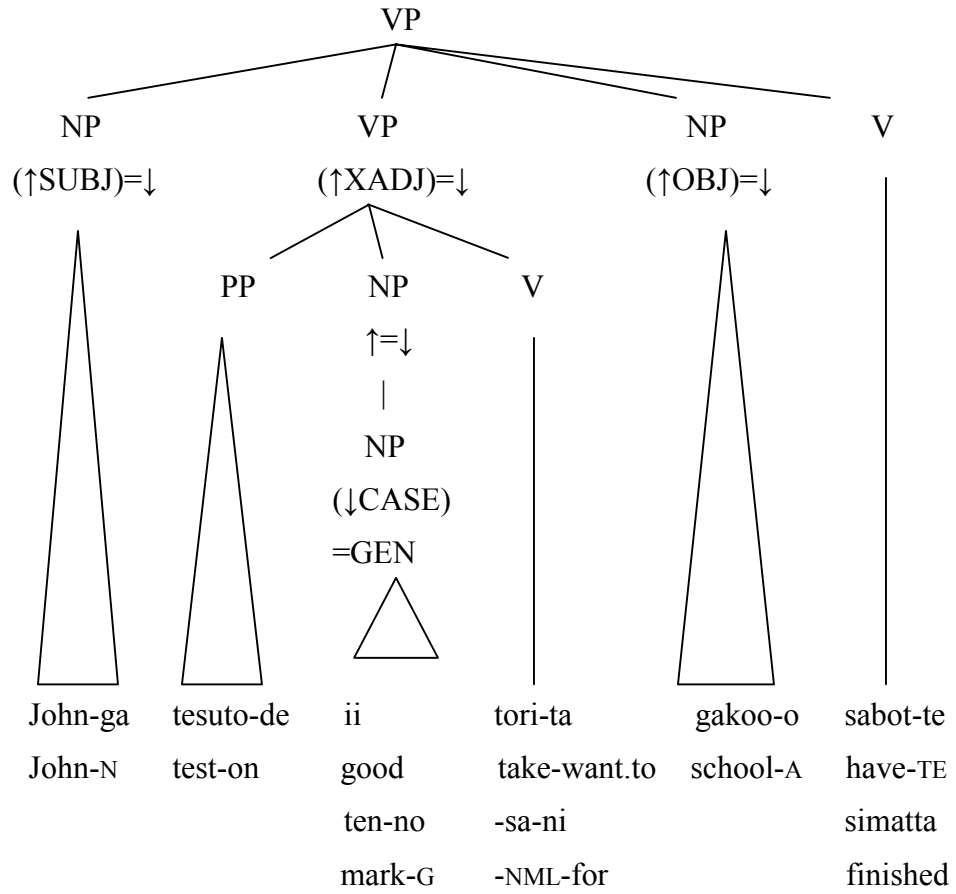\end{array}
\right]
$$
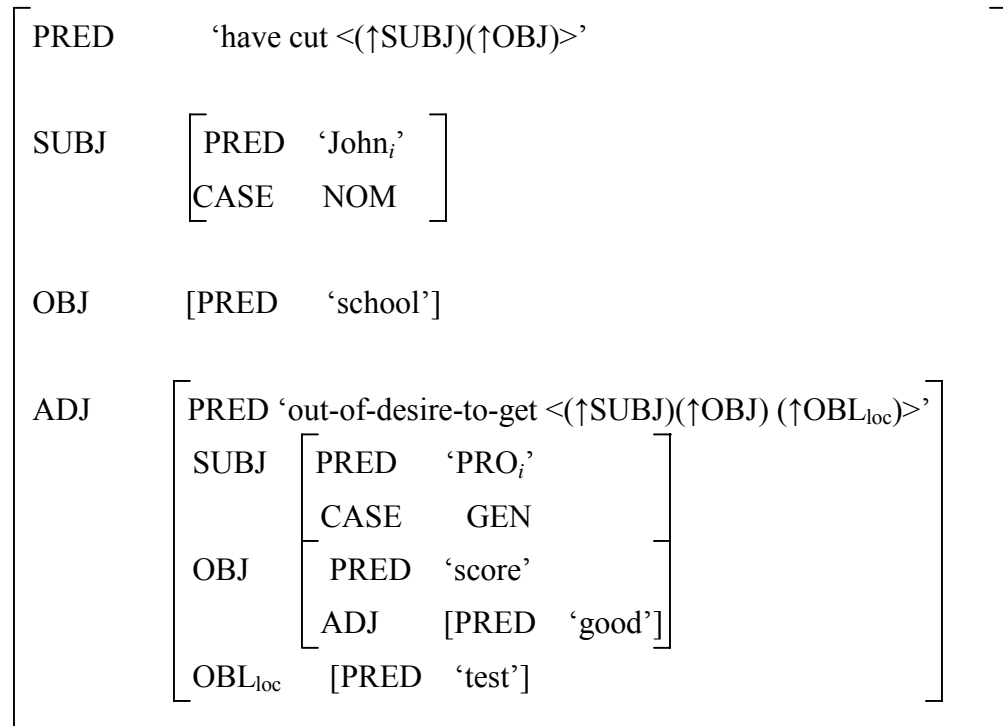
The NC-marked NACs involve a simple ADJ(unct) PP whose unexpressed subject is identified with an index on a NP at f-structure. In (78b), the index is put on the matrix subject, John. But, the index identification can vary depending on which NP is assigned an index. A case feature associated with the unexpressed subject can be different from that associated with the co-indexed NP.

Lastly, the c-structure and the f-structure for MC-marked NACs are given below.
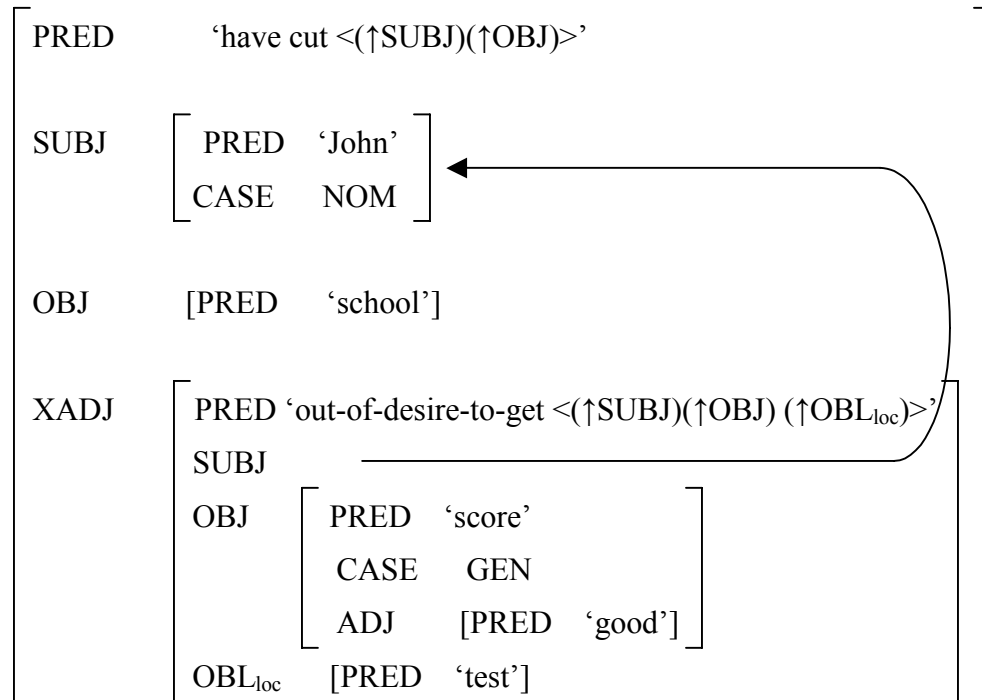
(79) MC-marked NAC

a. c-structure

```
                              VP
        ┌──────────────┬───────────────┬──────────┐
       NP             VP               NP          V
   (↑SUBJ)=↓      (↑XADJ)=↓        (↑OBJ)=↓
              ┌──────┬──────┐
             PP     NP      V
                    ↑=↓
                    │
                    NP
                  (↓CASE)
                  =GEN
                   △

  John-ga   tesuto-de   ii        tori-ta       gakoo-o     sabot-te
  John-N    test-on     good      take-want.to  school-A    have-TE
                        ten-no    -sa-ni                    simatta
                        mark-G    -NML-for                  finished
```

'(John has cut school) for he wanted to get a good mark on the exam.'

b. f-structure

$$
\begin{bmatrix}
\text{PRED} & \text{'have cut} <(\uparrow\text{SUBJ})(\uparrow\text{OBJ})>\text{'} \\[2ex]
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'John'} \\ \text{CASE} & \text{NOM} \end{bmatrix} \\[3ex]
\text{OBJ} & [\text{PRED} \quad \text{'school'}] \\[2ex]
\text{XADJ} & \begin{bmatrix}
\text{PRED 'out-of-desire-to-get} <(\uparrow\text{SUBJ})(\uparrow\text{OBJ}) \ (\uparrow\text{OBL}_{loc})>\text{'} \\
\text{SUBJ} \\
\text{OBJ} \begin{bmatrix} \text{PRED} & \text{'score'} \\ \text{CASE} & \text{GEN} \\ \text{ADJ} & [\text{PRED} \quad \text{'good'}] \end{bmatrix} \\
\text{OBL}_{loc} \quad [\text{PRED} \quad \text{'test'}]
\end{bmatrix}
\end{bmatrix}
$$

The MC-marked NACs involve an XADJ whose SUBJ is identified with the matrix SUBJ like VC-marked NACs. However, unlike the VC-marked NACs, a verb and its sister in their open complement are mapped to the same f-structure and allow NC-marking on the sister NP, which is licensed by phrase structure rules that I proposed for the Temporal Morpheme Constructions in Chapter 4.

7.8 Summary

In summary, my examination of two control structures in Japanese, Purpose Expressions and Nominalized Adjective Constructions, can be concluded as follows. They are classified into mono-clausal and bi-clausal structures. The mono-clausal structures allow pure NC-marking in their controlled phrases and the bi-clausal structures pure VC-marking and/or MC-marking in their controlled clauses. The former involves anaphoric control, while the latter functional control. Since these two types of control structures share the same grammatical properties with Temporal Morpheme Constructions, it is reasonable to extend my head-sharing analysis of mixed categories and my case theory to these control structures.

Chapter 8

Conclusion

In this thesis, I have examined mixed category constructions in Japanese and have attempted to explain their syntactic structures, case-markings, and morphological organizations of their heads. Throughout the thesis, I have emphasized the role of derivational morphology in mixed categories. In particular, I have claimed that mixed categories (e.g., Temporal Morpheme Constructions) result from a derivational suffix (e.g., Temporal Morpheme), which can affect the internal syntax of the phrase headed by the stem (e.g., Complex Event Nominal). To my knowledge, no researcher has focused on the role of derivational morphology for the study of mixed categories. Rather, many researchers have focused on the bi-categorical properties of heads in the mixed categories and possible syntactic mechanisms that enable the heads to project both nominal and verbal properties. In my analysis of mixed categories, a single verb heads a verbal projection, though a nominal projection, which occurs inside of the

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verbal projection, is licensed by phrase structure rules that reflect a head sharing analysis (Bresnan 1997). The analysis captures the verbal properties of mixed categories. The mixture of categories for this analysis is not a reflection of complicated constituent structure but a consequence of non-standard mapping from constituent structure to functional structure.

Another contribution of this thesis to the study of mixed categories is a careful examination of the grammatical wordhood of their predicative elements. The mixed categories are defined as constructions in which a single <u>word</u> appears to head both nominal and verbal projections. Hence, the head's wordhood must carefully be examined to identify a given construction as one of the mixed categories. In particular, it is important to distinguish grammatical wordhood from phonological wordhood. Though my primary investigation of the wordhood of predicative elements in mixed categories leads to two different hypotheses, one of the hypotheses can be maintained by assuming that a phonological process is responsible for the apparent counterexamples to the preferred hypothesis. The preferred hypothesis is an important

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part of our analysis of the mixed categories.

My investigation of the so-called post-syntactic compounds also supports my analysis of mixed categories. I claimed that they are just variant forms of a part of mixed categories rather than compounds. By the adjacency condition on extended heads, the mixed categories are allowed to be a legitimate environment for case-particle omission. Once a case-particle is omitted from an extended phrase, which involves an extended head and its adjacent sister, the phrase can show compound-like behaviors that motiovate a post-syntactic compound hypothesis.

I examined Purpose Expressions and Nominalized Adjective Constructions on the basis of my mixed category analysis. These constructions involve control structures and mixed category structures can be found within the controlled clauses. I claimed that functional control structures allow mixed case marking or pure verbal case marking but anaphoric control structures allow pure nominal case marking.

Though there are other constructions which involve case-marking variations in Japanese (e.g. Light Verb Constructions, Copula Constructions, and *Ga-No* Alternation

Constructions), I could not include them in this study. Also, there are mixed category

constructions across languages. While I could not deal with them in this study, I plan to

engage in a more comprehensive study of mixed category constructions in the future.

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