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On the Syntax of Spatiotemporal PPs

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Abstract of the Dissertation

On the Syntax of Spatiotemporal PPs

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This thesis attempts to provide new evidence for the layered PP structure through an investigation of the interaction of a layered PP structure and two syntactic phenomena in Japanese: nominal ellipsis within PPs and Nominative/Genitive Conversion in adverbial clauses headed by Ps. The proposed analyses of the two syntactic phenomena also have theoretical implications for cross-linguistic variations in nominal morphology and the locality of Case-assignment.

In chapter 2, I propose that while both English and Japanese have a common three-layered PP structure consisting of Path, Place and Ax(ial)Part as proposed in the literature (Ayano 2001, Svenonius 2006, Cinque 2010, amo.), the two languages differ in the position of K(ase)P, which is reflected in case morphology of the two languages. More specifically, I propose that while KP is dominated by the layered PP structure in English due to its fusional case morphology, the former dominates the latter in Japanese due to its non-fusional case morphology. I suggest that the structural difference correlates to the difference in the nominal property of Path in English and Japanese. In chapter 3, I investigate NP-ellipsis within PPs in English, Japanese, and Chinese to provide evidence for the proposed layered PP structure. I first point out that although NP-ellipsis is equally allowed in nominals in the three languages, the parallel pattern breaks down when nominals are selected by Ps. I propose a principled account of

the cross-linguistic differences on the basis of the proposed layered PP structure and the syntactic reflection of fusional/non-fusional case morphology. In chapter 4, focusing on Nominative/ Genitive Conversion within adverbial clauses headed by Ps in Japanese, I argue that the layered PP structure proposed in chapter 2 again provides a principled account of the distribution of genitive subjects in adverbial clauses, which has been long debated in the literature. I demonstrate that the proposed analysis can capture not only the distribution of genitive subjects in adverbial clauses but also the distribution of genitive subjects in other types of clauses, such as relative clauses and sentential modifiers of nouns.

Dedication Page

To my father, Sadaharu Takahashi

with deepest appreciation, respect, and love

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Chapter 1

Introduction

The main goal of this thesis is to investigate interactions of a layered PP structure and certain ellipsis and Case-marking phenomena that take place within complements of Ps. The results provide new evidence for a layered PP structure independently proposed in the literature and yields new insights into issues concerning analyses of the phenomena under consideration. In particular, the proposed analyses will be shown to have implications for the mechanism of NP-ellipsis, the cross-linguistic variations in nominal morphology, and the locality of Case-assignment.

1.1 Issues on adpositions

Adpositions such as prepositions, postpositions, and circumpositions have been much studied in the generative literature (Jackendoff 1973, 1983, 1990, 1996, Emonds 1972, 1985, 2000, van Riemsdijk 1978, 1990, Zwarts 1995, Cinque 2010, Svenonius 2006, 2007, 2008, 2010, amo.). There have been two major issues concerning syntax of adpositions that are related to the proposals of this thesis: (i) the categorical status of P and (ii) the fine-grained internal structure of PP.

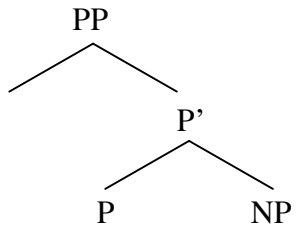
The categorical status of P has been much debated in the history of generative grammar. Since Chomsky's (1970) proposal that P has the feature matrix [-N, -V] (i.e. P has distinct properties from noun [+N, -V], verbs [-N, +V], and adjectives [+N, +V]), many researchers have assumed that Ps are lexical categories like Ns, Vs, and As (Emonds 1972, Jackendoff 1973, Déchaine 2005, Koopman 2000, den Dikken 2010, amo.). In the later works, however, it has

been pointed out that it is difficult to draw a clear boundary between P and the other syntactic categories such as V, N, and A (see Stringer 2005, Asbury et al. 2008, Cinque 2010 and references therein). For example in English, single prepositions such as *in, on, at, from* are no doubt classified as P, while the status of nominal-like elements in complex prepositions (ex. *in* ***front*** *of, on* ***top*** *of, be****side****, etc*.) are not so clear. These nominal-like elements are clearly related to nouns as *front*, *top, side* can appear as independent nominals. However, as these nominal-like elements exhibit different properties from their genuine nominal counterparts in many respects, recent works on adpositions in many different languages suggest that the nominal-like elements observed in complex prepositions are better analyzed as part of a layered PP-structure (Ayano 2001, Svenonius 2006, Cinque 2010, amo.).

Another question concerning the categorical status of P is whether P is lexical category or functional category. Taking into consideration complex adpositions and circumpositions in Dutch, Van Riemsdijk (1978, 1990) first proposes that Ps are classified into two kinds: functional *p* and lexical P (see also Rauh 1993, 1995, Zwarts 1995, amo.). On the other hand, Grimshaw (2000) proposes parallels between the verbal extended projections and the nominal extended projections, and argues that P is part of the nominal extended projection and corresponds to C in the verbal extended projection (for the proposal that P is uniformly a functional category, see also Kayne 2005, Baker 2003, Botwinik-Rotem 2004. See also Froud 2001 for evidence from impairment in aphasia). The present study argues following Grimshaw (2000) that Ps are part of the nominal extended projection in some languages and demonstrates that this approach successfully accounts for some PP-related syntactic phenomena which have not received a satisfactory account.

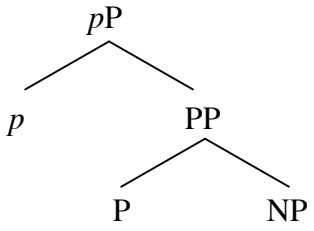
The structure of PP was originally analyzed as in (1) under X-bar theory (cf. Chomsky 1970). Here, PP is a maximal projection and there is no PP layer:

(1)



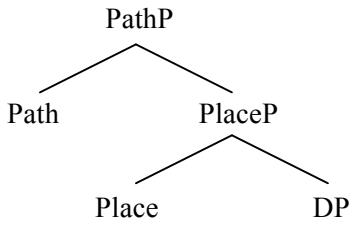
Later, assuming that Ps are divided into two varies: functional *p*s and lexical Ps, Van Reimsdijk (1990) proposes that PP consists of a layered structure where functional *p* takes PP as its complement, as shown below.

(2)



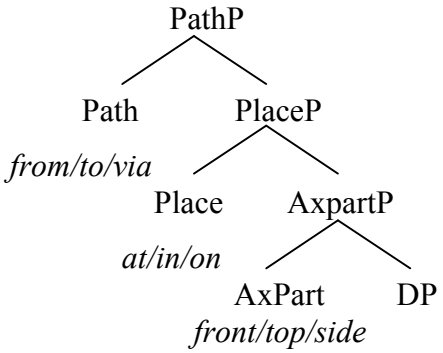
Together with van Reimsdijk's proposal, Jackendoff's (1973, 1983, 1990, 1996) researches on conceptual structure of locative PPs have been also influential in developing a layered PP structure (see Chapter 2 for details). Since Jackendoff's classification of Ps, it is customary to postulate distinct projections for Path and Place in the layered structure of PP, where Path always dominates Place, as in (3) (Van Riemsdijk 1990, Koopman 2000, Ayano 2001, 2005, Kracht 2002, Den Dikken 2010, Svenonius 2008, 2010, amo.)

(3)



In considering complex PPs like *in front of* in English, it has been also assumed in the literature that there is another projection called Axial Part Phrase (AxPartP) under the projection of Place, as illustrated below.

(4)



Since the advent of the cartographic studies of syntactic structure (Abney 1987 for DP, Rizzi 1997 for CP), the layered structure of PPs has been developed from the simple X-bar structure in (1) to much more articulated structure on the basis of PP-internal materials observed in various languages (cf. Koopman 2000 and den Dikken 2006 on Dutch, Tortora 2008 on Spanish and Italian, Terzi 2008 on Greek, Cingue 2010 and Svenonius 2006, 2008, 2010 on various languages, amo.). As the goal of the present study is not to elaborate the fine internal structure of PPs, I do not postulate a fully elaborated PP structure in this thesis, but instead assume the three-layered PP structure in (4) to be primitive and universal one for spatial PPs. However, I propose in chapter 2 that English PPs and Japanese PPs differ with respect to the placement of K(ase)P in

the layered PP structure: in languages with fusional Case morphology, KP directly selects DP inside PPs, while in languages with non-fusional Case morphology, KP is outside of the highest projection of the layered PP structure in Japanese. I suggest that this cross-linguistic difference is attributed to the idiosyncratic property of Path in some languages. On the basis of the proposed layered structure, I provide an analysis for two kinds of PP-related syntactic phenomena in chapters 3 and 4.

1.2 PP-related phenomena discussed in this thesis

This thesis provides an analysis of two kinds of PP-related syntactic phenomena, which motivates the layered PP structure proposed in chapter 2. In chapter 3, I first deal with NP-ellipsis within PPs as a PP-related phenomenon that takes place within nominal complements of Ps. In chapter 4, I analyze nominative/genitive conversion within adverbial clauses headed by Ps as a PP-related phenomenon that takes place within clausal complements of Ps.

1.2.1 NP-ellipsis inside PPs

It is well known that NP-ellipsis is normally allowed within nominals in English, Chinese, and Japanese (cf. Jackendoff 1971, Lobeck 1990, Saito and Murasugi 1990, Saito et al. 2008). This thesis shows that these three languages differ greatly in the availability of NP-ellipsis inside PPs: while English allows it, Chinese does not and Japanese only partly allows it with certain Ps. I propose that the differences between these three languages regarding NP-ellipsis within PPs can be accounted for on the basis of the layered PP structure proposed in chapter 2.

1.2.2 Nominative/Genitive conversion within adverbial clauses headed by Ps

Nominative/Genitive conversion (henceforth NGC) is a Case alternation phenomenon in which nominative Case on subjects is optionally replaced with genitive Case. Since Harada (1971), it has been known that the NGC is usually allowed in sentential modifiers of a noun (such as relative clauses and nominalized embedded clauses) but not in independent clauses (such as matrix clauses and complement clauses headed by an overt complementizer). Hiraiwa (2001, 2005) further shows that NGC is allowed in some adverbial clauses. There have been mainly two approaches to NGC proposed in the literature: the *D-licensing approach* (Harada 1971, 1976, Bedell 1972, Saito 1982, Miyagawa 1993, 2008, 2010, 2011, 2012a,b, Ochi 2001, Maki and Uchibori 2008, amo.) and the *C-licensing approach* (Watanabe 1996, Hiraiwa 2001, 2005) and the precise analysis of NGC is still under lively debate. In chapter 4, I propose that NGC within adverbial clauses is accounted for on the basis of the proposed layered PP structure. More specifically, I propose that genitive subjects in adverbial clauses are Case-licensed by a functional head selected by the head K(ase), which is placed outside of the highest projection of the layered PP structure. I demonstrate that the proposed analysis can be extended to well-known cases of NGC in relative clauses and sentential modifiers of a noun.

1.3 The Organization of the Thesis

This thesis is organized as follows. In **chapter 2** I investigate the layered structure of spatial PPs in English and Japanese. I propose that both English and Japanese have a common three-layered PP structure consisting of Path, Place and AxPart, but the two languages differ in the position of K(ase)P which is reflected in case morphology of the two languages. In particular, I argue that while KP is dominated by the layer of Path, Place, and AxPart in English due to its fusional case

morphology, the former dominates the latter in Japanese as Japanese is a language with non-fusional case morphology. I suggest that the structural difference correlates to the difference in the nominal property of Path in English and Japanese. In **chapter 3**, I first provide evidence for the layered PP structure proposed in chapter 2 by investigating NP-ellipsis within PPs in English, Chinese, and Japanese. I point out that although NP-ellipsis is equally allowed in nominals in the three languages, the parallel pattern breaks down when the nominals are selected by Ps. I propose a principled account of the cross-linguistic differences on the basis of the layered PP structure proposed in chapter 2. In **chapter 4**, I focus on Nominative/Genitive Conversion within adverbial clauses headed by Ps in Japanese and demonstrate that the layered PP structure proposed in chapter 2 again provides a principled account of the distribution of genitive subjects in Japanese. More specifically, I propose that a functional head selected by K can assign genitive Case to subjects not only in adverbial clauses but also in relative clauses and noun-complement clauses.

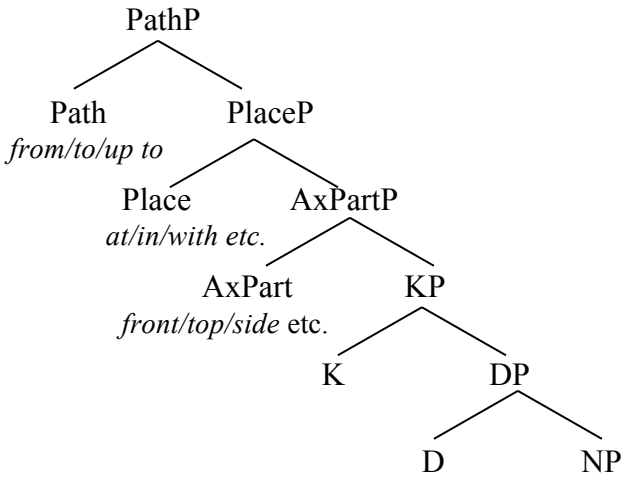
Chapter 2

The Internal Structure of Japanese PPs

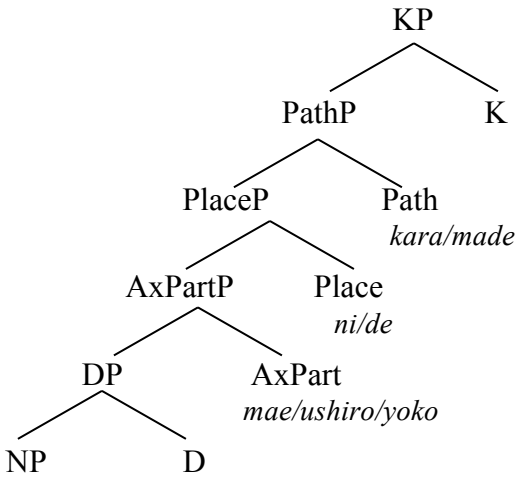
2.1 Introduction

This chapter investigates the layered structure of spatial PPs in English and Japanese, which sets the stage for chapters 3 and 4. The first half of this chapter discusses a common layered structure of PPs in English and Japanese, and the latter half discusses the difference between the two languages and attempts to explain the difference. It is proposed (i) that both English and Japanese have the layer consisting of three distinct pre/postpositions (Path, Place, and Axial Part) and (ii) that English and Japanese differ in the position of K(ase)P in the layered PP structure. The proposed structure is schematically shown below:

(1) a. English PPs



b. Japanese PPs



As shown above, in both English and Japanese, there is a layer consisting of PathP, PlaceP, and AxPartP above DP (see below for details of each P). However, English and Japanese differ from each other in the position of KP: while KP is dominated by the layer of PathP, PlaceP, and AxpartP in English, the former dominates the latter in Japanese. It is proposed in this chapter that

the difference correlates with (non-)fusional Case morphology of the two languages: K directly selects the DP inside the layered PP in English because English is a language with fusional Case morphology while K is located outside of the highest projection of an articulated PP in Japanese because Japanese is a language with non-fusional Case morphology. I suggest that the structural difference correlates to the difference in the nominal property of Path in English and Japanese.

The goal of the present study is to motivate the presence of layered structures within PPs, but not to pursue the precise internal structure of PPs. Recent studies of spatial PPs in various languages suggest that PPs have a richer internal structure than the one in (1), and it may be necessary to postulate more projections to capture various spatial expressions in various languages (for fine-grained internal structures of PPs, see Koopman 2000, den Dikken 2003, Svenonius 2008 and Cinque 2010 and references therein). The questions as to what kind of projections and how many layers are needed within PPs are left for the future research. The present study simply assumes that PPs have at least three layers: Path, Place, and Axpart and that the proposed layered structure is crucial to account for the puzzling syntactic behaviors of PPs that I will discuss in the following two chapters.

This chapter is organized as follows. In section 2.2, I address English PPs, showing that spatial PPs in English are decomposed into at least three elements, Path, Place, and AxPart on the basis of findings of previous studies. Path Ps and Place Ps are introduced in 2.2.1 and Axpart Ps are introduced in 2.2.2. In 2.3 I turn to Japanese PPs, arguing that Japanese PPs are also analyzed as having the three-layered structure just like English PPs. In section 2.4 I propose that the only difference between English PPs and Japanese PPs is in the placement of K(ase)P, as shown in (1), and attempt to explain the difference in terms of (non-) fusional Case morphology and the property of Path. Section 2.5 concludes this chapter.

2.2 The layered structure of English PPs

2.2.1 Place P and Path P

This subsection introduces two kinds of English PPs classified as PlaceP and PathP in the structure in (1) and discusses their hierarchical relation. In English, spatial expressions are often realized as PPs consisting of a preposition and a nominal phrase, as shown below.

(2) a. The elephant remained [$_{PP}$ **in** the boat].
b. They cast a wistful glance [$_{PP}$ **to** the shore].
c. The boat drifted farther [$_{PP}$ **from** the beach]. (Svenonius 2007, 2010)

While "locative" PPs look similar at a first glance, it has been argued that locative PPs need to be classified (Jackendoff 1983, 1987, 1990). In particular, locative PPs are traditionally divided into two types: **Place**, which are associated with locational expressions and **Path** which are associated with directional expressions (see Koopman 2000, van Riemsdijk and Huijbregts 2001, Svenonius 2008, den Dikken 2010, etc.). Under this classification, the preposition *in* in (2a) is considered as Place, while *to* in (2b) and *from* in (2c) are Path. The two types of Ps are summarized below. [1]

(3) a. Place: locational ex.) *in, at, on, etc.*
b. Path: directional ex.) *from, until, to(ward) etc.*

[1] In some recent studies, Place is often represented as a "stative" P (i.e. PP_{Stat}) and Path is called a "directional" P (i.e. PP_{Dir}), which are further divided into Goal Ps, Source Ps, and Path Ps (Cinque 2010 and references therein). To avoid confusion, the present study uses the term Path for all directional Ps.

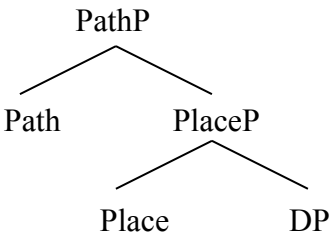
Interestingly, it has been assumed that there is a "hierarchical relation" between Place Ps and Path Ps. Jackendoff (1983, 1990) notes this point in his analysis of locative PPs under conceptual structure. A locative PP like *in the room* and a directional PP like *into the room*, for example, are analyzed as in (4a) and (4b), respectively.

(4) a. *in the house*: $[_{\text{Place}}$ IN $([_{\text{Thing}}$ HOUSE$])]$

b. *into the house*: $[_{\text{Path}}$ TO $([_{\text{Place}}$ IN $([_{\text{Thing}}$ HOUSE$])])]$ (Jackendoff 1990)

As shown in (4a), the locative preposition *in* is analyzed as **Place**, IN, which takes **Thing**, HOUSE. In (4b) the directional preposition *into* is decomposed into **Path,** TO, and **Place,** IN.[2] In Jackendoff's conceptual structure, Path seems to be built up on the Place PP *in the house*. It has been widely assumed in the literature that such a hierarchical relation between Path and Place matches the hierarchical structure in the syntactic structure of spatial PPs: Path Ps syntactically dominates Place Ps, as illustrated below (van Riemsdijk 1990, Svenoneus 2004, 2006, Koopman 2000, den Dikken 2006, Kracht 2002, among many others).

(5)



[2] In (4b), the hierarchical relation in the conceptual structure does not match the actual order: while Place *in* is embedded under Path *to* in the conceptual structure, the former precedes the latter. Hence the preposition is pronounced as *into*. Jackendoff (1990) assumes that hierarchical relations in the conceptual structure are not always reflected in precedence relations and the relation between the two levels is mediated by a set of correspondence rules.

The hierarchical relation between Path and Place is motivated by those languages where the both Ps co-occur in a single sentence, as shown below.

(6) P_{Path} - P_{Place} - NP (English)
The tour bus starts [**from in** front of Tokyo station].

(7) P_{Path} - P_{Place} - NP (Romanian)
Ion vine [**de la** magazine]
Ion is.coming **from at** store
'Ion is coming from the store' (Zegrean 2007, cited in Cinque 2010)

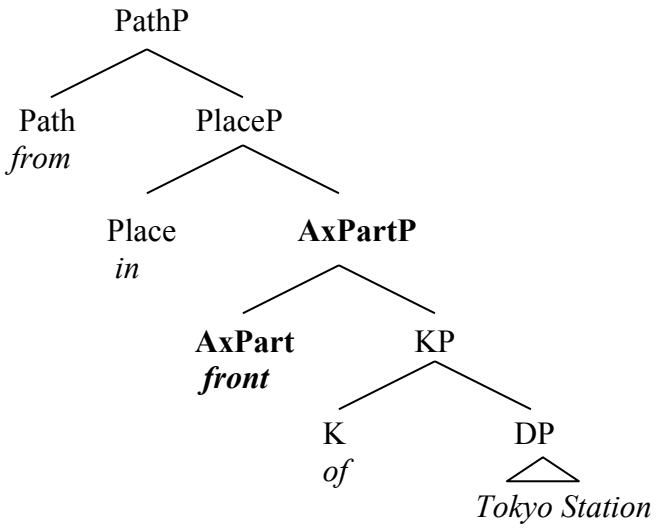
(8) NP - P_{Place} - P_{Path} (Ute, Uto-Aztecan)
Ta'wá-ci [kani-**vee-tuk'**] paĝáy'wa-y
man house-**at-to** walk-PROG
'The man is walking toward the house' (Givón 1980, cited in Cinque 2010)

The examples above show that Path Ps precede Place Ps in head-initial languages like English and Romanian, while Place Ps precedes Path Ps in head-final languages like Uto-Aztecan. This order is expected if Path Ps dominates Place Ps in the hierarchical structure as shown in (5).

2.2.2 Axial Part

Previous studies of PPs in various languages suggest that Place takes another layer called Axial Part (i.e. AxPart) such as *front, back, top, side*, which indicates "the orientation of trajectory" (Svenonius 2006) (see also Jackendoff 1990, 1996, Van Riemsdijk 1990, Koopman 2000, Ayano 2001, Kratcht 2002, Den Dikken 2003, Gehrke 2006, amo.). Since *front* in the complex PP *in front of* is considered as an AxPart, the PP in (6) *from in front of* can be analyzed as having the following hierarchical structure:

(9)



(Svenonius 2006)

In (9), Place selects AxPart and AxPart takes KP (i.e. a Case Phrase) as its complement. One might assume that it is more adequate to analyze *front* as nouns rather than prepositions. However, Svenonius (2006) provides evidence that AxPart differs from nouns. First, let us consider the contrast between the word *front* with a determiner and the one without it.

(10) a. There was a kangaroo in the front of the car.

b. There was a kangaroo in front of the car. (Svenonius 2006)

Although the examples in (10a) and (10b) differ only in the presence or absence of the determiner *the*, they are interpreted in different ways. According to Svenonius (2006), (10a) refers to *a kangaroo* being "in one of the two front seats of a typical car, but it could also refer to *a kangaroo* being in a cargo space under the hood or bonnet in a rear-engined car" (Svenonius 2006, 50). On the other hand, (10b) refers to a kangaroo "located in a space projected forward from the car" (Svenonius 2006, 50). The contrast shows that *front* with *the* and *front* without *the*

should be treated differently. This point is corroborated by (11), which shows that the preposition *on* is incompatible with *front* without the determiner *the*.

(11) a. There was a kangaroo on the front of the car.
b. *There was a kangaroo on front of the car. (Svenonius 2006)

Another difference between a nominal *front* and an Axpart *front* is shown by the following contrast regarding plurality of *front*.

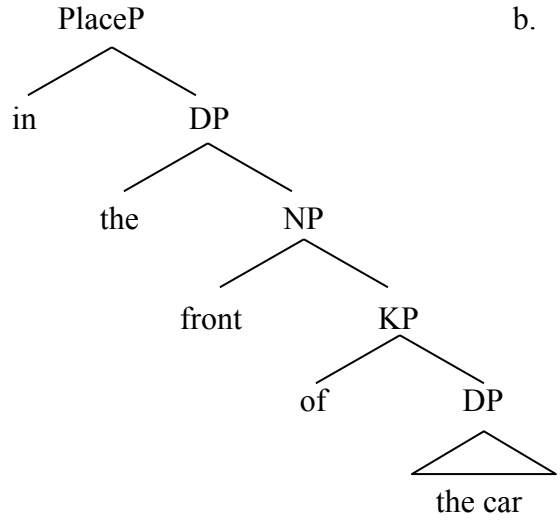
(12) a. There were kangaroos in the fronts of the cars.
b. *There were kangaroos in fronts of the cars. (Svenonius 2006)

When *front* appears with the determiner (i.e. *front* is used as a noun), *front* can be pluralized, as in (12a). However, *front* cannot be pluralized when it appears without *the*, as in (12b). Svenonius (2006) further demonstrates the contrast between a nominal *front* and an Axpart *front* on the basis of clefting:

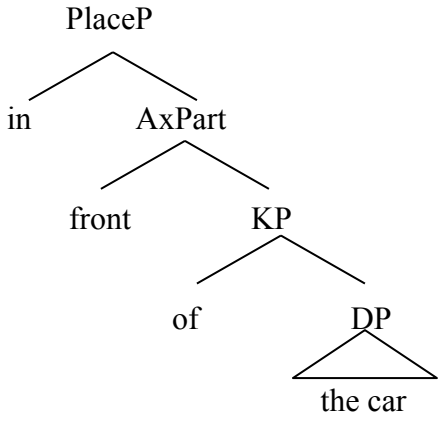
(13) a. It was the front of the car that the kangaroo was in.
b. *It was front of the car that the kangaroo was in. (Svenonius 2006)

As can be seen in (13a), when *front* is used as a noun, it can move away from a preposition (together with *the*), but such movement is disallowed when *front* is used without *the*, as in (13b). Again this would be surprising if *front* in (13a) were to be treated on a par with *front* in (13b). Given the contrasts above, Svenonius (2006) concludes that the complex PP *in front of* has the structure in (14b), which contrasts with the PP containing a nominal use of *front* in (14a).

(14) a.



b.

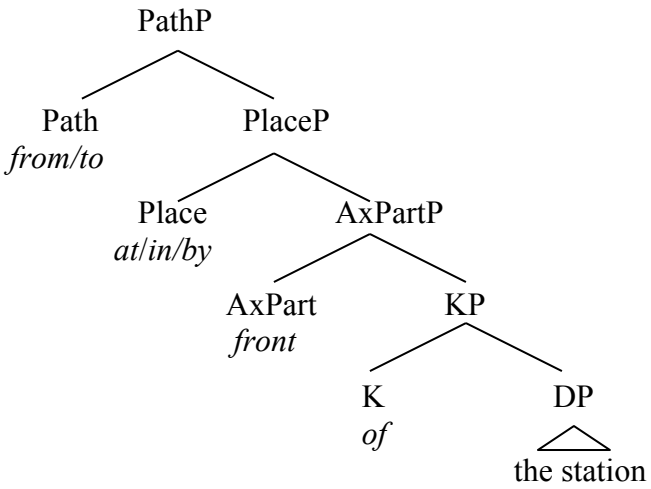


(cf.Svenonius 2006)

In (14a) *front* is the head of NP with D above it, and the N takes a K(ase)P complement, while in (14b), *front* is an Axpart, which is directly selected by the Place head *in*. Note that *front* in (14b) is not selected by *the*.

Recall that the Place Phrase is dominated by Path Phrases (at least when the latter is present) (see (5) and (9)). Putting all these results together, the present study assumes that PPs in English are decomposed into at least three layers, Path, Place, and AxPart, as shown below.

(15)



(cf. Svenonius 2006, Ayano 2001, Cinque 2010)

The present study assumes that each of the PP layers (i.e. Path, Place, and AxPart) is syntactically present only when it makes sematic contribution. For example, the PP *at the station* is analyzed as involving only PlaceP, lacking PathP and AxPartP, while the PP *from the station* involves only PathP, lacking PlaceP and AxpartP in the above structure.

2.3 The structure of Japanese PPs

In this section, I introduce Japanese PPs, overviewing some previous studies that attempt to derive the layered structure of Japanese PPs. It is shown that Japanese also has the PP layer consisting of Path, Place, and AxPart.

2.3.1 Japanese Ps

This subsection introduces Path Ps, Place Ps, and Axpart phrases in Japanese. Locational expressions in Japanese are expressed by postpositions. Some examples of Japanese postpositions classified as Path Ps and Place Ps are exemplified in (17) and (16), respectively.

(16) Path Ps

a.	Taro-wa	kouen-***kara***	hasitte-ki-ta.	'Taro ran **from** the park.'
	Taroo-TOP	park-from	run-come-PST	
b.	Taro-wa	kouen-***e***	hasitte-it-ta.	'Taro ran **to** the park.'
	Taroo-TOP	part-toward	run-go-PST	
c.	Taro-wa	kouen-***made***	hasit-ta.	'Taro ran **up to** the park.'
	Taroo-TOP	park-up.to	run-PST	

(17) Place Ps

a. ano kouen-***ni*** ike-ga aru 'There is a pond in the park.'
that park-in pond-NOM be

b. Taro-wa kouen-***de*** hanabi-o mi-ta. 'Taro saw the fireworks at the park.'
Taro-TOP park-at firework-ACC see-PST

In Kuno (1973) the Place Ps *-ni* and *–de* are distinguished as follows: NP-***ni*** "indicates that the NP is the goal of the motion designated by the verb", while NP-***de*** "indicates that the motion designated by the verb takes place in a location or locations within the dimension of the NP" (Kuno 1973:97). The following examples clearly show the difference between the two postpositions.

(18) a. Taroo-wa rooka-***ni*** e-o kai-ta.
Taro-Top hallway-P picture-Acc draw-Past
'Taro drew a picture on the hallway.'

b. Taroo-wa rooka-***de*** e-o kai-ta.
Taro-Top hallway-P picture-Acc drew-Past
'Taro drew a picture in the hallway.'

In (18a), Taro drew a picture on the surface of the hallway, while in (18b), *rooka* 'hallway' is the place where Taro drew a picture.

Just like English, Japanese also has Axpart phrases. In Japanese, spatial expressions corresponding to 'above,' 'behind,' 'beside,' 'below' in English are expressed by two elements: an AxPart and a Place P.

(19) a. [$_{PP}$ tukue no ***ue*** **ni/de**] 'above (or on) the desk'
desk GEN top P

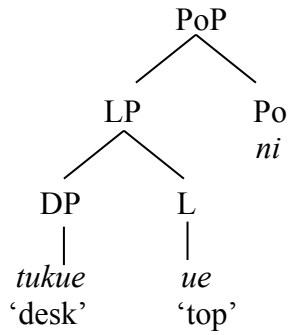
b. [PP tukue	no	***sita***	**ni/de**]	‘below the desk’
desk	GEN	bottom	P	
c. [PP tukue	no	***mae***	**ni/de**]	‘before/in front of the desk’
desk	GEN	front	P	
d. [PP tukue	no	***ushiro***	**ni/de**]	‘behind the chair’
desk	GEN	back	P	
e. [PP tukue	no	***yoko***	**ni/de**]	‘beside the chair’
desk	GEN	side	P	(Watanabe 1993:435)

In (19a), for example, the spatial orientation expressed by a single preposition *on* or *above* in English are expressed by a combination of an Axpart *ue* ‘top’ and a Place *ni* or *de*. Not only Place Ps but Path Ps in (16) can also take an AxPart as their complements, as shown below.

(20)	a. [PP kouen	no	***mae***	**kara**]	‘**from** the front of the park.’
	park	GEN	front	from	
	b. [PP koen	no	***mae***	**e**]	‘**to** the front of the park.’
	part	GEN	front	toward	
	c. [PP kouen	no	***mae***	**made**]	‘**up to** the front of the park.’
	park	GEN	front	up.to	

Watanabe (1993) originally analyzes this type of Japanese spatial PPs and proposes that Japanese PPs are decomposed into two layers as shown below.

(21)



(based on Watanabe 1993:433-435)

In Watanabe (1993), the postposition *ni* in (21) is a head Po(sition) and a spatial term *ue* is a head L(ocation).[3,4] Note that the spatial terms called L (such as *ue* 'top', *sita* 'bottom', *mae* 'front', *usiro* 'back', *yoko* 'side') can select a DP with the "genitive" Case marker *–no* in (19). Although Watanabe (1993) assumes the particle *–no* in PPs to be the realization of genitive Case assigned by Agr, I assume following Kitagawa and Ross (1982) and Saito et al. (2008) that it is not a realization of structural genitive Case but a "contextual" Case marker inserted by a language-specific rule. I discuss the analysis of *–no* in 2.3.3. Given that genitive Case is available only within nominal projections, Watanabe (1993) assumes that L is a lexical noun and Po is a functional category located above L.[5] The structure by Watanabe (1993) is very influential in that the spatial terms such as *ue* 'top' are realized as an independent syntactic category within the PP projection. In the rest of the section, I refine Watanabe's (1993) structure in (21) on the basis of several previous studies.

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[3] Watanabe (2009) revises the structure of Japanese locative PPs proposed in Watanabe (1993), considering the placement of measure phrases within PP. See Watanabe (2009) for details.

[4] It seems that PoP and LP in (21) corresponds to PlaceP and AxPartP in (15), respectively.

[5] As Watanabe (1993) notes, the spatial terms like *ue* 'top', *sita* 'bottom', *mae* 'front' also function as plain nouns as shown below.

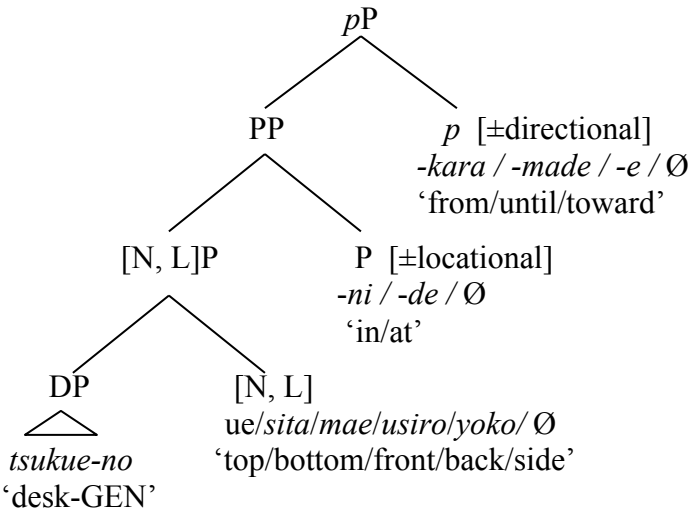
(i) a. John-wa tsukue-no *ue*-o fuita.
-Top desk-GEN top-ACC wiped
'John wiped clean the top of the desk.'
b. John-wa tsukue-no *sita*-o nozokikonda.
-Top desk-GEN bottom-ACC looked.into
'John looked into the bottom of the desk.'
c. John-wa kuruma-no *mae*-o terasita.
-Top car-GEN front_ACC lite.up
'John lit up the place in front f the car. (Watanabe 1993:435)

In the examples above, *ue* 'top', *sita* 'bottom', *mae* 'front' are marked with accusative Case, which indicates that they function as nouns. This is another piece of evidence for Watanabe's (1993) suggestion that a head L in (21) is a lexical category.

2.3.2 The layered structure of Japanese PPs

Ayano (2001) refines Watanabe's (1993) structure in (21), proposing a tri-layered structure of Japanese PPs, as shown below.

(22)

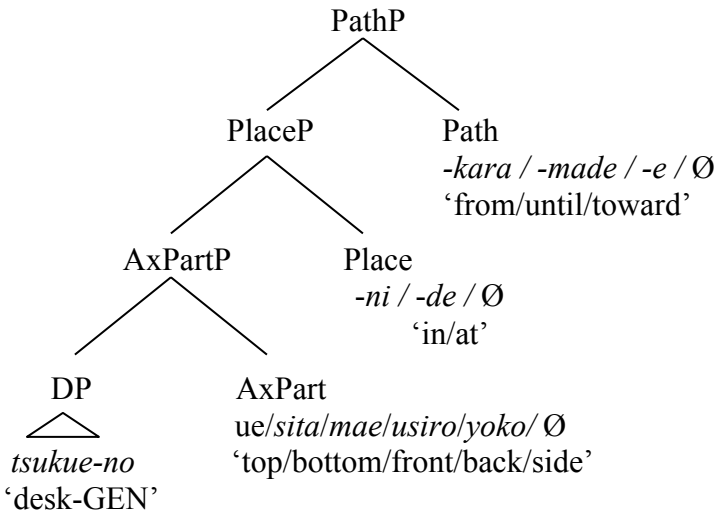


(Ayano 2001:73-76)

In Ayano's (2009) structure, the spatial terms like *ue* 'top' is considered as [N, L], which is a lexical head L just like Watanabe's (1993) proposal, and it obtains a categorical feature [N]. The lexical P has a distinctive feature [±locational] and the functional *p* has a feature [±directional]. Note that under this structure, either [N, L], a lexical P, or a functional *p* can be null (i.e. Ø). This structure is very similar to the internal structure of English PPs in (15) in that Ps indicating a directional meaning (i.e. Path Ps) dominate Ps indicating a locational meaning (i.e. Place Ps). Thus, under (15), the lexical P and the functional *p* seem to correspond to Place P and Path P, respectively. Importantly, Takamine (2007) calls the Japanese spatial terms such as *ue* 'top' (i.e. "L" in Watanabe 1993, "[N, L]" in Ayano 2001) as Axial Part (i.e. AxPart) following Svenonius

(2006).[6] Abstracting away from certain differences, the structure that emerges from these previous studies for Japanese PPs is the one illustrated below.

(23) The internal structure of Japanese PPs



The present study assumes following Takamine (2007) that the spatial term such as *mae* 'front' corresponds to the element called AxPart along the lines with Svenonius (2006), and that PPs have (at least) three-layered structure following Ayano (2001).[7]

[6] Takamine (2007) concludes that spatial terms such as *mae* 'front' need to be classified into AxPart phrases proposed in Svenonius (2006) based on her observation that the spatial terms show a mixed behavior: they pattern like nouns with respect to doubling, coordination, and co-occurrence with demonstratives but they also show non-nominal behaviors with respect to licensing of floating quantifiers and modification.

[7] In Japanese AxPart phrases can be selected by either Place Ps or Path Ps, as in (19) and (20), but they cannot co-occur with a sequence of Place P and Path P as in (ic), contrary to the case of English.

(i) a. [$_{PP}$ tukue –no ***mae*** **ni/de**] 'in front of the desk'
desk-GEN front in

b. [$_{PP}$ tukue –no ***mae*** **kara**] 'from in front of the desk'
desk-GEN front from

c.*[$_{PP}$ tukue-no ***mae*** **ni/de** **kara**] 'from in front of the desk'
desk-GEN front in/at from

2.3.3 The property of *–no* within PPs

We have seen that Watanabe (1993) analyzes a particle *–no* in Japanese occurring between DP and AxPart as a structural genitive Case, as shown in (19a), which is repeated below.

(24) [$_{PP}$ tukue no ***ue*** **ni/de**] 'above (or on) the desk'
desk GEN top P (Watanabe 1993)

One might assume that the particle *–no* corresponds to *of* in English complex PPs, such as *in front **of***, and therefore the Japanese PP structure should be analyzed on a par with English PP structure: KP headed by *no* directly selects DP within PPs (see Takamine 2007 for this approach). The present study, however, assumes that this *no* is not a structural genitive Case (i.e. not assigned by K) but a contextual Case marker inserted in the phonological component (Kitagawa and Ross 1982, Saito and Murasugi 1990, Saito et al. 2008). It is known in the literature that the particle *–no* in Japanese can occur in a variety of positions within nominals, as shown below.

(25) a. Haruki no kuruma
no car
'Haruki's car'
b. san -satu no hon (a classifier +-no)
three -CL *no* book
'three books'
c. isi -de no koogeki
stone -with *no* attack
'an attack with stones'
d. Haruki -to no intabyuu
-with no interview
'an interview with Haruki' (Saito et al. 2008)

(25a) indicates that *–no* occurs between nouns. This particle *–no* can follow a numeral classifier as in (25b) and even postpositions as in (25c) and (25d). It is also known that *-no* can multiply occur within a nominal, as shown below.

(26) a. yuubokumin no tosi no hakai
nomads no city no destruction
'the nomads' destruction of the city'

b. Taroo no Yooroppa -e no ryokoo
no Europe -to no trip
'Taroo's trip to Europe' (Saito and Murasugi 1990)

Given the distribution above, it is clear that the distribution of *–no* is wider than that of *'s* or *of* in English. Saito and Murasugi (1990) and Saito et al. (2008) analyze the Japanese particle *–no* within DP as a contextual Case maker in the sense of Kitagawa and Ross (1982). Saito et al. (2008) suggests the following rule to capture the distribution of *–no*, modifying Kitagawa and Ross's (2008) Mod-insertion rule.

(27) Mod-insertion rule

$[_{NP} \ldots XP(-tense)\ N^{\alpha}] \rightarrow [_{NP} \ldots XP\ (-tense)\ \ Mod\ \ N^{\alpha}]$, where Mod = *no*.

(cf. Saito et al. 2008:250, fn.1)

The Mod-insertion rule in (27) states that *no* is inserted within NP after any constituent (XP) that does not have a morphological realization of tense.[8] Following Saito et al. (2008), I assume that

[8] Following Kitagawa and Ross (1982), Saito et al. (2008) takes tense into consideration to account for the fact that *-no* does not occur after relative clauses, as shown (i).

the Mod-insertion rule applies within the extended projection of NP, including PPs (see 2.4.1 for the discussion of extended nominal projections). Thus, the particle *–no* within PPs is a contextual Case marker, and therefore *–no* is not a D (or K) head in Japanese, which is different from *of* in English (i.e. (15)).[9]

2.4 PPs as an extended nominal projection and the position of K

This section considers the status of PPs within the proposed layer and the variation between English and Japanese in the position of K(ase). First, in 2.4.1, I propose that both PPs and KPs are also extended nominal projections (see Grimshaw 2000 for PPs and Giusti 1993, Bittmer and Hale 1996, Neelman and Weerman1990 for KPs) and point out a difference between English and Japanese in the position of K. In. 2.4.2, I propose that the hierarchical relation between the two is subject to cross-linguistic variations: languages with fusional Case morphology like English requires KP to be dominated by PP, while languages with non-fusional case morphology like Japanese requires KP to dominate PP.

2.4.1 PPs and KPs as extended nominal projections

It has been long debated in the literature whether spatial Ps are lexical or functional. (Rizzi 1985, Zwarts 1997, Koopman 2000, Zwart 2005, Den Dikken 2003, 2010). For example, Van Riemsdijk (1990, 1998) and Zwarts (1995) argue that Ps are semifunctional, namely some Ps (simple Ps) are classified into functional ones and the others (roughly complex PPs) are lexical

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(i) [watasi-ga kinoo mita] (*no) hito
I -NOM yesterday saw *no* person
'the person I saw yesterday' (Saito and Murasugi 1990)

[9] See also Watanabe (2010) for two types of *-no* in Japanese.

ones, while Den Dikken (2003, 2010) and Svenonius (2004, 2010) argue that at least in English, Dutch, and German, all Ps are lexical categories just like Ns, Vs, and As.

Grimshaw (2000), on the other hand, argues that all Ps are functional categories and that PPs are part of the extended projection of N. Drawing full parallels between the verbal extended projection and the nominal extended projection, Grimshaw (2000) argues that N, D, and P have the same categorical feature [nominal] and hence are of the same syntactic category, which are different from V, I, and C that have categorical feature [verbal]. This is illustrated below.

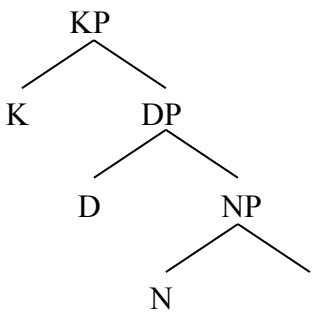
(28) a. CP >> TP >> VP [verbal]

b. PP >> DP >> NP [nominal] (based on Grimshaw 2000:117)

Under this analysis, all PPs are considered as functional elements in the extended projection of N, which is parallel to CP in the sense that CPs are functional categories in the extended projection of V.

The status of PPs as extended nominal projections raises an interesting question about another extended nominal projection: KP. Since the advent of DP hypothesis proposed by Abney 1987, it has been assumed in the literature that there is a K(ase)P (or Case phrase) as an extended projection of nominals above DP in every language (Bittner and Hale 1996, Neelman and Weerman1990). This is illustrated in (29).

(29)

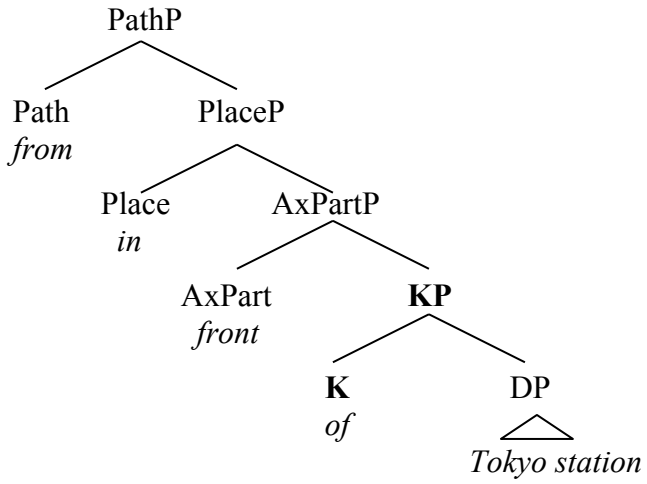


The present study assumes the nominal projection in (29) to be universal, though the precise number of heads involved in the nominal projection may vary among languages.

Given (28) and (29), the question arises as to the hierarchical relation between the PP layer and KP: as both dominate DP, we need evidence to decide the dominance relation between the two. Interestingly, considerations of English and Japanese examples lead us to a contradiction. As we have seen above, K in English is realized between Axpart and DP in the layered PP structure. The relevant example and its structure are shown below.

(30) a. The tour bus starts [from in front ***of*** Tokyo station].

b.



In the structure above, the head K is realized as *of*, which selects DP as its complement. I assume that in Japanese, on the other hand, K is not placed above DP when the DP is embedded within a PP.[10] Interestingly, there is evidence showing that K can be placed above the PP layer in Japanese. The relevant examples are shown below.

[10] As shown in 2.3.3, the Japanese particle *–no* that occurs between an AxPart and a DP is a contextual Case marker, rather than a realization of K.

(31) a. Taroo-wa san-peji-kara go-peji-**made-o** syukudainisi-ta.
Taro-TOP three-page-from five-page-**up.to-ACC** assign.homework-PST
'Lit. Taro assigned homework from page 3 to page 5.'

b. go-peji-**made-ga** kyou-no syukudai-da.
five-page-**up.to-NOM** today *no* homework-be
'Lit. Up to page five is today's homework assignment.'

c. san-peji-**kara-ga** kyou-no syukudai-da.
three-page-**from-NOM** today *no* homework-be
'Lit. From page three is today's homework assignment.'

The Path P *made* 'up to' in (31a) is followed by the accusative Case marker *–o* and the same Path P is followed by the nominative Case marker *–ga* in (31b). Another Path P *kara* 'from' can be also followed by a Case particle as shown in (31c). Unlike these Path Ps, Place Ps such as *–ni* or *–de* are never followed by a Case particle, as shown below. Given these facts, I assume that in Japanese K selects PathP when DP is embedded within PPs. The different placement of KP in English and Japanese can be illustrated as follows.

(32) a. English: DP >> KP >> PP
b. Japanese: DP >> PP >> KP

In English, KP is sandwiched between DP and a PP layer, while in Japanese, KP is above the highest projection of PP. Given that K is an extended projection of nominals (Bittner and Hale 1996, Neelman and Weerman1990), it can be assumed that a Japanese PP is an extended projection of nominals in the sense of Grimshaw (2000).

2.4.2 Proposal

I propose that the difference between English and Japanese in the position of KP receive a natural account once we take into consideration the different property of Path and morphological property of Case in the two languages. As we have seen in (31), Japanese postpositions classified into Path can be followed by a Case marker. I assume that Japanese Path functions as a functional category of nominals, just like D in English, so that it can be selected by K. This is stated below.

(33) Path has a D-like property in Japanese.

I further propose that the peculiar property of Path correlates with morphological properties of Case in Japanese. Neelman and Szendroi (2007) point out that in languages with fusional Case morphology (like English), personal pronouns are fusional for Case, number or some other nominal feature, while in languages with non-fusional Case morphology (like Japanese), the Case or number morphology on pronouns is agglutinative. Japanese has independent pronominal stems, plural markers, and Case markers. The relevant examples are as follows.

(34) The nominative 1st person plural pronoun

a. We (English)

b. Watasi-tati-ga (Japanese)
1st.SG-PL-NOM

In (34a), the English pronoun *we* has the 1st person plural pronoun with nominative Case, so more than one morpheme are fused in one word. On the other hand, as in (34b), the Japanese

pronoun corresponding to *we* in English is represented with the 1st person pronominal stem *watasi* with the plural marker *tati*, which is followed by the nominative Case *ga*. Based on this contrast, the present study assumes that in English, a language with fusional Case morphology, KP always connects to DP to create a single node for Vocabulary Insertion (Halle and Marantz 1993), while in Japanese, a language with non-fusional Case morphology, KP does not have to connect to DP in the structure, so that they can be apart within the extended projection of nominals (see also Otaki 2012).[11] This is illustrated below.

(35) a. Fusional Case morphology ex.) English

KP-DP >> NP

b. Non-fusional Case morphology ex.) Japanese

KP >> DP >> NP

This analysis provides an account of the above difference between English and Japanese: while the PP layer dominates KP in English, KP dominates the PP layer in Japanese. As KP has to immediately dominate DP in English, P has to be above K in English. On the other hand, as KP does not connect to DP, KP appears above PP in Japanese:

(36) English

a. $[_{KP}$ K $[_{DP}$ D $[_{NP}$ N]]]

b. **[$_{PP}$ P** … $[_{KP}$ K $[_{DP}$ D $[_{NP}$ N]]]**]**

[11] Otaki (2012) attempts to derive cross-linguistic variations in the availability of argument ellipsis (i.e. distribution of null arguments) from (non-)fusional Case morphology.

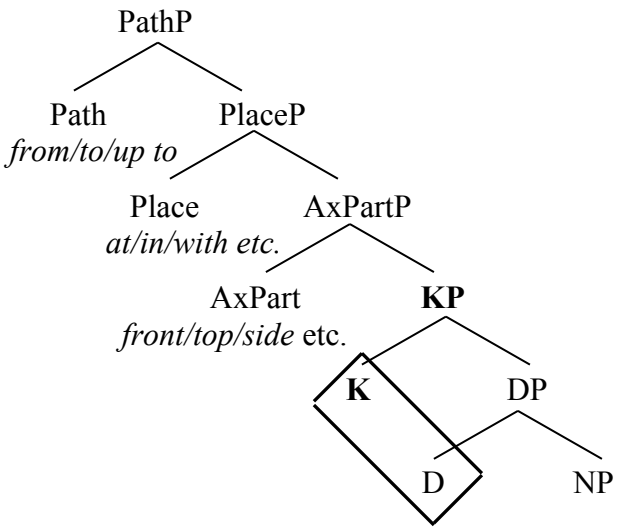
(37) Japanese

a. [$_{KP}$ [$_{DP}$ [$_{NP}$ N] D] K]

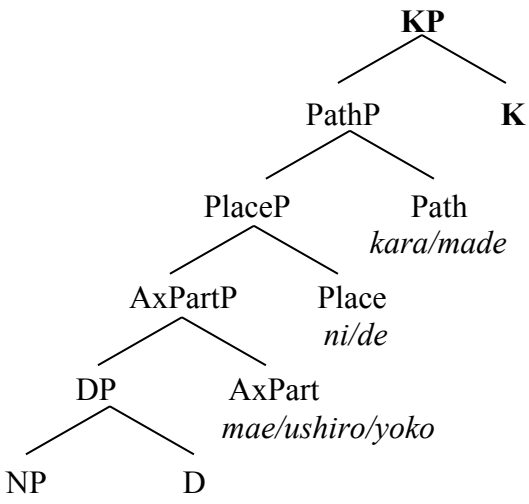
b. [$_{KP}$ **[$_{PP}$** [$_{DP}$ [$_{NP}$ N] D] … **P]** K]

As shown in (36), in English K always selects DP as its complement even if DPs are embedded under PPs (i.e. (36b)) while in Japanese, as shown in (37), K selects DP as its complement when the DP is not a complement of Ps, just like in English, but PPs can be sandwiched by K and D when DPs are embedded under PPs. English PPs and Japanese PPs are thus elaborated as in (38a) and (38b), respectively.

(38) a. English PPs



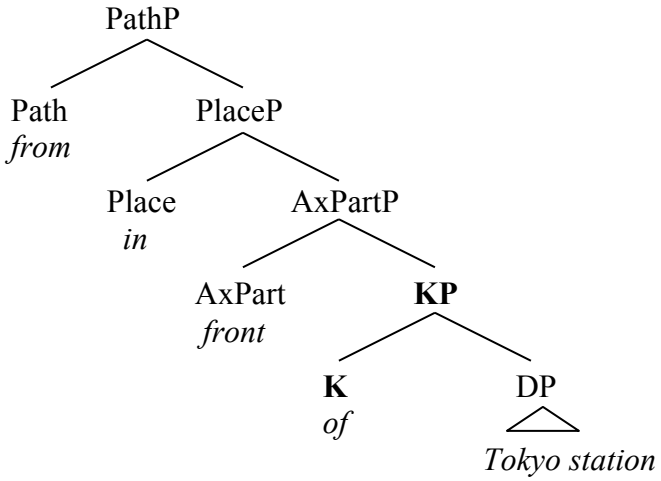
b. Japanese PPs



Of importance here is that the sandwiched structure is unavailable in English because K must always select DP in languages with fusional Case morphology. The data in (30a) and (31a), which are repeated in (39a) and (40a) below, are thus understood as manifestation of (non-)fusional Case morphology of the two languages. This is shown below.

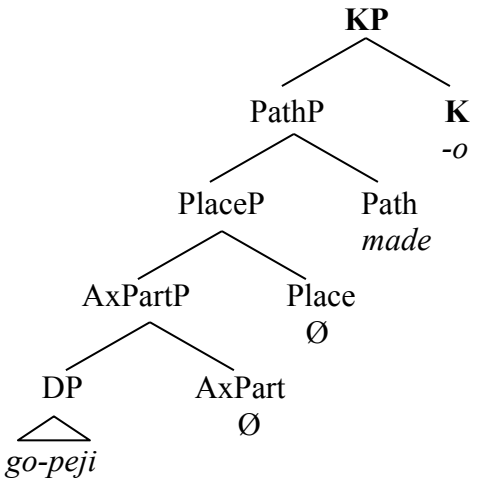
(39) a. The tour bus starts [from in front ***of*** Tokyo station].

b.



(40) a. Taroo-wa san-peji-kara go-peji-**made-o** syukudainisi-ta.
Taro-TOP three-page-from five-page-**up.to-ACC** assign.homework-PST
'Lit. Taro assigned homework from page 3 to page 5.'

b.

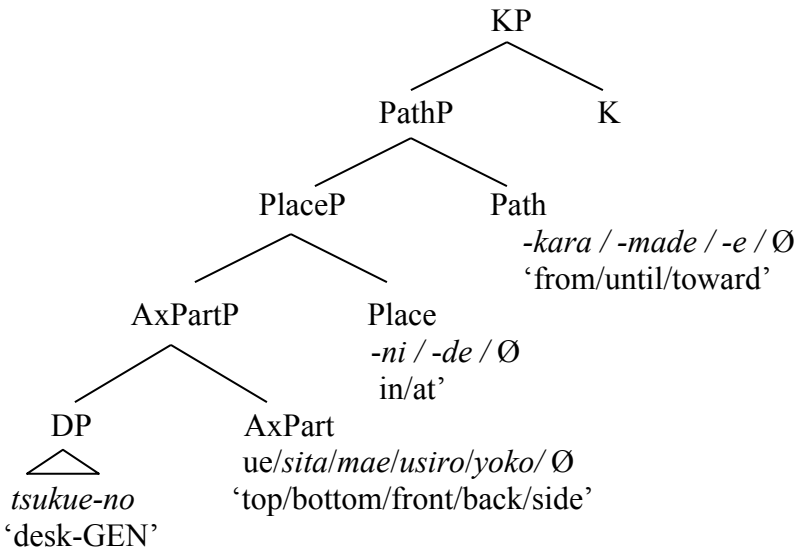


In English, the head of KP *of* is below AxPart in (39b) while in Japanese the head of KP *–o* is located above Path as in (40b). I assume that K has a Case feature to be valued by *v* or T, and therefore K is overtly realized only when it is probed by *v* or T.

2.6 Concluding remarks

In this chapter, I have discussed the structure of spatial PPs in English and Japanese and argued for the following points: (i) spatial PPs in both English and Japanese have the PP layer consisting of PathP, PlaceP, and AxPartP and (ii) the two languages differ regarding the placement of KP. Based on the assumption (i) that KP is a functional category in the extended nominal projection (Giusti 1993, Bittmer and Hale 1996, Neelman and Weerman1990) and (ii) that PPs are parts of extended projection of nominals (Grimshaw 2000), I have proposed that KP should be integrated into the layered structure of PPs and that the placement of KP reflects the property of Path as well as morphological property of Case in the language. I have proposed that in languages with fusional Case morphology, like English, K always selects DP inside the layered structure of PPs, while in languages with non-fusional Case morphology, like Japanese, K can be apart from D, thereby K can selects the other functional head. Since Japanese Path has a D-like property, K selects Path as its complement. As a result, KP is above the highest projection of a layered structure of PPs. The proposed structure of Japanese PPs is schematically summarized below.

(41) The internal structure of Japanese PPs



As can be seen above, K selects PathP, which is the highest projection of the layered structure of PPs. In the rest of the thesis, we will see that the proposed structure of Japanese PPs in (41) provides a principled account for two seemingly unrelated phenomena: NP-ellipsis within PPs (Chapter 3) and a Case alternation phenomenon called nominative/genitive conversion within adverbial clauses headed by Ps (Chapter 4).

Chapter 3

The Layered Structure of PPs and Nominal Complements:

Evidence from NP-ellipsis within PPs

3.1. Introduction

This chapter investigates NP-ellipsis (henceforth NPE) within adpositional phrases (i.e. PPs) in English, Chinese, and Japanese, and argues that the crosslinguistic variations with respect to NPE within PPs can be accounted for on the basis of the layered structure of PPs proposed in the previous chapter.[1] It has been observed that NPE is allowed in English, Chinese, and Japanese (cf. Jackendoff 1971, Lobeck 1990, Saito and Murasugi 1990, Saito et al. 2008). Saito and Murasugi (1990) and Lobeck (1990) analyze NPE as ellipsis of NP-complements of D under the Spec-Head agreement within DPs. Hereafter I refer to this analysis as DP-based analysis. Given the DP-based analysis, NPE in English and Japanese can be analyzed in a parallel way. Saito et al. (2008) further propose that Chinese NPE is also analyzed under the same condition. Thus, NPE within nominals in the three languages has been analyzed as involving the same mechanism. This chapter provides a novel observation that the parallel pattern of NPE among the three languages breaks down once we consider NPE within PPs: in English NPE within PPs are always allowed in general, in Chinese NPE within PPs is always disallowed, and in Japanese some PPs allow but some other PPs disallow NPE. Why do such crosslinguistic variations come out despite the identical behavior of NPE within nominals among those languages? This chapter aims to answer the question. In particular, I propose that NPE within PPs can be accounted for

[1] A preliminary version of this chapter was presented at NELS 44 and published as Takahashi (2014).

on the basis of (i) the layered internal structure of PPs, and (ii) the syntactic reflection of fusional/non-fusional Case morphology.

This chapter is organized as follows. In section 2, we overview previous studies on NPE within nominals in English, Chinese, and Japanese, and in section 3 we observe NPE within PPs in the three languages. Specifically, it is demonstrated that English allows NPE within any types of PPs, while Chinese disallow NPE within any PPs, and in Japanese some PPs allow but some other PPs disallow NPE. In section 4 I will first provide a principled account of the cross-linguistic differences in NPE within PPs in English and Japanese, and the Chinese paradigms are analyzed in section 5. In section 6 I will show supportive evidence for the proposed analysis. Section 7 concludes this chapter.

3.2. NP-ellipsis in nominals

3.2.1 NP-ellipsis in English

It has been observed since Jackendoff (1971) that an NP within nominals can be elided in English only when a genitive phrase is stranded in its specifier position, as shown in the contrast between (1) and (2).

(1) a. [Lincoln's portrait] didn't please me as much as [Wilson's ~~portrait~~].
b. I have read [Bill's book], but I haven't read [John's ~~book~~].

(2) a. *I have edited [a book], but I haven't written [a ~~book~~].
b. *I have seen [the book], but I haven't had a chance to read [the ~~book~~].

(Saito and Murasugi 1990: 88 and Saito et al. 2008:252)

Jackendoff (1971) analyzed the example in (1a) as N'-deletion that takes place under the structure in (3), showing a contrast to the ill-formed cases as illustrated in (4).

(3) [$_{NP}$ Lincoln's [$_{N'}$ portrait]] didn't please me as much as [$_{NP}$ Wilson's [$_{N'}$ ~~portrait~~]].

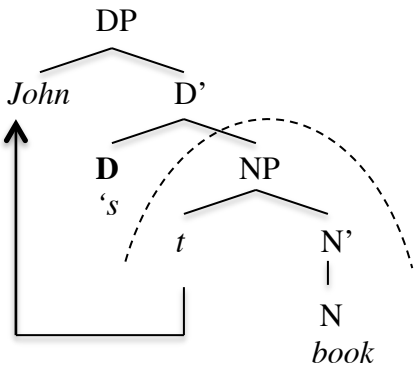
(4) a. *I have edited [$_{NP}$ (a) [$_{N'}$ book]], but I haven't written [$_{NP}$ (a) [$_{N'}$ ~~book~~]].

b. *I have seen [$_{NP}$ (the) [$_{N'}$ book]], but I haven't had a chance to read [$_{NP}$ (the) [$_{N'}$ ~~book~~]].

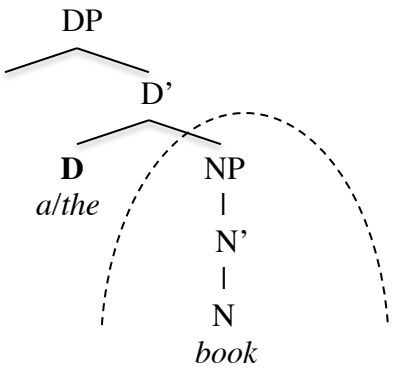
In (3), anteceded by the NP [$_{NP}$ Lincoln's [$_{N'}$ portrait]], the N' [$_{N'}$ portrait] within the NP [$_{NP}$ Wilson's [$_{N'}$ portrait]] is elided, having the genitive phrase *Wilson's* in the Spec position. In (4), on the other hand, the NP [$_{N'}$ book] within an NP [$_{NP}$ a/the book] is elided without a genitive phrase in the Spec position.

In the advent of the DP hypothesis, which states that the head of nominal phrases is D(eternimer) (Fukui and Speas 1986, Abney 1987, Kuroda 1986), Saito and Murasugi (1990) and Lobeck (1990) reanalyze N'-deletion as NP-ellipsis within DPs, where NP-complements of D can be elided only when a genitive phrase fills the DP Spec, as in (5).

(5) a.



b. *



(cf. Saito and Murasugi 1990: 94)

Under this DP-based analysis, the English genitive marker *'s* is analyzed as D, which licenses ellipsis of the NP-complement when the genitive phrase *John* moves to the Spec, DP. Thus, the ungrammaticality of (2) can be analyzed in terms of the absence of genitive elements in the Spec, DP. Given the DP-based analysis, NPE can be considered as an instance of the general pattern of ellipsis, such as VP-ellipsis and sluicing as in (6b) and (6c), respectively.

(6) a. I have read [Bill's book], but I haven't read [$_{DP}$ John's ~~[$_{NP}$ book]~~]. (NPE)

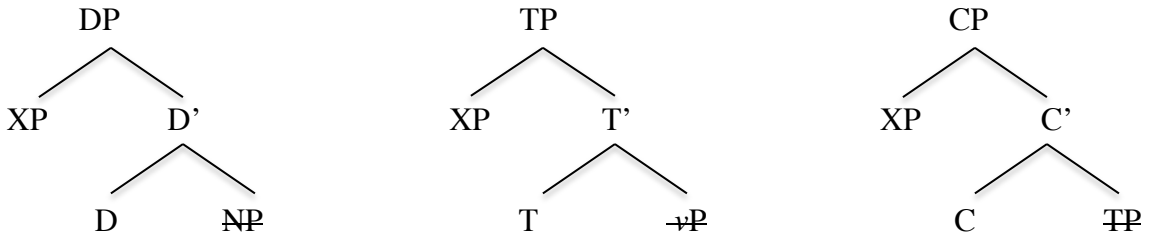
b. John can play the guitar and [$_{TP}$ Mary can ~~[$_{vP}$ play the guitar]~~], too. (VP-ellipsis)

c. John can play something, but I don't know [$_{CP}$ what ~~[$_{TP}$ John can play]~~]. (Sluicing)

((a) from Saito et al. 2008, (b-c) from Merchant 2012)

All of these ellipsis phenomena involve a functional head (D, T, C), which licenses ellipsis of its complement (NP, vP, TP) when the spec position is filled. Each pattern is shown below.

(7) a. NP-ellipsis b. VP-ellipsis c. Sluicing



(Saito et al. 2008: 302)

(7b) shows that so-called VP-ellipsis is *vP*-deletion licensed by T when the Spec, TP is filled, and (7c) shows that sluicing is TP-deletion licensed by C when the Spec, CP is filled. In the same vein, so-called N'-deletion can be reanalyzed as NP-ellipsis licensed by D whose Spec is filled.

The general condition of ellipsis observed by Saito and Murasugi (1990), Lobeck (1990), and Saito et al. (2008) can be stated as follows.

(8) A functional head can license ellipsis of its complement only when the spec position is filled.

3.2.2 NPE in Japanese

Japanese also allows NPE within nominal phrases, as shown below.

(9) a. [Taroo no taido] -wa yoi ga, [Hanako no ~~taido~~] -wa yoku nai
no attitude-TOP good though *no* attitude-TOP good not
'Though Taroo's attitude is good, Hanako's isn't'

b. [Rooma no hakai] -wa [Kyooto no ~~hakai~~] -yorimo hisaN datta
Rome *no* destruction-TOP Kyoto *no* destruction-than miserable was
'Rome's destruction was more miserable than Kyoto's'

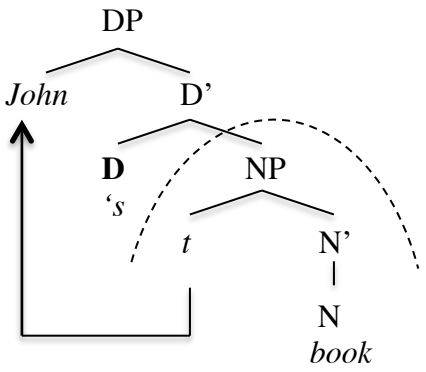
(Saito et al. 2008:253)

In (9a), anteceded by the first conjunct, the subject of the second conjunct undergoes NPE, where the genitive element *Hanako* is stranded and the head noun *taido* 'attitude' is deleted.[2] Saito and Murasugi (1990) (hereafter, SM) and Saito et al. (2008) (hereafter, SLM) argue that such NPE in Japanese can be analyzed on a par with NPE in English. Namely, D^0 licenses ellipsis of its NP-

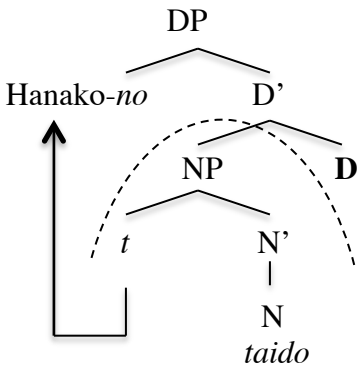
[2] As noted by Saito and Murasugi (1990) and Saito et al. (2008), besides the genitive marker *–no*, Japanese has a pronominal use of *no* which roughly corresponds to the pronoun *one* in English. To exclude the pronominal use of *no* in a context for NPE, Japanese examples involving NPE have to use abstract nouns, such as *taido* 'attitude' for the deleted head noun (see Okutu 1974, Kumio 1983, Murasugi 1991, and Arimoto and Murasugi 2005).

complement only when the DP Spec is filled. This analysis of NPE in Japanese is schematically shown in (10b) together with the analysis of the English example (5a), repeated here as (10a).

(10) a. English



b. Japanese



As illustrated above, the DP-based analysis assumes that *Hanako* in the second conjunct in (9a) is base-generated within the NP-complement and moves to the DP Spec, which allows the NP-complement to be deleted. As a result, *Hanako* can survive NPE.

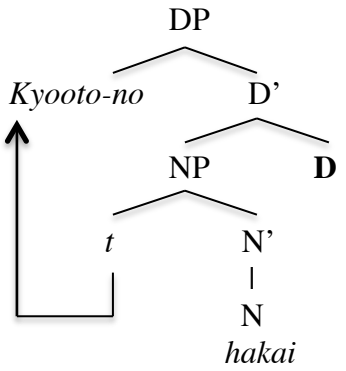
A crucial argument for the DP-based analysis concerns the following ungrammatical cases.

(11) a.*[hare no hi]-wa yoi ga, [ame no ~~hi~~] -wa ochikomu
clear *no* day-TOP good though rain *no* day-TOP feel-depressed
'Clear days are OK, but I feel depressed on rainy days'

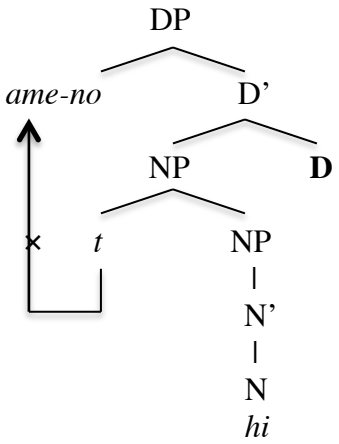
b. *Taroo-wa ichi-nichi-ni [saN -satsu no ~~hoN~~] -o yomu ga,
-TOP one -day -in three-CL *no* book-ACC read though
Hanako-wa [go-satsu no ~~hoN~~]-o yomu
-TOP five-CL *no* book-ACC read
'Taro reads three books in a day, but Hanako reads five' (SLM 2008:253)

Given the contrast between (9) and (11), SM (1990) and SLM (2008) argue that only arguments, but not adjuncts, of the head noun can undergo movement to the DP Spec, since such movement is A-movement which adjuncts cannot undergo. The remnants of NPE in (9) are arguments, while those in (11) are analyzed as adjuncts that cannot move to Spec, DP. This contrast is schematically shown below.

(12) a.



b.



(SLM 2008:254)

The remnant of NPE *Kyooto* (9a) is an argument, thus it moves to Spec, DP, surviving the NP-ellipsis, as shown in (12a). On the other hand, in (11a), the remnant *ame* 'rain' is an adjunct of the head noun *hi* 'day', so that *ame* 'rain' cannot move to Spec, DP, hence it cannot survive NPE, as shown in (12b). For the same reason, (11b) is ungrammatical since the numeral-classifier such as *go-satsu* 'five-CL' is an adjunct of the head noun *hon* 'book' which does not undergo movement to the Spec, DP.[3]

[3] As we have discussed in 2.3.3, SM (1990) and SLM (2008) assume the particle –no within DPs as a contextual case marker in the sense of Kitagawa and Ross (1982).

To summarize, we have seen that Japanese also allows NPE within DPs and that SM (1990) and SLM (2008) propose that NPE in Japanese can be analyzed in the same way as that in English once we assume DP-hypothesis for Japanese nominals. Under the DP-based analysis, NPE is considered as NP-ellipsis within DP, which fits the general condition of ellipsis.

3.2.3 NPE in Chinese

NPE is also observed in Chinese, as exemplified below.

(13) a. [Zhangsan de che] bi [Lisi de ~~che~~] geng gui
de car compare *de* car more expensive
'Zhangsan's car is more expensive than Lisi's'

b. [Luoma de huimie] bi [Bali de ~~huimie~~] geng canlie
Rome *de* destruction compare Paris *de* destruction more disastrous
'Rome's destruction was more disastrous than Paris's'

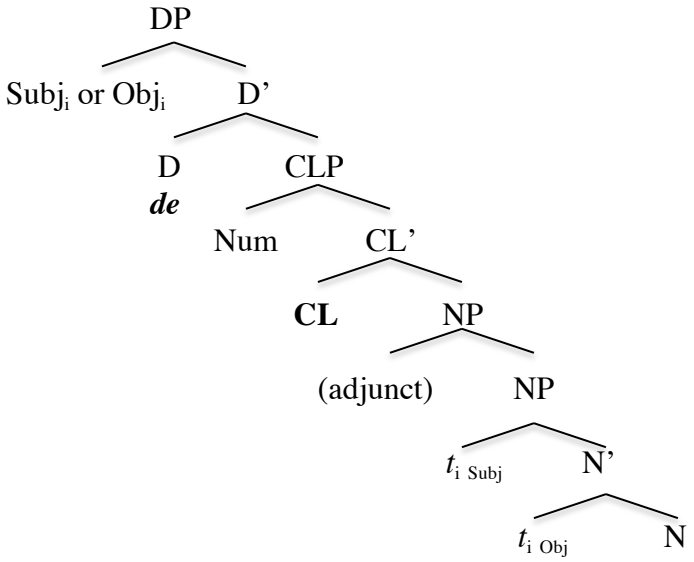
c. [Taipei de jiaotung] bi [Dongjing de ~~jiaotung~~] geng luan
de traffic compare Tokyo *de* traffic more messy
'Taipei's traffic is worse than Tokyo's' (SLM 2008:259)

In (13a-c), anteceded by the preverbal DPs, the postverbal DPs can undergo NPE, stranding the noun phrase accompanied by *de* within the DPs.

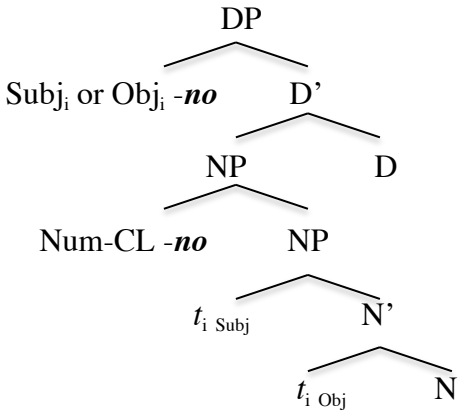
Given the examples above, one might think that Japanese and Chinese have a similar nominal structure: both languages are apparently head-final in nominals and have a modifying marker (*no* in Japanese and *de* in Chinese) that occurs before the head noun. However, SLM (2008) argue that Chinese nominals and Japanese nominals are quite different in their internal structure with the following respects: (i) Chinese noun phrases are head-initial, while Japanese noun phrases are head-final, (ii) Chinese *de* is D, while Japanese *no* is a modifying marker (i.e. a

contextual case marker) in the sense of Kitagawa and Ross (1982) (see discussion in 2.3.3), and (iii) a classifier in Chinese has its own head in the nominal structure, while numeral-classifier phrases in Japanese are adjuncts. The structure of Chinese nominals proposed by SLM (2008) is schematically shown in (14a), which is compared with the structure of Japanese nominals in (14b).

(14) a. Chinese nominals



b. Japanese nominals



The structure of Chinese nominals in (14a) shows that in Chinese the modifying marker *de* is D in contrast to Japanese *no,* which is a contextual Case marker, and that a Chinese classifier has its own head taking a numeral as its Spec and a noun as its complement, in contrast to Japanese classifiers, which are adjuncts of the head noun. In both languages, arguments of the head noun undergo movement to Spec, DP so that NPE strands them, whereas adjuncts of the head noun cannot move to the DP Spec, so that they cannot survive NPE. This is why NPE does not strand Japanese numeral-classifiers, as we have seen in (11b). Based on the structure above, we predict that a Chinese classifier should be able to survive NPE since it is not an adjunct and has its own

head, which is known as a functional head (Tang 1990, Cheng and Sybesma 1999, and Li 1999). Given the condition on ellipsis in (8), which states that a functional head can license ellipsis of its complement only when the spec position is filled, NPE within Chinese nominals should be able to strand a numeral-classifier. This is in fact borne out, as shown below.

(15) Suiran Zhangsan mai-le [san-ben shu], dan Lisi mai-le [$_{CLP}$ wu-ben ~~shu~~]
though buy-PER three-CL book but buy-PERF five-CL book
'Zhangsan bought three books, but Lisi bought five' (SLM 2008:261, 263)

The example in (15) shows that anteceded by the first conjunct, the head noun *shu* in the second conjunct can undergo deletion, stranding the numeral-classifier *wu-ben*.

To summarize, I have reviewed SLM's (2008) study on the structure of noun phrases and NPE in Chinese. Given the nominal structure proposed by SLM (2008), Chinese *de* is analyzed as D and NPE can be considered as NP-deletion within DPs. We have also seen that SLM's (2008) structure of Chinese and Japanese nominals can correctly predict the pattern of NPE within nominals in these languages.

3.3. NP-ellipsis within PPs – English, Chinese, and Japanese

This section provides a novel observation regarding NPE within PPs in English, Japanese, and Chinese. In the previous section we have seen that the DP-based analysis proposed by SLM (2008) can account for NPE in English, Japanese, and Chinese in a parallel way. In this section we observe that the parallel pattern breaks down once we consider NPE within PPs.

In English, NPE within PPs is allowed in general, as shown in (16).[4]

(16) a. John learned a lot [**from** Jenny's attitude], and Bill learned a lot [**from** Mary's ~~attitude~~].
b. John was angered [**by** Jenny's remark], and Bill was angered [**by** Mary's ~~remark~~].
c. John parked a car [**in front of** Jenny's house], and Mary parked a car [**in front of** Mary's ~~house~~].

In (16a), anteceded by the first conjunct, the PP headed by *from* in the second conjunct allows NPE within the PP, where the head noun *attitude* undergoes deletion, stranding the preposition *from* and the genitive element *Mary's* within the PP. In (16b), the PP headed by *by* also allows NPE, and even complex PPs such as *in front of* as in (16c) allow NPE in English.

Now let us consider the case of Chinese. Recall that just like English and Japanese, Chinese allows NPE within nominals. However, once the nominals are embedded within PPs, NPE turns out to be disallowed. Some examples are shown below[5]. Note that each sentence below is completely grammatical if the deleted noun is pronounced.

(17) a.* Zhangsan [$_{PP}$ **cong** Bob de taidu] xuedao henduo, er
from Bob de attitude learn a.lot whereas
Ling [$_{PP}$ **cong** John de ~~taidu~~] xuedao henduo.
from John de attitude lean a.lot
'Zhangsan learned a lot from Bob's attitude, while Ling learned a lot from John's.'

[4] I thank Dave Kush, Bradley Larson, and Chris LaTerza for their help with English examples.
[5] I thank Angela Xiaoxue He, Yu-an Lu, and Chih-hsiang Shu for their help with Chinese examples.

b.* Zhangsan [$_{PP}$ **yunwei** Bob de taidu] er xinqing cha,
because Bob de attitude ER mood bad
dan ta [$_{PP}$ **yinwei** Mary de ~~taidu~~] er xinqing hao.
but he because Mary de attitude ER mood good.
'Zhangsan became in a bad mood by Bob's attitude, but he got in a good mood by Mary's.'

c.* Zhangsan [$_{PP}$ **zai** John de wu qian] ting zhe, er
at John de house front park car whereas
Ling [$_{PP}$ **zai** Mary de ~~wu~~ qian] ting zhe
at Mary de house front park car
'Zhangsan parked a car in front of John's house, and Mary parked a car in front of Mary's.'

The examples in (17a), (17b), and (17c) correspond to the English examples in (16a), (16b), and (16c), respectively. Although the English counterparts are all grammatical, (17a-c) are ungrammatical when the head nouns within the PPs undergo NPE. Note that the PP in (17c) is a circumposition that consists of a preposition *zai* 'at' and a postposition *qian* 'front', which corresponds to the complex PP *in front of* in English. Thus, Chinese complex PPs also disallow NPE within them. Therefore, any kinds of PPs disallow NPE in Chinese.

Interestingly, in Japanese some PPs allow but some other PPs disallow NPE. The grammatical cases are shown in (18) and the ungrammatical ones are in (19).[6]

[6] Japanese examples cannot make minimal pairs with English and Chinese examples since NPE in Japanese needs to be controlled by abstract nouns for the deleted head noun due to the pronominal use of *no* (see footnote1).

(18) a. Ken-wa [$_{PP}$ Taroo-no taido **kara**] ooku no koto-o manabi,
Ken-TOP Taro-GEN attitude from many things-ACC learn.and
Hanako-wa [$_{PP}$ Maki-no ~~taido~~ **kara**] ooku no koto-o manan-da.
Hanako-TOP Maki-GEN attitude from many things-ACC lean-PST
'Ken leaned a lot from Taro's attitude and Hanako learned a lot from Maki's.'

b. Taroo-wa [$_{PP}$ musuko-no tanzyoobi **kara**] kiNen-o hazime,
Taro-TOP son-GEN birthday from quit.smoking-ACC begin
Ken-wa [$_{PP}$ musume-no ~~tanzyoobi~~ **kara**] kiNen-o hazime-t
Ken-TOP son-GEN birthday from quit.smoking-ACC begin-PST
'Taro quit smoking from his son's birthday, and Ken quit smoking from his daughter's.'

c. Taroo-wa [$_{PP}$ hahaoya-no tanzyoobi **made**] gitaa-o rensyuusi,
Taro-TOP mother-GEN birthday until guitar-ACC practice
Ken-wa [$_{PP}$ titioya-no ~~tanzyoobi~~ **made**] piano-o rensyuusi-ta.
Ken-TOP father-GEN birthday until piano-ACC practice-PST
'Taro practiced playing the guitar until his mother's BD, and Ken practiced the piano until his father's.'

(19) a.?? Taroo-wa [$_{PP}$ zyoosi-no taido **de**] kaisya-o yame,
Taro-TOP boss-GEN attitude because.of company-ACC quit
Ken-wa [$_{PP}$ dooryoo-no ~~taido~~ **de**] kaisya-o yame-ta.
Ken-TOP colleague-GEN attitude because.of company-ACC quit-PST
'Taro quit a Co. because of his boss's attitude, and Ken quit a Co. because of his colleague's.'

b.?* Taroo-wa [$_{PP}$ musuko-no tanzyoobi **ni**] kootuuziko-o okosi,
Taro -TOP son-GEN birthday on traffic.accident-ACC cause
Ken-wa [$_{PP}$ musume-no ~~tanzyoobi~~ **ni**] kootuuziko-o okosi-ta
Ken-TOP son-GEN birthday on traffic.accident-ACC cause-PST
'Taro caused a traffic accident on his son's birthday, and Ken caused a traffic accident on his daughter's.'

c.?* Taroo-wa [$_{PP}$ hahaoya-no tanzyoobi (no) **mae ni**] gitaa-o rensyuusi,
Taro-TOP mother-GEN birthday GEN before guitar-ACC practice
Ken-wa [$_{PP}$ titioya-no ~~tanzyoobi~~ (no) **mae ni**] piano-o rensyuusi-ta.
Ken-TOP father-GEN birthday GEN before piano-ACC practice-PST
'Taro practiced playing the guitar before his mother's birthday, and Ken practiced the piano before his father's.'

In (18), anteceded by the first conjunct, the PPs headed by *kara* 'from' in (18a, b) and *made* 'until' in (18c) in the second conjunct allow NPE within their complement. In contrast to (18a), (19a) is degraded when the PP headed by *de* 'because of' undergoes NPE within the complement. In contrast to (18b, c). (19b, c) also sounds degraded when the PPs headed by *ni* 'on' in (19b) and *mae ni* 'before, in front of' in (19c) undergo NPE within their complement. The classification of these postpositions will be discussed in the following section.[7]

We have observed that NPE within PPs is always allowed in English, partially allowed in Japanese, and completely disallowed in Chinese. This is summarized in the following table.

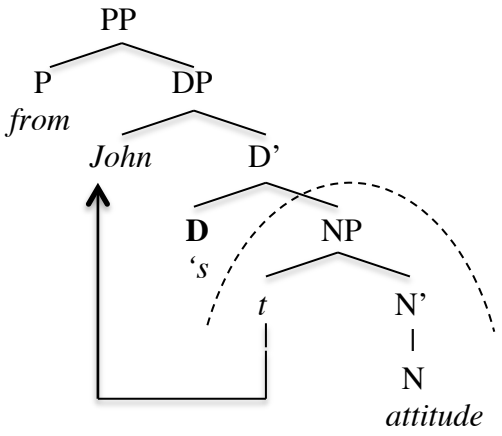
[7] Takita and Goto (2012, 2013) discuss NP-ellipsis within some Japanese PPs from a different perspective.

(20)

	English	Chinese	Japanese
NPE within DPs	✓	✓	✓
NPE within PPs	✓	*	Only some PPs

Under the DP-based analysis in (10), it is unclear how these cross-linguistic differences can be accounted for. This is so because under the DP-based analysis, the genitive elements in all of the examples above occupy the Spec, DP, therefore, the head nouns should be able to undergo NPE, as shown below.

(21)



This is not the case within Chinese PPs and some Japanese PPs, as observed in(17) and (19), respectively. Given the paradigm observed above, it seems to be difficult to explain the distribution of NPE only by considering the internal structure of nominals. It is inevitable to closely investigate the internal structure of PPs, which we consider in the following section.

3.4. An analysis of cross-linguistic differences in NP-ellipsis within PPs

This section aims to provide a principled account of the cross-linguistic differences in NPE within PPs on the basis of (i) the layered internal structure of PPs and (ii) the syntactic reflection of (non-) fusional Case morphology.

3.4.1 The layered structure of PPs and Case morphology: English and Japanese

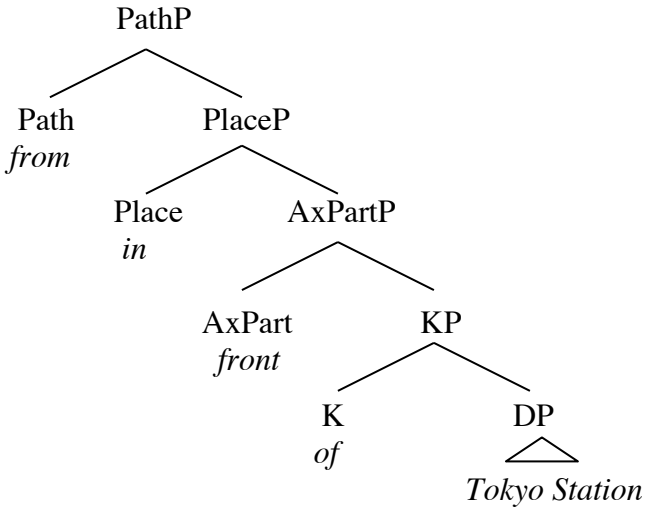
To provide a principle account of the cross-linguistic differences in NPE we have observed above, I first discuss how each pre-/postposition maps to the hierarchical structure of PPs. I first review English PPs and turn to Japanese PPs that we discussed in chapter 2. Chinese PPs will be discussed in the following subsection.

As we have seen in chapter 2, PPs have a layered internal structure, as stated below.

(22) PPs are universally decomposed into (at least) Path, Place, and Ax(ial)Part
(cf. van Reimsdijk 1990, Ayano 2001, Svenonius 2006, 2008, 2010, ao.)

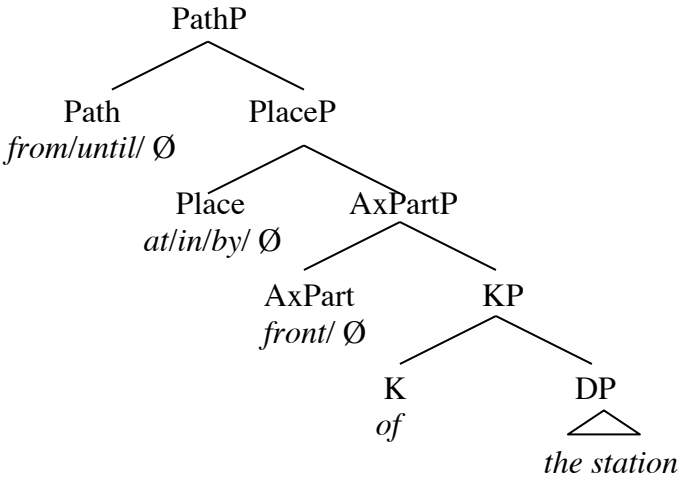
Given the three-layered internal structure of PPs, we have seen in the previous chapter that the English complex PP "*from in front of*" can be analyzed as having the following hierarchical structure.

(23)



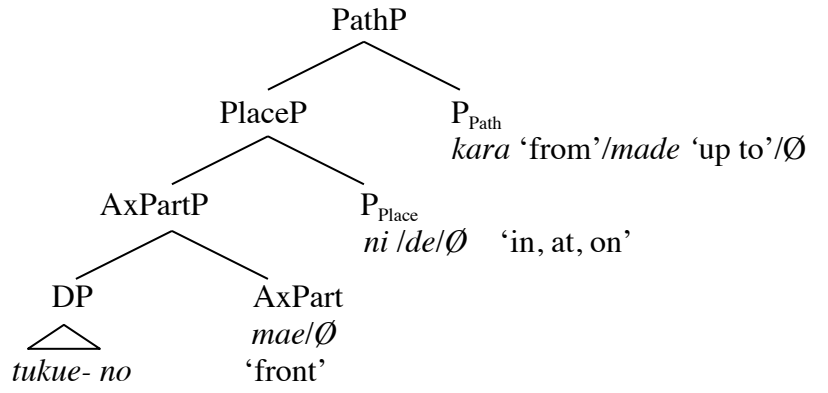
Although PPs used in the examples of NPE within PPs in (16) through (19) are not spatial PPs, I assume that the layered structure of spatial PPs can be extended to non-spatial PPs as they are metaphorical extensions of spatial PPs (cf. Gruber 1965, Clark 1973, Jackendoff 1983). Thus, each preposition used in the English examples in (16) maps to the layered structure in (24).

(24) The internal structure of English PPs



Now let us consider Japanese PPs. Recall that Japanese PPs also have a three-layered structure, just like English PPs, as shown below.

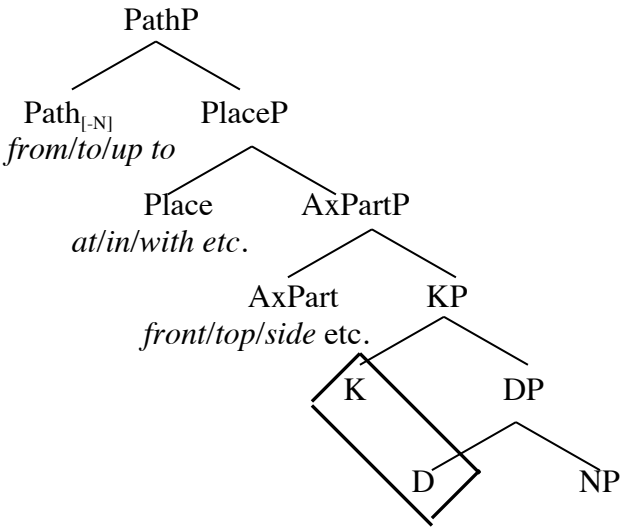
(25) The layered internal structure of Japanese PPs



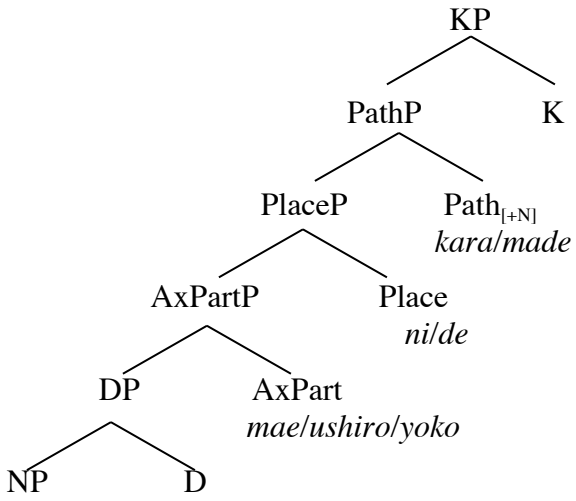
(cf. Ayano 2001, see also Watanabe 1993, 2009)

In the previous chapter, I have proposed that the only difference between English PPs and Japanese PPs is the placement of KP, which correlates with the different property of Path in the language: Japanese Path has a nominal property while English Path does not. This difference is also related to the morphological property of Case in the language: in English, a language with fusional Case morphology, K always selects DP inside the layered structure of PPs, while in Japanese, a language with non-fusional Case morphology, K can be apart from D, thereby KP is placed above the highest projection of a layered structure of PPs. The proposed structure for English PPs and Japanese PPs are repeated as in (26a) and (26b), respectively.

(26) a. English PPs



b. Japanese PPs



Of importance here is that K cannot be apart from D in English because K must always select DP in languages with fusional Case morphology. In the following section, we will see how the NP-ellipsis within PPs in each language can be accounted for on the basis of the above structures.

3.4.2 A proposed analysis: English and Japanese

Recall that it has been assumed in the literature that functional heads can license ellipsis of their complements when the spec position is filled (Lobeck 1990, SM 1990 and SLM 2008). The relevant statement in (8) is repeated below.

(27) A functional head can license ellipsis of its complement only when the spec position is filled.

Given the condition above, I propose that in the extended nominal projection, only functional heads selected by K have the EPP property (cf. Chomsky 2008).[8] This proposal is stated below.

(28) A functional category selected by K can have an EPP property.

This assumption is similar to the C-T relation proposed by Chomsky (2008). Chomsky (2008) proposes that T can have the EPP property only when T is selected by C, otherwise T is defective. In the same way, I assume that a functional category selected by K has the EPP property. Thus, a head underneath K can attract a DP to its spec position and license ellipsis of its complement. In the rest of this section, I demonstrate how the cross-linguistic differences in the availability of NPE within PPs can be accounted for on the basis of the condition on ellipsis in (27) as well as the proposed assumption in (28).

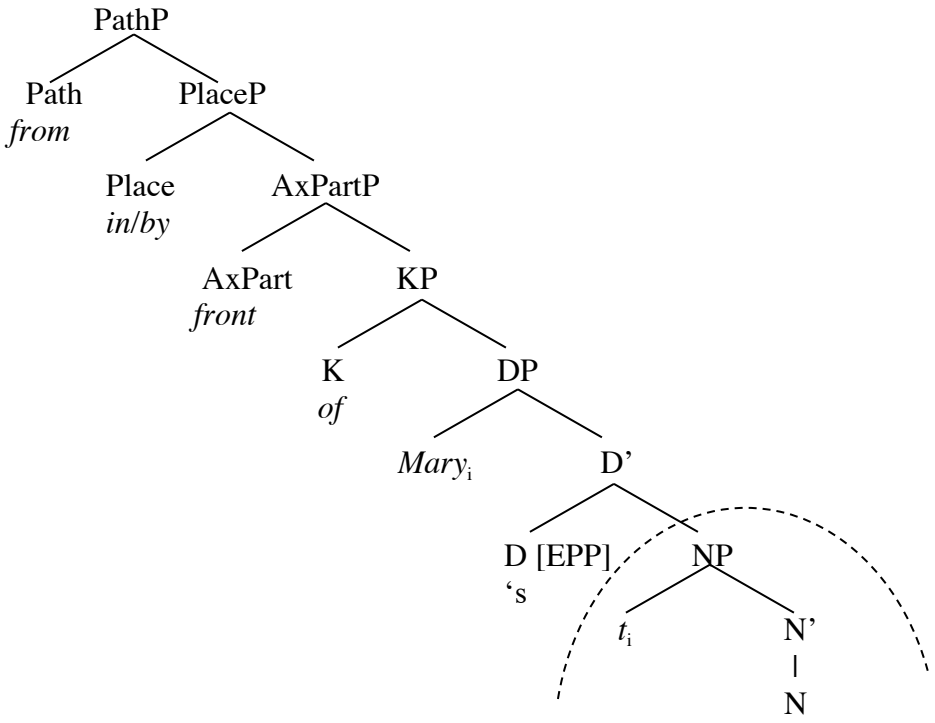
Now let us first consider NPE within English PPs. Recall that in English NP-ellipsis is always allowed within any types of PPs. The relevant data in (16) are repeated below.

(29) a. John learned a lot [**from** Jenny's attitude], and Bill learned a lot [**from** Mary's ~~attitude~~].
b. John was angered [**by** Jenny's remark], and Bill was angered [**by** Mary's ~~remark~~].
c. John parked a car [**in front of** Jenny's house], and Bill parked a car [**in front of** Mary's ~~house~~].

Given the layered internal structure of PPs in (26a), the English PPs above can be analyzed as having the following structure.

[8] See Chomsky (2013, 2015) for the recent analysis of the EPP in terms of labeling.

(30)



In (30), K selects DP as its complement since English has fusional Case morphology. Given the assumption in (28), the D head has the EPP property since it is selected by K. As the EPP property on D triggers movement of *Mary* to the DP Spec, prepositions and *Mary's* can survive the NPE in accordance with the condition in (27). Thus in English, NPE is available within any types of PPs because it takes place within DPs whether or not the DP is embedded under PPs.

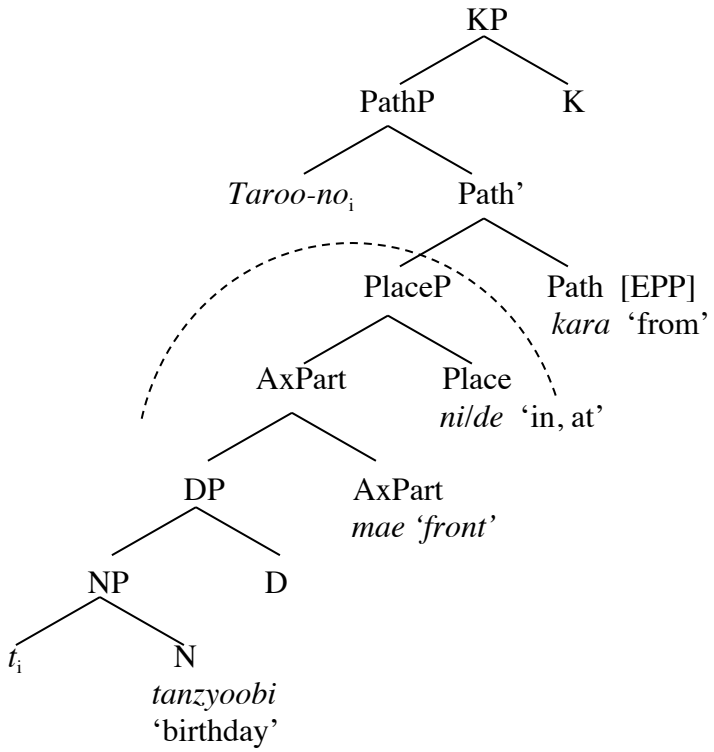
Now let us move on to the Japanese paradigm. Recall that in Japanese, some PPs allow but some other PPs disallow NP-ellipsis. One of the grammatical cases is repeated in (31a) and that of ungrammatical cases is in (31b).

(31) a. Taroo-wa [$_{PP}$ musuko-no tanzyoobi **kara**] kiNen-o hazime,
Taro-TOP son-GEN birthday from quit.smoking-ACC begin
Ken-wa [$_{PP}$ musume-no ~~tanzyoobi~~ **kara**] kiNen-o hazime
Ken-TOP son-GEN birthday from quit.smoking-ACC begin-PST
'Taro quit smoking from his son's birthday, and Ken quit smoking from his daughter's.'

b.?*Taroo-wa [$_{PP}$ musuko-no tanzyoobi **ni**] kootuuziko-o okosi,
Taro-TOP son-GEN birthday on traffic.accident-ACC cause
Ken-wa [$_{PP}$ musume-no ~~tanzyoobi~~ **ni**] kootuuziko-o okosi-ta
Ken-TOP son-GEN birthday on quit.smoking-ACC cause-PST
'Taro caused a traffic accident on his son's birthday, and Ken caused a traffic accident on his daughter's.'

I propose that NPE within Japanese PPs can be analyzed as follows.

(32)



Recall that as we have seen in chapter 2, Japanese has non-fusional Case morphology, K can be apart from DP, taking PathP obtaining a nominal property as its complement. Given the assumption in (28), the Path, rather than D, has the EPP property since it is selected by K. As the EPP property on Path triggers movement of *Taroo-ga* to Spec of PathP, the complement of Path, namely PlaceP can be elided in accordance with the condition in (27). Note that PPs headed by Place, such as *ni* or *de* 'in/at' do not allow NPE because Place cannot be selected by K, so that it cannot fill its Spec position. To summarize, because of its non-fusional Case morphology and the nominal property of Path, Japanese allows K to select Path, but not Place, so that NPE is allowed only within the complements of Path. As a result, the type of Ps matters in Japanese: Path allows, but Place disallows, NPE.

3.5 An analysis of NP-ellipsis within Chinese PPs

This section attempts to analyze NPE within Chinese PPs. We first briefly overview the adpositional system in Chinese in 3.5.1, and propose a principled account for the Chinese pattern of NPE within PPs in 3.5.2.

3.5.1 The internal structure of Chinese PPs

Now let us turn to the case of Chinese. There is one language specific assumption that needs to be taken into account. Chinese has three types of adpositional expressions: prepositional phrases (PrePs), postpositional phrases (PostPs), and circumpositional phrases. Each of them is exemplified below.[9]

[9] See Huang et al. (2009) for discussion about Chinese adpositions.

(33) Prepositions (PrePs)

a. [zai [jia]] ‘at home’

at home

b. [cong Taibei] ‘from Taipei’

from Taipei

c. [xiang shanding] ‘toward the top of the hill’

toward hill-top

(34) Postpositions (PostPs)

a. [[woshi] **li**] ‘in the bedroom’

bedroom in(side)

b. [[fanzhuo] **shang**] ‘at the dining table’

dining.table above

c. [[xin-nian] **yiqian**] ‘before New Year’

new-year before

(35) Circumpositions

a. [**zai** [[shafa] shang]] ‘on the sofa’

at sofa on

b. [**zai** [[chuang] bian]] ‘by the window’

at window side

c. [**cong** [[zhuozi shang]] ‘from the top of the table’

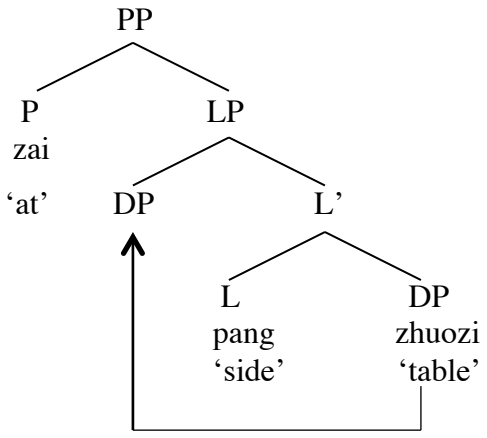
from table on

As can be seen above, Chinese adpositions are classified into PrePs and PostPs systematically. PostPs are all AxPart Phrases (i.e. locative Ns) such as *li* ‘inside’, *shang* ‘on’, *yigian* ‘before’, and *xia* ‘under’, while PrePs are pure adpositions (i.e. Place or Path), such as *cong* ‘from’,

xiang 'to', and *zai* 'at/in' (i.e. Li 1985, Huang 2009, Huang et al. 2009, Djamouri et al. 2011). In the circumpositional phrases in (35), PrePs select PostPPs headed by locative Ns as their complement. Thus, Chinese circumpositions correspond to complex PPs such as *in front of* in English.

Huang (2010) proposes that Chinese PPs are head-initial and that the apparent head-final structure in the circumpositional expression in (35) is derived by movement, as shown below.[10]

(36) Huang's (2010) structure of Chinese PP



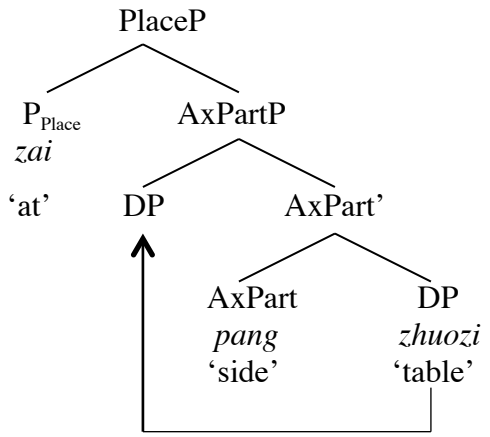
(Huang 2010:9)

In the structure above, all projections within PP are head-initial. The locative noun *pang* (*localizer*, L in his term) is a head of LP that is selected by the preposition *zai* 'at' and takes the reference noun *shuozi* 'table' as its complement. Huang (2010) assumes that the DP *shuozi*

[10] Svenonius (2007) proposes that Chinese PrePs are head-initial, while PostPs are head-final, having the following structure: [$_{PreP}$ zai [$_{PostP}$ [$_{DP}$ zhuozi] pang]].

moves to Spec of LP, resulting in the PreP-DP-PostP word order.[11] Under the three-layered structure of PPs, Huang's (2010) structure in (36) can be reanalyzed as follows.

(37)

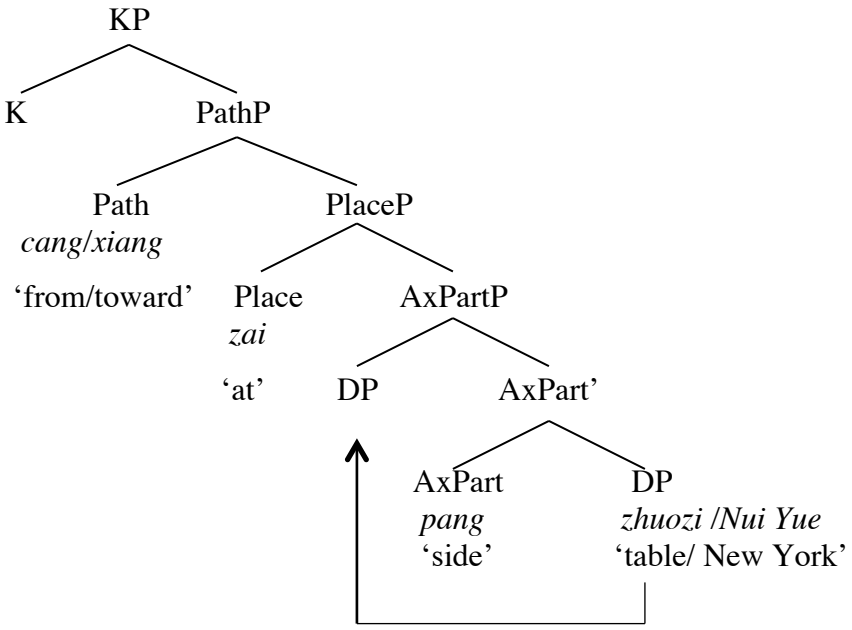


(cf. Huang 2010:9)

The DP *shuozi* 'table' moves from the complement of Axpart to Spec of AxPartP. Given Huang's (2010) analysis, I assume that such DP-movement within PPs is obligatory in Chinese. while such movement does not take place in English and Japanese. Assuming that Chinese is also a language with non-fusional Case morphology, Chinese PPs can be analyzed as having the following structure.

[11] Huang (2010) assumes that this movement is due to the Case requirement: the Case requirement of the DP *shuozi* 'table' cannot be satisfied via *of*-insertion in Chinese, it moves to Spec, LP. See Huang (2010) for further discussion.

(38)



The layered structure of PPs is sandwiched by K and D, and the DP moves up to the Spec, AxPartP. Keeping this structure in mind, let us consider the Chinese pattern of NPE within PPs.

3.5.2 A proposed analysis of NP-ellipsis within Chinese PPs

We have seen in the previous section that Chinese completely disallows NPE within PPs. The relevant data are repeated below.

(39) a.* Zhangsan [$_{PP}$ **cong** Bob de taidu] xuedao henduo, er
from Bob de attitude learn a.lot whereas
Ling [$_{PP}$ **cong** John de ~~taidu~~] xuedao henduo.
from John de attitude lean a.lot
'Zhangsan learned a lot from Bob's attitude, while Ling learned a lot from John's.'

b. * Zhangsan [$_{PP}$ **yunwei** Bob de taidu] er xinqing cha,

because Bob de attitude ER mood bad

dan ta [$_{PP}$ **yinwei** Mary de ~~taidu~~] er xinqing hao.

but he because Mary de attitude ER mood good.

'Zhangsan became in a bad mood by Bob's attitude, but he got in a good mood by Mary's.'

c. * Zhangsan [$_{PP}$ **zai** John de wu qian] ting zhe, er

at John de house front park car whereas

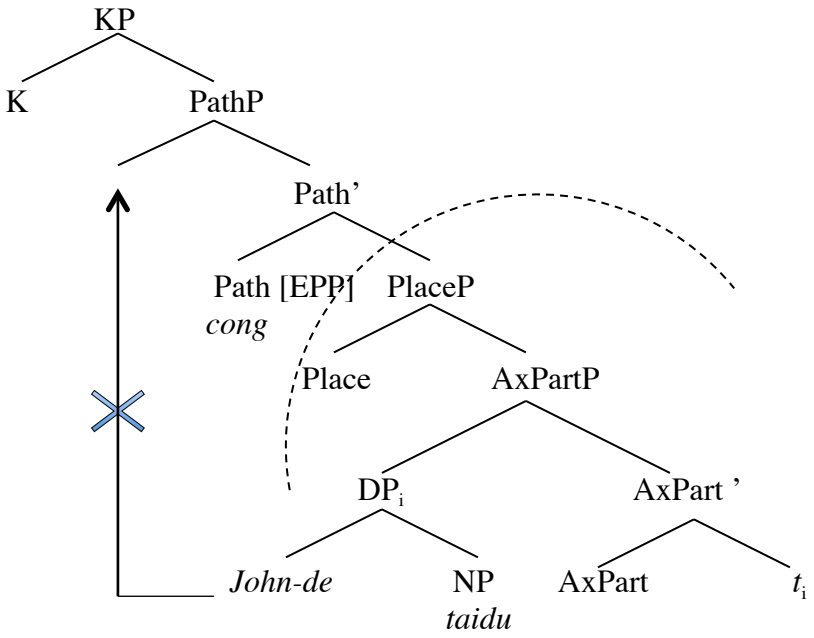
Ling [$_{PP}$ **zai** Mary de ~~wu~~ qian] ting zhe

at Mary de house front park car

'Zhangsan parked a car in front of John's house, and Mary parked a car in front of Mary's.'

Assuming the language-specific movement within Chinese PPs, I propose the following structure for the example in (39a).

(40)



Because of its non-fusional Case morphology, Chinese PP layers are sandwiched by K and D, where K selects PathP as its complement. Just like in Japanese, Path has the EPP property, and then the complement of PathP, namely PlaceP should be elided. Then, the EPP property on Path triggers movement of *John-de*, however, it cannot be extracted out of AxPartP in Chinese, which is different from Japanese. This is because in Chinese the DP [*John-de taidu*] has already undergone obligatory movement within AxPartP, a subpart of the DP constituent, namely *John-de*, cannot be extracted (cf. Wexler and Culicover 1980, Takahashi 1994, Stepanov 2007). To conclude, in Chinese, NPE is disallowed within any types of PPs because of the language-specific movement of DP within PPs.[12]

To summarize this section, we have seen that the proposed analysis provides a principled account for the cross-linguistic differences in NPE within PPs: in English any types of PPs allow NPE because DP is the elided domain within English PPs, while in Japanese only Path PPs allow NPE since the complement of Path is the elided domain due to the Case morphological property. In Chinese, DP-movement within PPs is necessary, so that the genitive element cannot survive NPE within PPs, and thereby any types of PPs disallow NPE in Chinese.

3.6 Further Evidence

3.6.1 Original NP-ellipsis revisited

The current analysis correctly predicts the availability of NPE in nominals without PPs in English, Japanese, and Chinese. Note that when host nominals are not located within PPs, KPs have the identical structure in the three languages, as shown below.

[12] Note that the present study assumes that the EPP property on Path is optional. When Path does not have the EPP property, nothing fills the Spec of PathP, hence PlaceP is not elided.

(41) $[_{KP}$ K $[_{DP}$ John/Hanako$_i$ D ~~$[_{NP}$ t_i attitude]~~]] (order irrelevant)

When nominals are not located within PPs, K selects D as its complement in the three languages, so that D can have the EPP property, which triggers the movement of a genitive element to the DP Spec. This context meets the condition on ellipsis in (27): a functional head licenses ellipsis of its complement only when the Spec is filled. As a result, NPE in nominals is allowed in English, Chinese, and Japanese.

3.6.2 Argument/Adjunct asymmetry in *–ni*

It is well known that there are two kinds of *–ni* in Japanese: a postposition and a dative Case (Sadakane and Koizumi 1995). The distinction between a postposition *–ni* and a dative *–ni* is demonstrated by a test of Q-float: a numeral quantifier can float off its host NP only when the host is accompanied by a Case particle (Miyagawa 1989). Some examples are shown below.

(42) a. Taroo-ga $[_{NP}$ futatu-no kinenbi]-***ni*** gaisyokusi-ta.
Taro-NOM two anniversary-**P** eat.out-PST
Lit. 'Taro ate out on the two anniversaries.'

b.*Taroo-ga $[_{NP}$ t_i kinenbi]-***ni*** futatu$_i$ gaisyokusi-ta.
Taro-NOM anniversary-**P** two eat.out-PST
Lit. 'Taro ate out on the two anniversaries.'

(43) a. Taroo-ga [$_{NP}$ futari-no gakusei]-***ni*** kanmei-o uke-ta.
Taro-NOM two-GEN student-**DAT** impression-ACC receive-PST
Lit. 'Taro was impressed by two students.'

b. Taroo-ga [$_{NP}$ t_i gakusei]-***ni*** futari$_i$ kanmei-o uke-ta.
Taro-NOM student-**DAT** two impression-ACC receive-PST
Lit. 'Taro was impressed by stwo tudents.'

As shown in (42), the numeral quantifier *futatu* "two" cannot float off its host NP *kinenbi* "anniversary" in (42b). Thus, the particle *–ni* in (42) is considered as a postposition. On the other hand, as the numeral quantifier *futari* "two" in (43), can float off its host NP *gakusei* "student" as in (43b), the particle *–ni* in (43) is considered as a dative Case.

Given the two types of *–ni* in Japanese, we predict that NPE should be allowed when nominals are marked by a dative Case *–ni* because a dative *–ni* is K, which takes D with the EPP property. This is actually borne out, as shown in (44), contrary to the case of the postposition *–ni* in (31b), which is repeated in (45).

(44) Taroo-wa [$_{DP}$ musuko-no taido]-**ni** kanmei-o uke-ta ga,
-TOP son-GEN attitude-**DAT** impression-ACC receive-PST though
Ken-wa [$_{DP}$ musume-no ~~taido]~~ **ni** kanmei-o uke-ta.
-TOP daughter-GEN attitude-**DAT** impression-ACC receive-PST
'Although Taro was impressed by his son's attitude, Ken was impressed by his daughter's.'

(45) *Taroo-wa [$_{PP}$ musuko-no tanzyoobi **ni**] kootuuziko-o okosi,
-TOP son-GEN birthday **on** traffic.accident-ACC cause
Ken-wa [$_{PP}$ musume-no ~~tanzyoobi~~ **ni**] kootuuziko-o okosi-ta
-TOP daughter-GEN birthday **on** traffic.accident-ACC cause-PST
'Taro caused a traffic accident on his son's BD, and Ken caused a traffic accident on his daughter's.'

The contrast between (44) and (45) can be successfully accounted for under the proposed analysis. As the dative Case particle *–ni* is a head of KP rather than a head of PP in (44), the D underneath K can have the EPP property, as shown below.

(46) [$_{KP}$ [$_{DP}$ musume-no$_i$ [~~$_{NP}$ t_i taido~~] D] ***ni***]
daughter's attitude [EPP]

The D head triggers movement to the DP Spec, so that NPE is allowed in accordance with the condition (27). On the other hand, in the case of postposition *–ni* in (45), the postposition *–ni* is a Place, which cannot be selected by K, so that the Place head cannot have the EPP property. As a result, NPE is not allowed within a PlaceP headed by a postposition *–ni*.

3.7 Concluding remarks

In Chapter 3, I have investigated the crosslinguistic difference regarding NPE within PPs in English, Chinese, and Japanese on the basis of the tri-layered PP structure (i.e. [PathP [PlaceP [AxPartP]]]) proposed in chapter 2. I have provided novel observations that although NPE is generally allowed within nominals in English, Japanese, and Chinese (Lobeck 1990, SM 1990,

SLM 2008), the parallel pattern breaks down once the nominals are selected by pre-/postpositions. In English all PPs allow NPE, while in Chinese none of the PPs allow NPE and Japanese has both the English patterns and the Chinese patterns: some PPs allow but some PPs disallow NPE. I have proposed that the crosslinguistic variation can be accounted for by the interaction of (i) the layered structure of PP and (ii) the typology of fusional/non-fusional Case morphology. In addition to the condition on ellipsis (SM 1990, SLM 2008), which states that a functional head licenses ellipsis of its complement when its spec is filled, I have assumed that a functional head selected by K has the EPP effect. Given these assumptions on ellipsis, I have analyzed NPE within PPs in the three languages as follows: as English has fusional-Case morphology, KP and DP are always connected to each other in the structure, so that the complement of D can be elided within PPs. On the other hand, as Japanese and Chinese have non-fusional Case morphology, KP can be apart from DP and thereby K can select Path hearing a nominal property as its complement. Given the condition on ellipsis, the complement of Path, but not Place, can be elided in Japanese. Since Chinese has a language-specific movement of DP embedded within PPs (Huang 2009), a genitive element, which is a part of the moved DP, cannot be stranded when NPE takes place. As a result, NPE is completely disallowed in any types of PPs in Chinese.

Chapter 4

Layered Structure of PPs and Clausal Complements:

Evidence from Nominative/Genitive Conversion in Adverbial Clauses

4.1 Introduction

This chapter extends the layered structure of PP that I have proposed in chapter 2 to a case where a Path takes a clausal complement.[1] In chapter 2 we have seen that KP is placed outside of the highest projection of the layered PP structure in Japanese. This chapter provides further evidence for the proposed structure by closely examining Nominative/Genitive Conversion that takes place within temporal adverbial clauses headed by P.

Nominative/Genitive conversion (henceforth NGC) is a Case alternation phenomenon in which nominative Case on the subject is optionally replaced with genitive Case. Since Harada (1971), it has been known that NGC is allowed only within sentential modifiers of a noun or nominalized clauses. Some examples are shown below.

(1) a. [[Kinoo John-**ga/no** kat-ta] hon]-wa omosiroi.
yesterday John-NOM/GEN buy-PST book-TOP interesting
'The book which John bought yesterday is interesting.'

b. John-wa [$_{CP}$ kinoo Mary-**ga/no** kita koto/no]-o sira-nakat-ta.
John-TOP yesterday Mary-NOM/GEN came Nominalizer-ACC know-not-PST
'John didn't know that Mary came yesterday.'

[1] A preliminary version of this chapter was presented at WAFL 6 and published as Takahashi (2010). The pre-final version was also presented at a workshop in the 40th Kansai Linguistic Society.

(2) a. Taroo-**ga/*no** hon-o kat-ta.
Taro-NOM/GEN book-ACC buy-PST
'Taro bought a book.'

b. John-wa [$_{CP}$ kinoo Mary-**ga/*no** ki-ta to] sinjitei-ta.
John -TOP yesterday Mary-NOM/GEN come-PST C believe-PST
'John believed that Mary came yesterday.'

The examples above show that NGC is allowed in a relative clause in (1a) and a nominalized embedded clause in (1b), while such Case alternation is disallowed in a matrix clause in (2a) and a complement clause headed by an overt complementizer *–to* in (2b). Given the distribution of NGC above, many researchers have addressed the question about what licenses genitive Case on the subject in (1). So far, two kinds of approaches have been mainly proposed in the literature: the D-licensing analysis (Harada 1971, 1976, Bedell 1972, Saito 1982, Miyagawa 1993, 2008, to appear, Ochi 2001, Maki and Uchibori 2008, among many others) and the C-licensing analysis (Watanabe 1996, Hiraiwa 2002, 2005). Each analysis is schematically shown as follows.

(3) a. [$_{DP}$... [$_{TP}$ [$_{vP}$ Subject-GEN [$_{VP}$ ...] *v*] T] ... **D**] (Miyagawa 2011)

b. [$_{CP}$ [$_{TP}$ [$_{vP}$ Subject-GEN [$_{VP}$ ...] *v*] T] **C**] (Hiraiwa 2001)

As shown in (3a), the D-licensing analysis argues that the genitive subject in (1) is licensed by D associated with a nominal head, while the C-licensing analysis argues that as shown in (3b), the genitive subject is licensed by agreement on the null complementizer C. Details of the two analyses are overviewed in 4.2.

Interestingly, Hiraiwa (2001) observes that NGC is observed in some adverbial clauses. One of the examples, which I focus on in this chapter, is the following.

(4) John wa [ame-**ga/no** yamu made] office-ni i-ta.
John-TOP rain-NOM/GEN stop-PRES-ADN until office-at be-PST
'John was at his office until the rain stopped.'

In the temporal adverbial clause (henceforth TAC) headed by *made* 'until' in (4), the nominative Case marker *–ga* on the subject can alternate with the genitive Case marker *–no* in spite of the absence of a head noun. To account for the availability of the genitive subject in TACs, a variety of approaches have been proposed in the literature but its licensing mechanism is still controversial (Hiraiwa 2001, 2005, Maki and Uchibori 2008, Miyagawa 2010, 2011, 2012a,b, amo.). The present study focuses on the genitive subject in TACs and proposes that a functional head selected by K can be involved in the Case-licensing of genitive subjects in Japanese. More specifically, I propose that the postposition *made* 'until' in (4) is selected by K and thereby Path has a D-like property, Case-licensing the genitive subject in the complement clause, as shown below.

(5) $[_{KP}\,[_{PP}\,[_{CP}\,[_{TP}\,[_{vP}$ Subject-**GEN** $[_{VP}\,\ldots]\,v\,]$ T] C] ***made***] **K**]

I also demonstrate that the proposed analysis retains the essence of the D-licensing analysis, providing a unified account of the availability of genitive subjects in relative clauses, and sentential modifiers of a noun, and TACs.

The organization of this chapter is as follows. I first overview previous studies of NGC in Japanese in 4.2, introducing the two major approaches proposed in the literature: the D-licensing analysis and the C-licensing analysis. In 4.3, I argue that none of the analyses can account for the peculiar properties of NGC in TACs. In 4.4, I overview Miyagawa (2012) as one of the previous studies of NGC observed in TACs and point out some remaining issues with the analysis. I propose an alternative analysis in 4.5 and demonstrate how the problems in Miyagawa's (2012) analysis can be solved under the proposed analysis in 4.6. In 4.7, I demonstrate how the distribution of standard NGC in (1) and (2) can be derived under the proposed analysis. I discuss some remaining issues in 4.8 and conclude this chapter in 4.9.

4.2 Nominative/Genitive Conversion in TAC

This section overviews the background of NGC in TACs, which has given rise to heated debate in recent years. Before going into the discussion on TACs, I first overview the previous analyses of NGC and show when NGC in TACs became relevant in the discussion of NGC. It is shown below that NGC in TACs were first taken up as evidence for the C-licensing approach (Hiraiwa 2001) but later re-analyzed under the D-licensing approach (Maki and Uchibori 2008).

4.2.1 D-licensing Approach

It has been traditionally assumed that NGC in Japanese is licensed by D associated with a head noun (cf. Harada 1971, 1976, Bedel 1972, Saito 1982, Miyagawa 1993, 2008, to appear, Ochi 2001, Maki and Uchibori 2008, among many others). This analysis can capture the contrast between (1) and (2) in the following way. As the embedded clauses in (1) are accompanied by a noun (i.e. (1a)) or a nominalizer (i.e. (1b)), the D head above the head noun licenses genitive

Case. In (2) the relevant clauses are not accompanied by nominal elements, which indicates that there is no external D head to license genitive Case. Therefore, the genitive subject is not allowed in (2).

Miyagawa (2011) develops Hale's (2002) D-licensing analysis of NGC in Dagur (Mongolian) and proposes an interesting analysis of NGC in Japanese. An important observation in Miyagawa (2011) is that the Case alternation between nominative and genitive is not optional, but the two Case particles, *–ga* and *–no*, come into existence in different structures: the nominative subject occurs in a full CP clause, while the genitive subject occurs in a reduced TP clause. The mechanisms of Case-licensing that Miyagawa (2011) proposes are schematically shown below.

(6) a. $[_{DP}[_{CP}[_{TP}[_{vP}$ Subject-**NOM** $[_{VP} \ldots]$ *v*$]$ **T**$_{[+tense]}]$ C] D]

b. $[_{DP}[_{TP}[_{vP}$ Subject-**GEN** $[_{VP} \ldots]$ *v* $]$ $T_{[-tense]}]$ **D**]

In (6a), the nominative-marked subject occurs in a full CP clause, and thereby the TP beneath CP has a tensed T to license nominative Case of the subject. On the other hand, the genitive-marked subject in (6b) occurs in a reduced clause that lacks CP above TP, hence the T is defective and cannot assign Case to the subject (the defectiveness follows from Chomsky's (2008) assumption that T can assign nominative Case to an NP only when T is selected by C). As a result, the external D head can search into the relative clause and assign genitive Case to the subject.

Miyagawa's (2011) D-licensing analysis is based on the following two facts discussed in Miyagawa (1993): (i) scope interaction and (ii) adverb placement. Based on the scopal facts in (7), Miyagawa (1993) assumes that the genitive subject undergoes raising into the spec of DP.

(7) a. [[John-ka Mary]-***ga*** kita] kanousei-ga 50% izyoo da.

[John-or Mary]-NOM came probability-NOM 50% over is

'The probability that John or Mary came is over 50%.'

*'The probability that John came or the probability that Mary came is over 50%.'

(probability > or, *or > probability)

b. [[John-ka Mary]-***no*** kita] kanousei-ga 50% izyoo da.

John-or Mary]-GEN came] probability-NOM 50% over is

'The probability that John or Mary came is over 50%.'

'The probability that John came or the probability that Mary came is over 50%.'

(probability > or, or > probability)

When the noun complement clause has the nominative subject, as in (7a), the head noun obligatorily takes scope over the subject of the relative clause. (7a) thus means that the probability that John or Mary came is over 50%. On the other hand, when the embedded subject is marked by genitive Case as in (7b), both the embedded subject and the head noun can take scope over the other, yielding scope ambiguity: besides the interpretation available in (7a), (7b) allows the interpretation that the probability that John came or the probability that Mary came is over 50%. Since the genitive-marked subject can take scope over the head noun, Miyagawa (1993) assumes that the genitive DP moves to the spec of DP above the head noun. Miyagawa (1993) further points out that this raising of the genitive subject takes place at LF, based on the following fact:

(8) a. [[Hanako-ga/no ***kinoo*** katta] hon]
Hanako-NOM/GEN yesterday bought book
'the book that Hanako bought yesterday'

b. [[***kinoo*** Hanako-ga/no katta] hon]
yesterday Hanako-NOM/GEN bought book
'the book that Hanako bought yesterday.' (cf. Nakai 1980)

As shown in (8b), which is first reported by Nakai (1980), an adverbial phrase such as *kinoo* 'yesterday' inside the embedded clause can precede the genitive subject. This should be impossible if the genitive subject overtly moves to the spec of DP outside the embedded clause. Thus, (8) shows that the genitive subject of NGC does not move out of the embedded clause overtly. Based on this fact, Miyagawa (1993) assumes that the genitive subject in NGC is licensed by means of the genitive subject raising at LF.

Miyagawa (2011) reanalyzes the raising of genitive subject at LF as QR. Based on May's (1977) assumption that QR is not possible out of a tensed clause, Miyagawa (2011) argues that the scopal discrepancy between nominative and genitive subjects in (7) can be captured by means of the presence/absence of CP above TP (cf. Chomsky 2001). Namely, since the RC containing the nominative subject is a full CP, the TP beneath the CP is a tensed clause, hence QR does not take place over the RC, yielding only the narrow scope reading in (7a). On the other hand, when the RC contains the genitive subject, the clause is a reduced clause in which there is no CP above TP, so that the QNP in the subject position can undergo QR out of the RC, leading to the scope ambiguity in (7b) (see Miyagawa (2011) for other pieces of evidence showing that the genitive subject occurs in a reduced clause).[2]

[2] As evidence showing that the genitive subject occurs in a reduced clause, Miyagawa (2008, 2011) notes that the past tense morpheme *–ta* has an aspectual (stative) meaning, rather than a tensed reading, when

Ochi (2001), however, points out that the scope ambiguity in (7b) obtains only when the genitive phrase can be in Spec, DP in overt syntax, as exemplified below.

(9) a. [[[Rubii-ka shinju]-no kotoshi-kara yasuku-natta] riyuu-o osiete.
ruby-or pearl-Gen this.year-from cheap-became reason-Acc tell.me

i. 'Tell me the reason that rubies oearls became cheap starting this year.'

ii. 'Tell me the reason that rubies became cheap starting this year or the reason that pearls became cheap starting this year.'

reason > [ruby or pearl]; [ruby or pearl] > reason

b. [[Kotoshi-kara [Rubii-ka shinju]-no yasuku-natta] riyuu]-o osiete.
this.year-from ruby-or pearl-Gen cheap-became reason-Acc tell.me

i. 'Tell me the reason that rubies or pearls became cheap starting this year.'

ii. *'Tell me the reason that rubies became cheap starting this year or the reason that pearls became cheap starting this year.'

reason > [ruby or pearl]; *[ruby or pearl] > reason

(Miyagawa 1993, Ochi 2001)

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it occurs in RCs containing the genitive subject (see Teramura 1984, Abe 1993, Kinsui 1994, Ogihara 2004), as shown below.

(i) a. [Simi-***ga*** tui-ta syatu]-o kiteiru.
stain-NOM have-PST shirt-ACC is.wearing
'He's wearing the shirt that sustained a stain.'

b. [Simi-***no*** tui-ta syatu]-o kiteiru.
stain-GEN have-PST shirt-ACC is.wearing
'He's wearing the shirt that has a stain.'

The past tense morpheme *–ta* in (ia) indicates that the event of the shirt getting strained happened in the past, while in (ib) the inflection *–ta* focuses on the ***result*** of the event, describing the **state** of the shirt at the moment of the utterance. Miyagawa (2011) provides the following examples showing the stative nature of the RC containing the genitive subject more clearly.

(ii) [Totuzen simi-ga/*-no tuita syatu]-o misete kudasai.
suddenly stain-NOM/GEN had shirt-ACC show.me please
'Please show me the shirt that was suddenly stained.'

(ii) shows that the adverb *totuzen* 'suddenly', which emphasizes the event, rather than the result of the event, is compatible with the nominative subject, but is incompatible with the genitive subject. This indicates that the eventive nature of the adverb conflicts with the stative nature of the genitive subject construction.

(9a) indicates that when a genitive subject in a noun complement clause precedes an adverbial phrase, both the genitive subject and the head noun can take scope over the other, yielding scope ambiguity. On the other hand, (9b) shows that when the genitive subject is preceded by the adverbial phrase, the example becomes unambiguous. Thus, in (9b) the genitive subject is construed as being within the scope of the head noun. The contrast above shows that the wide scope of genitive subjects obtains only when the genitive subjects occur at the left edge within the noun complement clauses. Given the observation above, Ochi (2001) argues that Miyagawa's covert movement analysis of genitive subjects is untenable, and proposes (10).

(10) The movement of the genitive subject out of the gapless clause takes place optionally in overt syntax (i.e., either overtly or covertly). (Ochi 2001: (15))

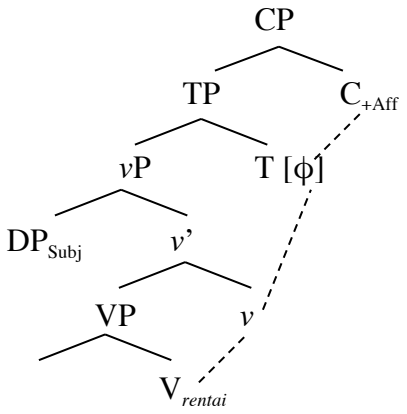
Under Ochi's (2001) analysis, the scope ambiguity in (9a) (i.e. (7a)) is due to the optionality in the timing of the genitive subject raising: it may or may not have taken place overtly. The wide scope reading of the genitive subject obtains only when the genitive subject moves to DP Spec in overt syntax. Whether the raising takes place overtly or covertly is still controversial. The present study leaves the question open, and just assumes that the genitive subjects raise at some point of the derivation.

4.2.2 C-licensing Approach

Hiraiwa (2011) claims that the genitive subject is not licensed by D, but by the C-T-V amalgamate formed via Agree, assuming that a relative clause in Japanese involves a null C, following Kinsui (1995) and Kaplan and Whitman (1995). This analysis is known as C-licensing

analysis of NGC (see also Watanabe 1996). The C-licensing analysis proposed by Hiraiwa (2001) is schematically shown below.

(11)



Hiraiwa (2001) assumes that the null C needs to undergo "C-T-v-V head amalgamation" due to its affixal nature (he calls it C_{+Aff}) and that the *rentai* (attributive) form of the predicate is a reflex of this head amalgamate, as shown in (11). Under this analysis, the ϕ-features on T are first transferred to C_{+Aff} via AGREE, and the ϕ-features of the C_{+Aff}-T-v-V head amalgamate via Agree license genitive Case in NGC. Hiraiwa (2001) assumes that NGC is optional and nominative and genitive subjects are Case-licensed in the same CP structure. When the C-T-v amalgamate is created, subjects receive genitive Case. On the other hand, when the C-T-v amalgamate is not formed, subjects receives nominative Case from T. This analysis differs from Miyagawa's (2011) analysis that the nominative subject and the genitive subject occur in different structures.

Hiraiwa (2001) provides crucial counterevidence against the previous distributional generalization of NGC, showing that the NGC is allowed in adjunct clauses that do not involve any external D head. This is where NGC in TACs became relevant in the discussion of NGC in

the literature. The relevant counter examples against the D-licensing analysis that Hiraiwa (2001) provides are shown in (12).

(12) a. John wa [Mary-**ga/no** yonda yori] takusan-no hon-wo yonda.
John-TOP Mary-NOM/GEN read-PST-ADN than many-GEN books-ACC read-PST
'John read more books than Mary did.' (Watanabe 1996:396)

b. John wa [ame-**ga/no** yamu made] office-ni i-ta.
John-TOP rain-NOM/GEN stop-PRES-ADN until office-at be-PST
'John was at his office until the rain stopped.'

c. [Boku-**ga/no** omou ni] John wa Mary-ga suki-ni-tigainai.
I-NOM/GEN think-PRES-ADN -DAT John-TOP Mary-NOM like-must-PRES
'I think that John likes Mary.'

d. Kono atari-wa [hi-**ga/no** kureru nitsure(te)] hiekondekuru.
around-here-TOP sun-NOM/GEN go-down-PRES-ADN as colder-get-PRES
'It gets chillier as the sun goes down around here.'

e. John-wa [toki-**ga/no** tatsu to tomoni] Mary-no koto-wo wasurete-itta.
John-TOP time-NOM/GEN pass-PRES-ADN with as Mary-GEN FN-ACC forget-go-PST
'Mary slipped out of John's memory as times went by.'

f. [John-**ga/no** kuru to ko-nai to]-dewa oochigai da.
-NOM/GEN come-PRES-ADN and come-not-PRES-AND and-TOP great.difference CPL-PRES
'It makes a great difference whether John comes or not.'

All of the examples above contain a sentential modifier (i.e. an adjunct clause) in which the subject can undergo NGC despite the absence of a head noun. Based on this observation, Hiraiwa (2001) claims that what the Japanese NGC depends on is not the presence/absence of a head noun, but the existence of a special inflection of the predicate, that is, the attributive form (so-called *rentai* form in the traditional Japanese linguistics). Since attributive forms of verbs are the same form as verbal end forms (so called *syuusi* (conclusive) form in the traditional Japanese

linguistics), it is unclear whether the verbal forms in (12) are in fact the attributive forms. Importantly, Hiraiwa (2001) shows that the verbal forms in the bracketed clauses in (12) are in fact the attributive forms on the basis of the inflections of verbal adjectives, which still retain the morphological distinction between the attributive form and the verbal end form, as shown below.

(13) a. John-ga Mary-ga suki-**da**.
John-NOM Mary-NOM like-PRES-END
'John likes Mary.'

b. John-ga suki-**na** ongaku-wa blues da.
John-NOM like-PRES-ADN music-TOP blues be-PRES
'The music that John likes is the Blues.'

c. John-ga Mary-ga suki-**na** koto/no-wa yuumei da.
John-NOM Mary-NOM like-PRES-ADN FN/C-TOP well.known CPS-PRES
'It is well-known that John likes Mary.'

(Hiraiwa 2001)

As shown in (13a), the verbal adjective *suki* ends with the copula *–da* in root clauses. As in (13b), the verbal adjective ends with *–na* when it modifies a noun (i.e. the attributive form), and this form appears in nominal complements as well, as in (13c). Given this contrast, Hiraiwa (2001) provides the following example.

(14) John-wa izyou-**na** *made* ni sinkeisitsu-da.
John-TOP extraordinary-ADN extent to nervous-PRES
'John was extraordinarily nervous.' (Hiraiwa 2001)

As in (14), the verbal adjective *izyou-da* 'extraordinary' appears with *–na* before *made*.[3] This shows that the postpositional elements heading the sentential modifier in (12b) require the predicate to take the adnominal form. Thus, Hiraiwa (2001) argues that genitive subjects in TACs are related to the adnominal form of the predicates, rather than the presence of head nouns.

4.2.3 D-licensing approach revisited: a covert head noun analysis

Maki and Uchibori (2008) argue that Hiraiwa's (2001) examples that involve NGC in TACs in (8a-g) are not the counterevidence against the D-licensing approach, since all of the examples can be analyzed as containing an invisible head noun or a nominalizer. According to Maki and Uchibori (2008), the "head noun-less" examples in (12) have counterparts in (15), each of which contains a head noun or a nominalizer ***no*** is contained.

(15) a. John-wa [Mary-ga/no yonda ***teido/no*** yori]
John-TOP Mary-NOM/GEN read-PST-AND degree/**NO** than
takusan-no hon-wo yonda.
many-GEN books-ACC read-PST
'John read more books than Mary did.'

b. John-wa [ame-ga/no yamu ***toki/zikan*** made] office-ni i-ta.
John-TOP rain-NOM/GEN stop-PRES-ADN time/time until office-at be-PST
'John was at his office until the rain stopped.'

c. [Boku-ga/no omou ***no*** ni] John-wa Mary-ga suki-ni-tigainai.
I-NOM/GEN think-PRES-ADN **NO** DAT John-TOP Mary-NOM like-must-PRES
'I think that John likes Mary.'

[3] The word *made* originally indicates an endpoint of space or time where certain events or states extent (see Kuno 1973). I assume that the *made* in (14) above is actually a noun and that a postposition *made* is derived by the nominal *–made*. This is why the postposition *made* bears a nominal property, as we have seen in chapter 2.

d. Kono atari-wa [hi-**ga/no** kureru ***no*** nitsure(te)] hiekondekuru.
around-here-TOP sun-NOM/GEN go-down-PRES-ADN **NO** as colder-get-PRES
'It gets chillier as the sun goes down around here.'

e. John-wa [toki-**ga/no** tatsu ***no*** to tomoni]
John-TOP time-NOM/GEN pass-PRES-ADN **NO** with as
Mary-no koto-wo wasurete-itta.
Mary-GEN FN-ACC forget-go-PST
'Mary slipped out of John's memory as times went by.'

f. [John-**ga/no** kuru ***no*** to konai ***no*** to]
John-NOM/GEN come-PRES-ADN **NO** and come-not-PRES-ADN **NO** and
de wa oochigai da.
-TOP great.difference CPL-PRES
'It makes a great difference whether John comes or not.'

As can be seen above, head nouns *teido* 'degree' and *toki/zikan* 'time' occur in (15a) and (15b), respectively, and a nominalizer ***no*** is involved in (15c-f). Although Hiraiwa (2001) assumes this kind of ***no*** to be a complementizer C_{+Aff}, Maki and Uchibori (2008) argue that such ***no*** is a nominalizer that can license genitive Case, following Murasugi's (1991) suggestion that ***no*** in cleft sentences can be interpreted as a pronoun corresponding to the relevant 'event' or 'action' in a sentence.

4.3 On the presence/absence of a head noun

As we have seen above, NGC in TACs has been under debate: it can be analyzed under either the D-licensing analysis or the C-licensing analysis. As a first step toward the analysis of NGC in TACs, in this section, I overview Takahashi's (2010) arguments against Maki and Uchibori (2008), claiming that there is no covert head noun in temporal adverbial clauses at least in (12b)

on the basis of three kinds of evidence: (i) unaccusativity restriction, (ii) short/long distance readings of temporal adjuncts, and (iii) scope interactions.

4.3.1 Unaccusativity restriction

One of the arguments against the existence of a covert head noun comes from the fact that the genitive subject is not allowed in temporal adjuncts when the clause involves unergative verbs (Fujita 1988, Miyagawa 1989, Takahashi 1994, Taguchi 2008 among others). The relevant examples are shown below.

(16) a. [Oogoe-de Hanako-**ga** waratta toki], Taroo-ga naitei-ta.
loudly Hanako-NOM laughed when Taroo-NOM be.crying-PST
'When Hanako laughed loudly, Taroo was crying.'

b.?*[Oogoe-de Hanako-**no** waratta toki], Taroo-ga naitei-ta.
loudly Hanako-GEN laughed when Taroo-NOM be.crying-PST
'When Hanako laughed loudly, Taroo was crying.'

In (16), the clause headed by *toki*-phrase is an adjunct, where the subject cannot be marked with the genitive case, as in (16b). In contrast, if the *toki*-phrase occurs in an argument position, as shown in (17), the subject can be marked with the genitive *-no*.

(17) a. Boku-wa [oogoe-de Hanako-**ga** waratta toki]-o oboetei-ru.
I-TOP loudly Hanako-NOM laughed time-ACC remember-PRES
'I remember the time when Hanako laughed loudly.'

b. Boku-wa [oogoe-de Hanako-**no** waratta toki]-o oboetei-ru.
I-TOP loudly Hanako-GEN laughed time-ACC remember-PRES
'I remember the time when Hanako laughed loudly.'

Bearing the contrast between (16) and (17) in mind, consider the following examples using temporal adjuncts headed by *–made* 'until'.

(18) a. John-wa [oogoede Mary-ga/?*no wara-u -made] odottei-ta.
John-TOP loudly Mary-NOM/GEN laugh-PRES until be.dancing-PST
'John was dancing until Mary laughed loudly.'

b. John-wa [oogoede Mary-ga/no wara-u ***toki*** -made] odottei-ta.
John-TOP loudly Mary-NOM/GEN laugh-PRES time until be.dancing-PST
'John was dancing until Mary laughed loudly.'

In (18a), the genitive subject is not allowed within the temporal adjunct headed by the postposition *–made* 'until'. On the other hand, once a temporal head noun *toki* is inserted between the verb and *–made* in the adjunct, as in (18b), the genitive subject is allowed. The contrast between (18a) and (18b) shows that the presence or absence of the head noun in the temporal adjunct clause makes a crucial difference in the acceptability of NGC. Given the contrast, the temporal adverbial clause headed by *–made* in (18a) can be assumed to be an adjunct, just like (16), while the temporal adverbial clause in (18b) contains a relative clause headed by *–toki* 'time', which is parallel to (17). Therefore, (18a) is structurally different from (18b), contrary to Maki and Uchibori's (2008) prediction that there is a covert *–toki* 'time' in (18a), which is parallel to (18b) in terms of structure.

Miyagawa (1989) shows following Fujita (1988) that NGC in adjunct clauses is exceptionally allowed when the clause contains an unaccusative verb, as shown below:

(19) a. Kodomo-ga/no *kita* toki, tonari-no heya-ni ita.
child-NOM/GEN came when next-GEN room-in was
'I was in the next room when the child came.'

b. Doa-ga/no *aita* toki, takusan-no kyaku-ga sudeni matteita.
door-NOM/GEN opened when many-GEN customers already waiting
'When the door opened, many customers were already waiting.' (Miyagawa 1989:104)

The head noun-less example in (12b) provided by Hiraiwa (2002) contains a temporal adjunct with an unaccusative verb. Therefore, we cannot observe the argument/adjunct asymmetry in terms of NGC, as shown in (20), which is different from (18).

(20) a. John-wa [ame-ga/no yam-u made] office-ni ita.
John-TOP rain-NOM/GEN stop-PRES until office-at be-PST
'John was at his office until the rain stopped.'

b. John-wa [ame-ga/no yam-u **toki**-made] office-ni ita.
John-TOP rain-NOM/GEN stop-PRES time-until office-at be-PST
'John was at his office until the rain stopped.'

Because of the wider acceptability of NGC with unaccusative verbs, Hiraiwa's (2002) head noun-less examples have been assumed to contain unpronounced head nouns, by Maki and Uchibori (2008). However, if the covert head noun analysis was on the right track, there should not be any contrast between (18a) and (18b).

4.3.2 Long/Short distance reading

Based on Larson's (1990) analysis of temporal adverbial clauses in English, Miyamoto (1996) shows that Japanese temporal adverbial clauses allow both short- and long-distance readings, as shown in (21).

(21) boku-wa [[$_{CP1}$ John-ga [$_{CP2}$ Mary-ga tukudaroo to] kiiteita]-yori(mo) -maeni]
I-TOP John-NOM Mary-NOM arrive.will that heard -than(even) before
kanojyo-o Asenzu-de mikaketa.
her-ACC Athens-in saw
"I saw Mary in Athens before John heard that Mary would arrive." (Miyamoto 1996:186)

The example (21) is ambiguous between two readings with respect to whether the temporal postposition is interpreted within the least embedded CP1 or the most embedded CP2. When the postposition *–maeni* 'before' is interpreted within CP1, the sentence means "I saw Mary in Athens before the time of John's claim about Mary's arrival." On the other hand, when the postposition is interpreted within CP2, the sentence means "I saw Mary in Athens before the time Mary was supposed to arrive." Following Miyamoto (1996), I henceforth call the former reading short-distance reading and the latter long-distance reading.

Miyamoto (1996) further demonstrates that the presence/absence of the temporal head in temporal adjuncts makes a crucial difference in the interpretation. The relevant examples Miyamoto (1996) provides are shown below.

(22) boku-wa [$_{PP}$[$_{CP}$[$_{TP}$ John-ga [$_{DP}$[$_{CP}$ Mary-ga tukudaroo toyuu] uwasa]-o
I-TOP John-NOM Mary-NOM arrive-will that rumor-ACC
kiiteita] yori(-mo)] -maeni] kanojyo-o Asenzu-de mikaketa.
heard than(-even) before her-ACC Athens-in saw
'I saw Mary in Athens before John heard the rumor that Mary would arrive.'

(23) boku-wa [$_{PP}$[$_{CP}$[$_{TP}$ John-ga [$_{DP}$[$_{CP}$ Mary-ga tukudaroo toyuu] uwasa]-o
I-TOP John-NOM Mary-NOM arrive-will that rumor-ACC
kiiteita]-***hi*** yori(-mo)] -maeni] kanojyo-o Asenzu-de mikaketa.
heard **day** than(-even) before her-ACC Athens-in saw
'I saw Mary in Athens before the day John heard the rumor that Mary would arrive.'

Although both (22) and (23) contain a complex NP island in the temporal adjunct, the long-distance reading is blocked only in (22), but not in (23). The only difference between (22) and (23) is that the latter contains a temporal head noun *hi* 'day', while the former does not.[4]

Now, let us turn to the present concern about temporal adjuncts headed by *–made* 'until'. Recall that if a covert head noun existed in temporal adjuncts headed by *-made*, there should not be any contrast between the adjuncts containing an overt head noun and those without it.

(24) boku-wa [$_{PP}$[John-ga [Mary-ga kuru to] omou] -made] sokoni i-ta.
I-TOP John-NOM Mary-NOM come that think -until there be-PAST
'I had been there until John believed that Mary came.'
a. I had been there until the time when John believed Mary's coming. (Short)
b.*I had been there until the time of Mary's coming, according to John's belief. (Long)

[4] Based on the island effect in (22), Miyamoto (1996) argues that temporal adjuncts in Japanese involve Op-movement under the long-distance interpretation. On the other hand, Miyamoto (1996) claims that the long-distance reading in (23) follows from the resumptive *pro* strategy: the temporal head *hi* 'day' binds *pro* in the most embedded clause (cf. Murasugi 1991).

(25) boku-wa [$_{PP}$[$_{DP}$[John-ga [Mary-ga kuru to] omou] ***toki/zikan***]-made]
I-TOP John-NOM Mary-NOM come that think time/time -until
sokoni i-ta.
there be-PAST
'I had been there until John believed that Mary came.'
a. I had been there until the time when John believed Mary's coming. (Short)
b. I had been there until the time of Mary's coming, according to John's belief. (Long)

As can be seen in (24), the temporal adjunct headed by *–made* does not allow the long-distance interpretation. However, once a temporal head noun is inserted, as in (25), the long-distance interpretation can be obtained. The contrast between (24) and (25) shows that, as Miyamoto (1996) mentions, temporal adverbial clauses containing an overt temporal head noun have a different structure from those without a head noun, which indicates that there is no covert head noun in temporal adverbial clauses.

4.3.3 Scope Interaction

As we have seen above, the genitive subject in nominal complement clauses shows scope ambiguity (Miyagawa 1993). The relevant examples are repeated below.[5]

(26) a. [[John-ka Mary]-***ga*** kita] kanousei-ga 50% izyoo da.
[John-or Mary]-NOM came probability-NOM 50% over is
'The probability that John or Mary came is over 50%.'
*'The probability that John came or the probability that Mary came is over 50%.'
(probability > or, *or > probability)

[5] As we have seen in 4.2, Ochi (2001) argues that the scope ambiguity obtains only when the genitive phrase can be in Spec, DP in overt syntax.

b. [[John-ka Mary]-***no*** kita] kanousei-ga 50% izyoo da.
John-or Mary]-GEN came] probability-NOM 50% over is
'The probability that John or Mary came is over 50%.'
'The probability that John came or the probability that Mary came is over 50%.'
(probability > or, or > probability)

Recall that the genitive subject in the relative clause (RC) can take scope over the relativized head noun, as shown in (26b), while the nominative subject never takes scope over the head noun, as in (26a).

This kind of scope ambiguity is also observed in temporal adjunct clauses headed by *made* 'until'. However, it is available only if the adjuncts contain an overt temporal head. When there is not such an overt head noun, the scope ambiguity disappears. The relevant examples are shown in (27) and (28).

(27) a. [[John-ka Mary]-***ga*** kuru ***zikan***-made] mati-masyou.
[John-or Mary]-NOM come time-until wait-let.us
'Let's wait until the time when John or Mary comes.'
*'Let's wait until the time John comes or the time Mary comes.'
b. [[John-ka Mary]-***no*** kuru ***zikan***-made] mati-masyou.
[John-or Mary]-GEN come time-until wait-let.us
'Let's wait until the time when John or Mary comes.'
'Let's wait until the time John comes or the time Mary comes.'

(28) a. [[John-ka Mary]-***ga*** kuru -made] mati-masyou.
[John-or Mary]-NOM come -until wait-let.us
'Let's wait until the time when John or Mary comes.'
*'Let's wait until the time John comes or the time Mary comes.'

b. [[John-ka Mary]-***no*** kuru -made] mati-masyou.
[John-or Mary]-GEN come -until wait-let.us
'Let's wait until the time when John or Mary comes.'
*'Let's wait until the time John comes or the time Mary comes.'

The adjunct clause in (27) contains a temporal head *–zikan* 'time' and the subject can take scope over the head noun when it is marked with genitive Case, as in (27). The temporal adjunct in (28) on the other hand, does not contain a head noun and the genitive subject never yields scope ambiguity, as shown in (28). If the temporal adjuncts headed by *–made* 'until' contained a covert temporal head, (28) should also exhibit scope ambiguity. Therefore, the contrast between (27b) and (28b) shows that there is not a covert temporal head in the temporal adjunct clauses headed by *–made* 'until'.

4.3.4 Summary

We have observed that temporal adjunct clauses containing a head noun show some different syntactic behaviors from the head noun-less clauses. Those differences are summarized in (29). For the sake of exposition, I henceforth refer to a temporal adjunct clause containing a temporal head *–toki* as a relative clause (RC), while a temporal adjunct clause without a head noun as a temporal adjunct clause (TAC).

(29) Differences between RCs and TACs

	RC		TAC	
	Nom-subject	Gen-subject	Nom-subject	Gen-subject
Unaccusative Vs	√	√	√	√
Unergative Vs	√	√	√	*
Scopal ambiguity	*	√	*	*
Long-distance reading	√		*	

In the table (29), there are three important differences between RCs and TACs: unlike RCs, TACs containing a genitive subject are incompatible with unergative verbs, do not exhibit scope ambiguity, and do not allow the long-distance interpretation. Given those differences, I argue, contrary to the claim by Maki and Uchibori (2008), that TACs do not contain a phonetically null nominal head that is responsible for genitive Case of subjects within TACs. It is therefore necessary to reconsider how the genitive subjects are licensed within TACs. I assume that such differences between TACs and RCs are derived from their structural differences. In the following subsection, I pursue the mechanism of genitive licensing in TACs, focusing on the intriguing properties of genitive subjects in TACs.

4.4 Genitive subjects and dependent tense: Miyagawa (2012)

Given the fact that genitive subjects in TACs occur in the absence of D, Miyagawa (2012) proposes that they are entirely different from the genitive marking on subjects in RCs or nominalized embedded clauses (see (1a-b)) in their Case-licensing mechanisms: genitive subjects in RCs and nominalized embedded clauses are Case-licensed by D, while those in TACs are Case-licensed without D. In the following subsections, I provide an overview of Miyagawa's

(2012) observations in 4.4.1 and his analysis in 4.4.2, and discuss some remaining issues with his analysis in 4.4.3.

4.4.1 Observations

Miyagawa (2012) makes a clear distinction between genitive subjects in TACs and those in RCs on the basis of the following two properties. First, genitive subjects in TACs can occur with a CP adverb as in (31), contrary to the case of genitive subjects in RCs as in (30).

(30) Kore-ga [*saiwai-ni* Taroo-ga/?*-no mituketa] yubiwa desu.
this-NOM *fortunately* Taro-NOM/-GEN found ring COP
'This is the ring that Taro fortunately found.

(31) a. [*Saiwai-ni* ame-ga/no yanda toki], minna kooen-de asonda.
fortunately rain-NOM/GEN stopped when everyone park-in played
'When the rain fortunately stopped, everyone played in the park.'

b. [*Saiwai-ni* seki-ga/no aita toki], Hanako-wa obaasan-ni osiete-ageta.
fortunately seat-NOM/GEN opened when Hanako-TOP grandmother-DAT let.know
'When a seat fortunately opened up, Hanako let her grandmother know.'

(based on Miyagawa 2012:12)

Based on the assumption that adverbs such as speech act, evaluative, and evidential adverbs are adjoined to a CP-level (Cinque 1999), Miyagawa (2012) claims that the contrast above shows that the TAC containing the genitive subject is a CP, while the relative clause containing genitive subjects is a TP, which means that the relative clause cannot host the CP-level adverbs.

Second, the genitive marking in TACs only occurs on internal arguments. As we have seen in 4.3.1, the genitive subject in TACs can occur only with unaccusative verbs (Fujita 1988,

Miyagawa 1989, Takahashi 1994), but not with unergative verbs. Miyagawa (2012) further observes that the subject of passives also allows the genitive in TACs. The relevant sets of data are shown below.

(32) *Unergative subjects*

John-wa [oogoede Mary-ga/?*no wara-u -made] odotteita.
John-TOP loudly Mary-NOM/GEN laugh-PRES until was.dancing
'John was dancing until Mary laughed loudly.'

(33) *Unaccusative subjects*

a. John-wa [ame-ga/no yam-u made] office-ni ita.
John-TOP rain-NOM/GEN stop-PRES until office-at be-PST
'John was at his office until the rain stopped.'

b. [Kodomo-ga/-no kita toki], tonari-no heya-ni ita.
child-NOM/-GEN came when next-GEN room-in was
'I was in the next room when the child came.'

c. [Kaze-de doa-ga/-no aita toki] daremo kizukanakatta.
wind-by door-NOM/GEN opened when no.one noticed
'When the door opened due to wind, no one noticed.'

((a) from Hiraiwa (2001) and (b-c) from Miyagawa (2012))

(34) *Subjects of Passives*

a. Watasi-wa [kodomo-no home-rare-ta toki] hontouni uresii kimoti datta.
I-TOP child-GEN praise-PASS-PST when really happy feeling was
'When my child was praised, I was really happy.'

b. Watasi-wa [saiwai-ni kodomo-no erab-are-ta toki], hotto simasi-ta.
I-TOP fortunately child-GEN choose-PASS-PST when relieved was
'When my child was fortunately chosen, I was relieved.'

(Miyagawa 2012:12)

The question to be asked is why the genitive subjects in TACs are allowed only with internal arguments (unaccusative subjects, subjects of passives), but not with external arguments (transitive subjects and unergative subjects). In the following subsection, we overview Miyagawa's (2012) approach to this paradigm.

4.4.2 Miyagawa's (2012) proposal

Given the facts that genitive subjects in TACs are (i) licensed within CP without a D head, and (ii) are internal arguments (unaccusative subjects and subjects of passives), Miyagawa (2012) claims that the distribution of genitive subjects in TACs is apparently similar to the genitive of negation in Slavic languages such as Russian. In Russian, the genitive marking allows on internal arguments, such as unaccusative subjects and subjects of passives, but disallowed on unergative subjects, as shown below (all the data below are from Miyagawa (2012), which are originally from Pesetsky (1982)).

(35) *Unaccusative subjects*

a.	Otvet	iz	polka	ne	priìel.
	answer.NOM	from	regiment	NEG	arrived.MASC.3SG
b.	Otveta	iz	polka	ne	priìlo.
	answer.GEN	from	regiment	NEG	arrived.NEUT.3SG

(36) *Subjects of passives*

a.	Ni	odna	gazeta	ne	bylo	polučena
	not	one	newspaper.FEM.NOM.SG	NEG	was.FEM.SG	received.FEM.SG
b.	Ni	odnoj	gazety	ne	bylo	polučeno.
	not	one	newspaper.FEM.GEN.SG	NEG	was.NEUT.Sg	received.NEUT.SG

(37) *Unergative subjects*

a.	V	pivbarax	kul'turnye	ljudi	ne	p'jut.
	in	beerhalls	cultured	people.NOM	NEG	drink.3PL
b.*	V	pivbarax	kul'turnyx	ljudej	ne	p'et.
	in	beerhalls	cultured	people.GEN	NEG	drink.3SG

(38) *Unergative subjects*

a.	Ni	odin	rebenok	ne	prygnul
	not	one	child.M.SG.NOM	NEG	jumped.MASC.SG
b.*	Ni	odnogo	rebenka	ne	prygnulo
	not	one	child.M.SG.GEN	NEG	jumped.NEUT.SG

Given the similar distribution of genitive subjects in Japanese and Russian, Miyagawa (2012) proposes that the licensing mechanism of genitive subjects are similar in both languages: just like the case of the genitive of negation in Slavic, a "weak" *v* in the sense of Chomsky (1995, etc.) is involved in Case-licensing of genitive subjects in Japanese TACs. Miyagawa (2012) proposes (39).

(39) Case-licensing of the non-D genitives

Genitive is licensed in the environment of weak *v* and:
negation (Slavic) or dependent tense (Japanese). (Miyagawa 2012: (23))

In Russian, the genitive of negation has been analyzed as licensed by the combination of weak *v* and negation (see Babby 1980, Pesetsky 1982, Bailyn 1997, for details), while Miyagawa (2012) assumes that in Japanese, the genitive subject in TACs is licensed by a weak *v* in combination

with *dependent tense*. What is the "dependent tense"? It refers to a special type of tense that occurs in subordinate clauses, as in (40).

(40) [Hanako-ga te-o age**ru/ta** toki] kore-o watasite kudasai.
[Hanako-Nom hand-Acc raise-**PRES/PST** when] this-Acc give please
'Please hand this (to her) when Hanako (lit.) raised her hand.'
(based on Miyagawa 2012:25)

In (40), the event described in the subordinate clause headed by *toki* 'when' denotes a future event regardless of the inflection of the verb. Ogihara (1994) originally observes that the semantic contribution of tense morphemes is always determined in relation to structurally higher tense. Based on Ogihara's (1994) observation, Miyagawa (2012) assumes that such special types of tense, namely "dependent tense", must be involved in the licensing of the genitive Case on subjects in Japanese TACs.

Miyagawa's (2012) analysis is supported by the following examples, where the genitive subject is not allowed in the adjunct clause containing non-dependent tense.

(41) a. Hanako-ga/*-no kuru/kita kara, uti-ni ite-kudasai.
Hanako-NOM/-GEN come/came because home-at be-please
'Because Hanako will come/has come, please be at home.'
b. Hanako-ga/*-no kuru/kita nara, uti-ni ite-kudasai.
Hanako-NOM/-GEN come/came if home-at be-please
'If Hanako is coming/has come, please be at home.'
(Miyagawa 2012)

The tense morpheme of the reason-clause in (41a) and *nara*-conditionals in (41b) is referentially dependent, as the following example shows.

(42) Hanako-ga kekkon-suru/*-sita kara/nara, kanozyo-no kekkonsiki-ni de-tai.
Hanako-GEN marry-PRES/-PAST because/if her wedding-DAT attend-want
'Because/if Hanako is getting married/was married, I'd like to attend her wedding.'
(cf. Miyagawa 2012)

As the tense morpheme such as *–suru/-sita* in the adjunct clause has independent tense reference, the tense of the adjunct clause has to be decided in accordance with time of speech. Since the time of speech is present, the past tense morpheme *–sita* is not allowed in (42). This shows that T in such adjunct clauses is non-dependent. Miyagawa's (2012) analysis predicts that genitive subjects should not be allowed in such adjunct clauses since dependent T is crucial to license the genitive subject. This prediction is actually borne out by (41).

So far, we have seen Miyagawa's (2012) proposal that genitive subjects in TACs are totally different from those in RCs/noun-complement clauses in their genitive-licensing mechanism: the latter is licensed by D, while the former is licensed by the combination of weak *v* and dependent T. The analysis of NGC proposed by Miyagawa (2011, 2012) is thus schematically summarized as follows:

(43) NGC in RCs/noun-complement clauses

a. $[_{DP...}[_{CP}[_{TP}[_{vP}$ Subject-**NOM** $[_{VP} \ldots]$ *v*] **T**] C] … D]

b. $[_{DP...}[_{TP}[_{vP}$ Subject-**GEN** $[_{VP} \ldots]$ *v*] T]… **D**]

(44) NGC in TACs

a. $[_{CP}\,[_{TP}\,[_{vP}$ Subject-**NOM** $[_{VP}\ \ldots]\ \ v\ ]\ \ \mathbf{T}_{[+tense]}]$ C]

b. $[_{CP}\,[_{TP}\,[_{vP}$ Subject-**GEN** $[_{VP}\ \ldots]\ \ \boldsymbol{v}\ ]\ \ \mathbf{T}_{[-tense]}]$ C]

As shown in (43a) and (44a), the nominative subjects are always contained in a full CP clause and therefore T within the CP has full-set of formal features and can license nominative Case on the subject. When RCs/noun-complement clauses have genitive subjects as in (43b), TP is not selected by C, so that T lacks formal features and cannot license nominative Case on the subject. Instead, D outside the TP complement reaches in to license the genitive on the subject, as in (43b). In the case of TACs, on the other hand, the genitive subject is contained in a CP, as in (44b). Miyagawa (2012) assumes that since the CP is a phase, genitive Case within a TAC cannot be licensed by a functional head outside of the CP clause, and the combination of weak *v* and dependent T within the CP clause licenses genitive Case on the subject, as shown in (44b).

4.4.3 Questions in Miyagawa (2012)

We have seen that Miyagawa (2012) provides important observations of genitive subjects in TACs and a novel analysis of the distribution of genitive subjects in TACs, but there are several questions with the analysis, which I consider in this subsection.

First of all, Miyagawa (2012) proposes the correlation between genitive subjects in Japanese TACs and genitive of negation in Slavic languages, but their distributions are not

completely parallel: in Russian, genitive marking is allowed even on the object of transitive verbs in a main clause, which is completely disallowed in Japanese, as shown below.[6, 7]

(45) Ja ne polučal pis'ma/pisem (Russian)
I NEG received letters.ACC.PL/letters.GEN.PL (Pesetsky 1982)

(46) Taroo-ga hon-o/*no yonda. (Japanese)
Taro-NOM book-ACC/GEN read-PST
'Taro read the book.'

Recall that Miyagawa's (2012) analysis depends on the observation that the distribution of genitive subjects in TACs matches that of the genitive of negation in Slavic. Given the discrepancy between (45) and (46), his analysis raises a question: is the weak *v* really involved in Case-licensing of genitive subjects in TACs, just like the case of genitive of negation in Slavic? In the flowing section, I propose that weak *v* does not play a role as a genitive licenser, but it is just a consequence of the selectional property of a certain type of T in temporal adjuncts.

The second question on Miyagawa's (2012) analysis is that, as Miyagawa (2012) mentions in a footnote, dependent tense accompanied by a weak *v* does not always license genitive subjects.

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[6] As for the fact that Japanese does not allow genitive subjects in main clauses, Miyagawa (2012a) states that "the reason why this genitive does not occur in root environments is due to the fact that its licensing is dependent not only on weak *v*, but also on the occurrence of a certain type of tense, dependent tense, which only occurs in subordinate clauses" (Miyagawa 2012a:19).

[7] As Miyagawa (2012a) points out, objects of stative predicates can undergo NGC in Japanese, as shown below.

(i) [John-ga eigo-ga/no wakar-anakat-ta toki] Hanako-ga tasuketa.
John-NOM English-NOM/GEN understand-NEG-PAST when Hanako-NOM helped
'When John didn't understand English, Hanako helped out.' (Miyagawa 2012a:26)

However genitive marking of objects in Japanese is not widely available as shown in (46).

(47) a. Hanako-ga/*-no ki-*tara*, osiete kudasai.
Hanako-NOM/-GEN come.PRES-if tell.me please
'Please let me know if Hanako comes.'

b. Hanako-ga/*-no kuru-*to*, paatii-ga motto tanosiku naru.
Hanako-NOM/GEN come.PRES-if party-NOM more fun become
'If Hanako comes, the party will become more fun.'

c. Taroo-ga/*-no kaeru-*nara*, watasitati-mo kaeri-masu.
Taro-NOM/GEN leave.PRES-if we-also leave-COP
'If Taro leaves, we will also leave.' (cf. Miyagawa 2012a:fn.9)

The conditional clauses headed by *tara*/*to*/*nara* 'if' in (47a-c) contain an unaccusative verb and dependent tense,[8] nonetheless the subjects in the conditional clauses cannot be marked as genitive. These examples raises a question as to when a weak *v* in combination with dependent tense can assign genitive Case.

The last question is related to theoretical simplicity. Miyagawa's (2012) analysis implies that in Japanese there are two kinds of genitive subjects: one is licensed by D (D-licensed genitives), and the other is licensed by a weak *v* in combination with T (non-D-licensed genitives). Although a few different properties have been observed between the D-licensed and the non-D-licensed genitives, it would be desirable if all genitive subjects are licensed by a single source. In the following section, I propose an alternative analysis, attempting to analyze the two kinds of genitive subjects as the same.

[8] The tense in the conditional adjuncts in (47) is considered as dependent tense, because the verbs in the adjuncts cannot inflect for past tense even if the verbs in the main clauses inflect for past tense.

4.5 An alternative analysis

This section provides an alternative analysis of NGC in TACs headed by *–made* 'until' that is originally provided by Hiraiwa (2001). The relevant example is repeated below.

(48) John-wa [ame-ga/no yam-u made] office-ni ita.
John-TOP rain-NOM/GEN stop-PRES until office-at be-PST
'John was at his office until the rain stopped.'

I propose that the genitive subject in (48) is licensed by a single head, Path, which is selected by K. I argue that once we assume that a functional category selected by K licenses genitive subjects, all kinds of genitive subjects in Japanese can be captured in a uniformed way. The proposed analysis is stated as follows.

(49) Genitive subjects in Japanese are licensed by a functional head selected by K.

The proposed analysis is based on three assumptions that are discussed below.

The first assumption is that TACs are headed by P, rather than C. Recall that Miyagawa (2012) claims that a temporal adjunct headed by *made* 'until' or *toki* 'when' is a CP and both *toki* 'when' and *made* 'until' are Cs themselves. I assume that unlike *toki* 'when', *made* 'until' is not a C but a postposition classified as Path that takes a certain type of CP as its complement, as shown below.

(50) $[_{\mathbf{PP}}\ [_{\mathbf{CP}}\ [_{\mathrm{TP}}\ \ldots\ \mathrm{T}\ ]\ \mathbf{C}\ ]\ \ \boldsymbol{made}]$

It is not surprising to assume that P takes CP as its complement. In fact, the postposition *made* follows an overt complementizer, as shown in the following example.

(51) [$_{PP}$ [$_{CP}$ [$_{TP}$ Taro-ga kuru] ka(douka)] *made*]-wa wakara-nai
Taroo-NOM come whether P-TOP know-NEG
'I don't know whether Taro comes.'

In (51), the subordinate clause is headed by a postposition *made* which selects 'a complementizer *ka(douka)* 'whether'. The structure of the subordinate clause can be construed as a PP headed by P, which takes a CP as its complement. Recall that in chapter 2, we have seen that the postposition *–made* is a Path and that Path in Japanese obtains a nominal property. Suppose that CPs selected by Path are nominalized, having a [+nominal] property, as shown in (52) (see also Hiraiwa 2005 and Kishimoto 2017 for nominalized clauses).[9]

[9] In Japanese some CPs in fact have a nominal property. Saito (2012) examines three kinds of Japanese complementizers *to, ka, no*, and observes that these complementizers differ in terms of the (in)compatibility with a Case particle, as shown below.

(i) a. Karera-wa [$_{CP}$ Hanako-ga soko-ni iku to](*-o) omotta.
they-TOP H.-NOM there-to go *to-ACC* thought
'They thought that Hanako was going there'
b. Karera-wa [$_{CP}$ Hanako-ga doko-ni iku beki ka](-o) kentoosita.
they-TOP H.-NOM where-to go should *ka-ACC* discussed
'They discussed where Hanako should go'
c. Karera-wa [$_{CP}$ Hanako-ga soko-ni iru no]*(-o) kanzita.
they-TOP H.-NOM there-in is *no-ACC* felt
'They felt that Hanako was there' (Saito 2012)

The complementizer *to* in (ia) cannot be followed by a Case particle. However, the complementizer *ka* in (ib) can be followed by a Case particle and *no* in (ic) must be followed by a Case particle. As Saito (2012) mentions, the complementizers *no* and *ka* are nominal in nature, though they are still categorized as complementizers, but not nouns (about the detailed discussion on the complementizer *no*, see also Murasugi 1999). The present study assumes that some CPs have a nominal feature [+nominal] and the postposition *made* 'until' selects such CPs as its complement. I will discuss the (an)availability of genitive subjects in the above examples in 4.7.

(52) $[_{PP}\ [_{CP}\ [_{TP}\ \ldots\ T\ ]\ C_{[+nominal]}\ ]\ \ \textit{made}]$

Now the TACs in question are considered as PathPs containing a nominal CP. Recall that in chapter 2, we have seen that Japanese Path can be selected by K because Japanese has non-fusional Case morphology (cf. Halle and Marantz 1993, Neelman and Szendrői 2007, Otaki 2012, H.Takahashi 2014). Given this assumption, the TAC headed by *made* can be analyzed as having the following structure.

(53) $[_{\mathbf{KP}}\ [_{PP}\ [_{CP}\ [_{TP}\ \ldots\ T]\ C_{[+nominal]}]\ \textit{made}]\ K]$

In (53), the PP headed by *made* selects a CP clause with a nominal property, and *made* is selected by K.

The second assumption the present analysis employs is that "dependent T" in a sense of Miyagawa (2012) can be either active or defective, and the "defective" dependent T selects only a weak *v*. Notice that the "dependent T" is dependent in its semantic contribution of the tense morpheme (Ogihara 2004). This seems a particular property of T in temporal adjuncts. However, it is not necessary to assume that the dependent T is always defective in its syntactic properties. In other words, syntactic properties of dependent T can be either active or defective. I propose that when the dependent T is active, it can select either a weak *v* or a strong *v*, but when the dependent T is defective, it selects only a weak *v*, as shown below.

(54) a. $T_{[\text{dependent\_}\mathbf{\underline{active}}]}$ → a weak/strong *v*

b. $T_{[\text{dependent\_}\mathbf{\underline{defective}}]}$ → a weak *v*

This assumption predicts that when the predicate is unergative (i.e. *v* is strong), T should always be active, while T should be either active or defective when the predicate is unaccusative (i.e. *v* is weak). We will see in the following section that this prediction is actually borne out.

The third assumption is that a TAC containing a *defective* dependent T does not project a phase. This is based on the following assumption.

(55) A functional head that is unable to assign Case is not a phase head.

(cf. Miyagawa 2011, M.Takahashi 2011).

Miyagawa (2000) assumes following Chomsky (2000, 2001, 2008) that when T is selected by C, the CP projects a phase, where T is active and has a full-set of formal features inherited from C. T selected by C can thus license nominative Case. On the other hand, when T is not selected by C, T does not have a full-set of formal features inherited from C so that nominative Case is not assigned and there is no phasal projection above TP. Given (55), a TAC containing *defective* dependent T is not considered as projecting a phase since such T is unable to assign a Case and therefore the CP above it should not be a phase. This point is contrary to Miyagawa's (2012) analysis. Recall that in Miyagawa (2012), TACs are CPs that are always phases, and therefore any elements outside of the CP cannot reach in to license genitive subjects in TACs. Under the present analysis, on the other hand, genitive subjects in TACs can be licensed by a functional head outside of the clause since the clause is not a phase.

The three assumptions we have seen so far are summarized as follows:

(56) a. TACs are headed by P *–made* that is selected by K. (Assumption 1)

$[_{KP}\ [_{PP}\ [_{CP}\ [_{TP}\ \ldots\ T]\ C]\ \textit{made}]\ K]$

b. A *defective* dependent T in TACs selects only a weak *v*. (Assumption 2)

$[_{CP}\ [_{TP}\ \ldots\ \ v\ [\textbf{weak}]\ \ T_{[\text{dependent\_}\textbf{defective}]}\ ]\ C]$

c. A TAC containing a *defective* dependent T is not a phase. (Assumption 3)

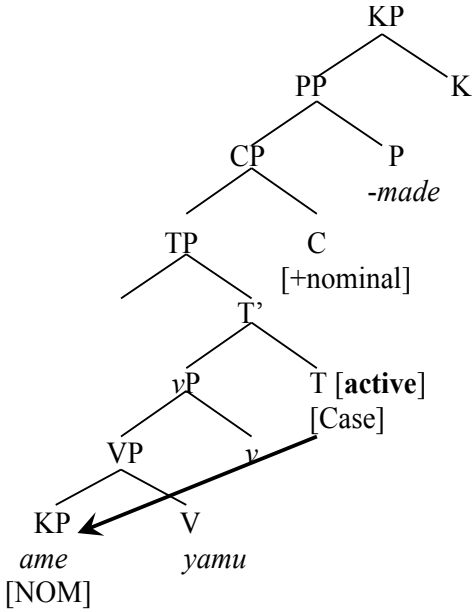
Based on these assumptions, the original example of NGC in TACs provided by Hiraiwa (2001), which is repeated in (57), can be analyzed as in (58).

(57) John wa [ame-**ga/no** yamu made] office-ni i-ta.

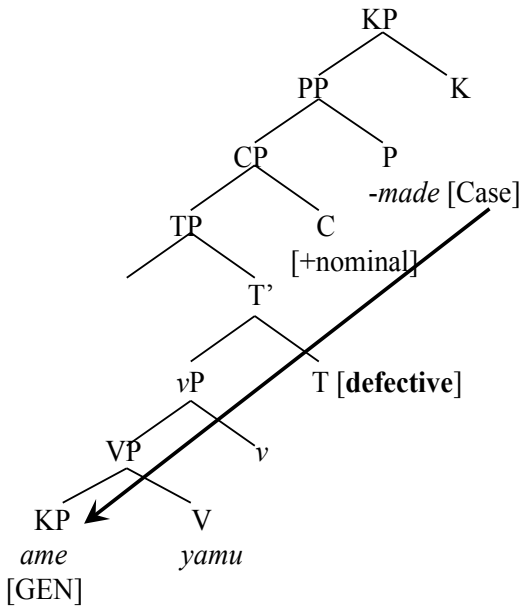
John-TOP rain-NOM/GEN stop-PRES-ADN until office-at be-PST

'John was at his office until the rain stopped.

(58) a. Nominative subject



b. Genitive subject



When the subject is marked with nominative, as in (58a), the dependent T is active, receiving a full set of formal features from C, and T can license nominative on the internal argument. On the

other hand, in (58b), the dependent T is defective and unable to license nominative Case. C thus cannot be a phase head. Therefore, *-made* above CP can reach in to license the genitive Case on the internal argument.

Let us return to the paradigm of the unaccusativity restriction discussed in 4.3.1. Recall that genitive subjects are not allowed in TACs when the predicate is unergative, while they are allowed when the predicate is unaccusative (cf. Fujita 1988, Miyagawa 1989). The relevant examples are repeated below.

(59) John-wa [oogoede Mary-ga/?*no wara-u made] odotteita.
John-TOP loudly Mary-NOM/GEN laugh-PRES until was.dancing
'John was dancing until Mary laughed loudly.'

(60) John-wa [$_{CP}$ ame-ga/no yam-u made] office-ni ita.
John-TOP rain-NOM/GEN stop-PRES until office-at be-PST
'John was at his office until the rain stopped.'

Under the proposed analysis, this paradigm can be accounted for straightforwardly. As we have seen in (52), the proposed analysis assumes that T should always be active when the predicate is unergative (i.e. strong *v*), while T should be either active or defective when the predicate is unaccusative (i.e. weak *v*). In (59), the T in the TAC is considered as *active* since the predicate is unergative. As the *active* dependent T has a full-set of formal features inherited from C, the adjunct CP can be considered as projecting a phase. Because the CP is a phase, the genitive Case licensing by *-made* is ruled out by the phase impenetrability condition (PIC) (Chomsky 2000). The PIC is stated below.

(61) In phase α with head H, the domain of H is not accessible to operations outside α, only H and its edge are accessible to such operations (Chomsky 2000, pp. 108).

Chomsky (2000) assumes that derivations proceed in a "phase-by-phase" fashion, and that the PIC strictly restricts access to syntactic objects in a lower phase. Based on this assumption, the genitive Case-licensing on the subject is restricted, as in (62), because the subject is not accessible from *-made* that is a head above the phasal CP.

(62) $[_{KP}\ [_{PP}\ [_{CP}\ [_{TP}\ [_{vP}$ subject-NOM … $v_{\textbf{[strong]}}$] $T_{[\text{dependent\_}\textbf{active}]}$] C] P] K]

When it comes to TACs containing unaccusative predicates, as in (60), the PIC is irrelevant since the CP adjunct does not project a phase, so that Path outside of the CP clause can reach in to license genitive on the subject.

(63) $[_{KP}\ [_{PP}\ [_{CP}\ [_{TP}\ [_{vP}$ subject-GEN … $v_{\textbf{[weak]}}$] $T_{\textbf{[defective]}}$] C] Path] K]

Therefore, we can conclude that the difference between (59) and (60) is whether the CP adjunct is considered as a phase. A remaining question to be asked is why such unaccusative restriction disappears once TACs are followed by a Case particle (see Fujita 1988, Miyagawa 1999 amo.) We will discuss this issue at the end of this chapter.

4.6 Answers to the three questions in Miyagawa (2012)

Now, the three questions in Miyagawa (2012) that we have discussed in section 4 are all accounted for under the proposed analysis.

Recall that the first question is whether it is appropriate to consider genitive subjects in Japanese to be similar to genitives of negation in Russian. Miyagawa (2012) proposes that since the distributions of genitive subjects are similar in the two languages, the Case-licenser should be the same: a weak *v*. However, I pointed out that the distribution of genitive subjects in Japanese is not completely parallel to that of genitive subjects in Russian, so that the licensing mechanism may not be the same. Under the proposed analysis, there is no need to consider genitive of negation in Russian to begin with because a weak *v* is just a consequence of the selectional property of dependent T.

The second question in Miyagawa (2012) is that there is counterevidence against Miyagawa's (2012) analysis. The relevant examples in (47) are repeated below.

(64) a. Hanako-ga/*-no ki-*tara*, osiete kudasai.
Hanako-NOM/-GEN come.PRES-if tell.me please
'Please let me know if Hanako comes.'

b. Hanako-ga/*-no kuru-*to*, paatii-ga motto tanosiku naru.
Hanako-NOM/GEN come.PRES-if party-NOM more fun become
'If Hanako comes, the party will become more fun.'

c. Taroo-ga/*-no kaeru-*nara*, watasitati-mo kaeri-masu.
Taro-NOM/GEN leave.PRES-if we-also leave-COP
'If Taro leaves, we will also leave.'

(cf. Miyagawa 2012a:fn.9)

Recall that Miyagawa (2012) proposes that a weak *v* in combination of dependent T licenses genitive subjects in TACs. In each example above, the sentence contains a weak *v* and dependent T, nonetheless the genitive subject is disallowed. Under the present analysis, the examples in (64) can be analyzed as having a different structure from TACs: the adjunct clauses in (64) are CPs where the conditional items such as *-tara, -to,- nara* are the heads of the CPs, while TACs are PPs, which can be selected by K. This is reinforced by the fact that CP adjuncts in (64) cannot be followed by a Case particle, as in (65a), while TACs headed by *–made* can, as in (65b).

(65) a. $[_{CP}\ [_{TP}\ \ldots\ ]\ tara/nara/to]$(*-o)
b. $[_{PP}\ [_{CP}\ \ldots\ ]\ made]$ (-o)

Given this difference, the CP adjuncts in (64) can be construed as non-nominal CPs bearing [-nominal], which are different from CPs selected by *made*. Thus, in (64) the genitive subjects are not allowed because of the absence of Path selecting CPs with [+nominal].

The third question in Miyagawa's (2012) analysis is about the theoretical simplicity. Recall that Miyagawa (2012) assumes that there are two different kinds of genitive subjects in Japanese: one is licensed by D (i.e. genitive subjects in RCs and noun-complement clauses) and the other is licensed by a weak *v* in combination of dependent T (genitive subjects in TACs). Under the proposed analysis, the Case-licensing mechanisms of genitive subjects in Japanese that have long been controversial in the literature can receive a uniform account: a functional head selected by K licenses genitive subjects in Japanese. In the following section, I demonstrate how the proposed analysis accounts for the distribution of genitive subjects in original contexts in (1) and

(2): it is allowed in relative clauses and noun complement clauses, but not in matrix clauses and a complement clause headed by an overt complementizer *–to*.

4.7 The proposed analysis of standard NGC

This section shows how the original NGC contrasts in (1) and (2) can be derived under the proposed analysis. The relevant examples are repeated below.

(66) a. [[Kinoo John-**ga/no** kat-ta] hon]-wa omosiroi (=(1))
yesterday John-NOM/GEN buy-PST book-TOP interesting
'The book which John bought yesterday is interesting.'

b. John-wa [$_{CP}$ kinoo Mary-**ga/no** kita koto/no]-o sira-nakat-ta.
John-TOP yesterday Mary-NOM/GEN came Nominalizer-ACC know-not-PST
'John didn't know that Mary came yesterday.'

(67) a. Taroo-**ga/*no** hon-o kat-ta. (=(2))
Taro-NOM/GEN book-ACC buy-PST
'Taro bought a book.'

b. John-wa [$_{CP}$ kinoo Mary-**ga/*no** ki-ta to] sinjitei-ta.
John -TOP yesterday Mary-NOM/GEN come-PST C believe-PST
'John believed that Mary came yesterday.'

Recall that NGC is allowed in a relative clause in (66a) and a nominalized embedded clause in (66b), while such Case alternation is disallowed in a matrix clause in (67a) and a complement clause headed by an overt complementizer *–to* in (67b). The present study has proposed (49), which is repeated below.

(68) Genitive subjects in Japanese are licensed by a functional head selected by K.

Given the proposed analysis, the Case-licensing of genitive subjects in (66) is analyzed as follows.

(69) Relative clauses/noun-complement clauses

$[_{KP}\,[_{DP}\,[_{NP}\,[_{TP}\,[_{vP}$ Subject-**GEN** $[_{VP}\,\ldots]\ v\ ]\ T\ ]\ N]\ \mathbf{D}]\ \mathbf{K}]$

As shown in (69), relative clauses and noun-complement clauses are TPs without CPs above them, so that there is no phase boundary above TPs. Given (68), a functional category selected by K is D of the head noun, so that the D is the Case-licenser of genitive subjects in those contexts. Thus, the present analysis can be considered as an extension of the D-licensing analysis: in relative clauses and complement clauses, K selects D, so that D licenses the genitive subjects within those clauses. Recall that in TACs, K selects Path (*-made* 'until'), so that Path can obtain a D-like property with respect to the genitive Case-licensing.

(70) TACs

$[_{KP}\,[_{PP}\,[_{CP}\,[_{TP}\,[_{vP}$ Subject-**GEN** $[_{VP}\,\ldots]\ v\ ]\ T]\ C]\ \mathbf{P}]\ \mathbf{K}]$

In (70), as the C-T relation is defective, CP does not create a phase boundary, and thereby P selected by K can license the genitive subject within the TAC. Therefore, we can capture the availability of genitive subjects in relative clauses, noun-complement clauses, and TACs in a uniform way.

As for the unavailability of genitive subjects in (67a) and (67b), the present analysis can capture the fact straightforwardly, as shown in (71).

(71) Matrix clauses/complement clauses headed by an overt complementizer *-to*

*[$_{CP}$ [$_{TP}$ [$_{vP}$ Subject-**GEN** [$_{VP}$ …] *v*] T] C]

As shown above, none of the functional categories are selected by K, so that the Case-licenser of genitive subjects does not exist in matrix clauses or complement clauses headed by a complementizer *–to*. The following example in fact shows that the complement clause headed by a complementizer *–to* is never followed by a Case marker.

(72)	John-wa	[$_{CP}$ kinoo	Mary-ga	ki-ta	to](*-o)	sinzitei-ta.
	John -TOP	yesterday	Mary-NOM	come-PST	C-ACC	believe-PST

'John believed that Mary came yesterday.'

The example in (72) shows that a complement clause headed by an overt complementizer *–to* cannot be followed by an accusative Case marker *–o,* which means that the clause cannot be selected by K. Thus, it seems plausible to assume that the presence or absence of K is relevant to the distribution of genitive subjects.[10]

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[10] As we have seen in the footnote 8 in this chapter, Saito (2012) pointed out that the complementizer *ka* is optionally followed by a Case particle, while the complementizer *-no* has to be followed by a Case particle. The relevant examples are repeated below.

(i) a. Karera-wa [$_{CP}$ Hanako-ga doko-ni iku beki ka](-o) kentoosita
they-TOP H.-NOM where-to go should *ka-ACC* discussed
'They discussed where Hanako should go'

b. Karera-wa [$_{CP}$ Hanako-ga soko-ni iru no]*(-o) kanzita
they-TOP H.-NOM there-in is *no-ACC* felt
'They felt that Hanako was there' (Saito 2012)

(Continued to the next page)

4.8 The unaccusativity restriction revisited

In this section, I consider some remaining issues regarding the proposed analysis. The discussion concerns what Miyagawa (2012) calls "the adjunct clause effect".

Recall that NGC in TACs (temporal adverbial clauses) is subject to the unaccusative restriction, which states that genitive subjects of unergatives are not allowed in TACs headed by *made* or *toki*. Interestingly, the restriction does not hold within clausal arguments headed by *made* or *toki* that receive Case (cf. Fujita 1988, Miyagawa 1989, Takahashi 1994, Taguchi 2008 among others). The examples of genitive subjects in TACs are repeated in (73a) and (74a) and those with clausal arguments are given in (73b) and (74b).

(73) a. [Oogoe-de Hanako-ga/***no** warat-ta toki], Taroo-ga naitei-ta.
loudly Hanako-NOM/GEN laugh-PST when Taroo-NOM be.crying-PST
'When Hanako laughed loudly, Taroo was crying.'

b. Boku-wa [oogoe-de Hanako-ga/**no** warat-ta toki]**-o** oboetei-ru.
I-TOP loudly Hanako-NOM/GEN laugh-PST time-ACC remember-PST
'I remember the time when Hanako laughed loudly.'

The question to be asked is whether the examples (i) above allow genitive subjects. The fact is as follows: *no* allows the genitive subject, while *ka* with genitive subject sounds degraded, but it is better than *to* with genitive subjects. Again, the presence or absence of K seems to be relevant to the availability of genitive subjects: *to* is never selected by K and does not allow genitive subjects, *no* has to be selected by K and do allow genitive subjects, and *ka* is optionally selected by K and marginally allows genitive subjects. Interestingly, genitive subjects with *ka* sound better than those with *to*. Further investigations on the relation between the types of complementizers and the availability of genitive subjects are necessary.

(74) a. Taroo-wa [$_{CP}$ Hanako-ga/***no** odoru made] satueisi-ta.
Taro-TOP Hanako-GEN dance until film-PST
Lit.'Taro filmed until Hanako danced.'

b. Taroo-wa [$_{CP}$ Hanako-ga/**no** odoru made]-**o** satueisi-ta.
Taro-TOP Hanako-GEN dance until-ACC film-PST
'Taro filmed the scene until Hanako danced.'

(73a) and (74a) are the cases of TACs we saw earlier. Genitive subjects of unergative verbs are disallowed within TACs. The temporal clauses in (73b) and (74b) are also headed by *toki* in (73b) and *made* in (74b). However, the temporal clauses in (73b) and (74b) are selected by *oboeteiru* 'remember' and *satueisita* 'film-PST', respectively, and they both receive accusative Case. Significantly, genitive subjects of unergative verbs are allowed within such clausal arguments. These examples indicate that genitive subjects are allowed within temporal clauses that behave as arguments, but they are disallowed in temporal clauses behaving as adjuncts. The restriction of genitive subjects summarized above is called "the adjunct clause effect" in Miyagawa (2012) (see Miyagawa 2012 for discussion). If the clausal arguments in (73b) and (74b) are analyzed on a par with the TACs, it is unclear why the adjunct condition effect holds. I speculate on some possible directions to pursue, leaving further investigations for future research.

First, it is possible that the categorical status of *toki* or *made* matters for the adjunct clause effect. Miyagawa (2012) assumes with Whitman (1999) that *toki* heading a temporal adjunct is a complementizer hence the adjunct clause is treated like a *when*-adjunct in English (Whitman 1999), On the other hand, Miyagawa (2012) suggests that when *toki* is followed by a Case particle or a postposition, as in (73b), *toki* is considered as a noun, which means that (73b) is

analyzed as a case of NGC in noun-complement clauses. It remains to be seen if this analysis can be extended to (74b).

Second, it may be the case that what matters is selection by a predicate. Mamoru Saito (p.c.) pointed out to me that the pattern similar to (73) and (74) is observed with the complementizer *–no*. When a CP headed by the complementizer *–no* is an argument directly selected by a predicate and is followed by a Case particle as in (ia), the genitive subject is available. On the other hand, when a CP headed by *–no* is not directly selected by a predicate but selected by the question complementizer *–ka*, as in (ib), the genitive subject is not allowed.

(75) a. Taroo-ga [Hanako-ga/no dekakeru no]-o mi-ta.
Taro-NOM Hanako-NOM/GEN go.out C-ACC see-PST
'Taro saw Hanako go out.'

b. Taroo-ga [Hanako-ga/*no dekakeru no ka] wakara-nai.
Taro-NOM Hanako-NOM/*GEN go.out C Q know-NEG
'Taro does not know whether Hanako will go out.'

Given the observation above, it could be the case that what matter is whether the clauses in question are directly selected by a predicate or not. Thus, in (73b)/(74b) and (75a) above, the clauses in question are selected by a predicate, so that genitive subjects are allowed, while in (73a)/(74a) and (75b), the clauses in question are not selected by a predicate, and therefore genitive subjects are disallowed.

4.9 Concluding remarks

This chapter has discussed NGC in TACs from the perspective of an extended projection of PP in Japanese. We have seen two major approaches to NGC in Japanese proposed in the literature:

the D-licensing analysis and the C-licensing analysis. Hiraiwa's (2001) observations on genitive subjects occurring in TACs raised new issues regarding the licensing mechanism of the genitive subjects in Japanese. We have overviewed Miyagawa's (2001) analysis that genitive subjects in TACs are licensed by a weak *v* together with dependent T, assuming that genitive subjects in TACs are different from what is traditionally analyzed as D-licensed genitives. Thus, there are two kinds of genitive subjects in Japanese under Miyagawa's (2012) analysis. The present study attempts to analyze the two kinds of genitives as the same, proposing that a functional head selected by K always licenses the genitive subjects in Japanese. Under the proposed analysis, Miyagawa's (2012) problems that we have pointed out in 4.5 are successfully solved and all kinds of NGC in Japanese can be captured in a uniformed way.

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