

Locative Arguments with Measure Phrases in Japanese*

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This paper investigates properties of locative arguments with measure phrases in Japanese. It is observed that locative arguments with a measure phrase in Japanese may have three kinds of interpretation. It is also shown that the order of postpositions and measure phrases, and the presence of “tokoro” determine which interpretation they have. This fact is explained by the combination of two assumptions: (i) in locative arguments there are two positions where measure phrases may appear, and (ii) two covert nouns, that is PLACE and PART, can be a head noun of the locative argument.

Keywords: measure phrase, covert noun, locative argument, adposition, partitive

1. Introduction

This paper investigates properties of locative arguments with measure phrases in Japanese. Typical examples are shown in (1). Locative arguments have three properties; (i) they denote a location, (ii) they include an adposition and (iii) they are in the argument position.^{1,2,3}

- (1) a. Mado-no ue 50cm-ga yogoreteiru.
window-GEN above 50cm-NOM is.dirty
‘The space above the window is dirty and the space is fifty centimeters long.’
‘The upper part of the window is dirty and the part is fifty centimeters long.’
- b. Mado-no 50cm ue-ga yogoreteiru.
window-GEN 50cm above-NOM is.dirty
‘The place fifty centimeters above the window is dirty.’

Two questions arise as to sentences like (1). First, why are apparent PPs in the subject position?⁴ Being subjects is

* This is a revised version of my MA thesis (Nomura (2008)). I am grateful to Akira Watanabe, Noriko Imanishi and an anonymous reviewer for helpful comments and suggestions. All remaining errors are, of course, mine.

¹ Abbreviations are as follows: ACC = accusative; CL = classifier; DAT = dative; EZ = ezafe; GEN = genitive; LINK = linker; LOC = locative; NOM = nominative; PL = plural marker; TOP = topic marker.

² The data of locative arguments with measure phrases in this paper is all in the subject position rather than the object position only for the expository purpose. They can be in the object position as in (i).

- (i) Taro-ga mado-no ue 50cm-o huita.
Taro-NOM window-GEN above 50cm-ACC wiped
‘Taro wiped the space above the window and the space is fifty centimeters long.’
‘Taro wiped the upper part of the window and the part is fifty centimeters long.’

³ Locative arguments in other languages have been discussed in the literature. See Bresnan (1994), Jarworska (1986), Kayne (2005), Levin (1989), Stowell (1981) Williams (1984) for English, Pantcheva (2006, 2008) for Persian, and Bresnan and Mchombo (1995) for Bantu languages. It is not clear, though, that what seems to be locative arguments in these languages are really locative arguments. For example Pantcheva (2006, 2008) claims that PPs which are apparently in the subject position are in fact sentence adjuncts. I do not discuss (apparent) locative arguments in other languages.

⁴ Items such as *ue* “above” have been often considered as nouns both in the traditional grammar and in the generative grammar (see Inoue (1976) and Okutsu (1974) for example). Watanabe (2008a), however, demonstrates that these items should not be treated as nouns. See section 2 for the detail.

typically a property of DPs.⁵ Usually, PPs cannot be a subject as is shown in (2). In addition, apparent PPs in (1) precede an overt case marker.⁶ Again, apparent PPs behave like DPs.

(2) *In my opinion is easy to see. (Jaworska (1986))

The second problem is that there are three kinds of interpretation of locative arguments with a measure phrase. When the measure phrase follows the postposition as in (1a), the sentence has two interpretations as translations in (1a) express. When the measure phrase precedes the postposition as in (1b), the interpretation of the sentence is different from either of the interpretations of (1b). It is shown in section 2 that the fact is even more complex.

As far as I know, locative arguments *with* measure phrases have never been investigated. Locative arguments *without* measure phrases, however, have been often examined (see note 5). Bresnan (1994), for example, argues that the PP modifies a noun PLACE in sentences like (3a) and the noun is elided as is shown in (3b). Kayne (2005) proposes a similar analysis that PPs modify covert counterparts of a noun *place*. I will call this analysis a covert noun analysis.^{7,8}

(3) a. Under the chair is a nice place for the cat to sleep. (Stowell (1981))
 b. [DP (A) [NP (PLACE) [PP under the bed]]] (Bresnan (1994) with modifications)

The covert noun analysis explains why the locative arguments are in an argument position. The covert noun analysis in English can be easily extended to the locative arguments in Japanese. The presence of the case marker in the locative argument in Japanese is explained in a straightforward way. They are case-marked, since nouns, rather than adpositions, are the heads in locative arguments.

I basically adopt the covert noun analysis. Postulating the covert PLACE alone, however, cannot explain the interpretations of the locative arguments with the measure phrases in Japanese as is seen in (1). Thus, I argue that in some cases another covert noun PART is a head noun of the locative arguments with measure phrases in Japanese. In addition, I claim that in locative arguments there are two positions in which measure phrases can appear.

This paper is organized as follows. In section 2, we see the basic, but complex, data of Japanese locative arguments with the measure phrase. The three interpretations which we saw in (1) are examined more closely. We have to consider both PP and DP in order to explain the properties of the locative arguments. First, the syntax and semantics of the locative PP are introduced in section 3. The vector space semantics proposed by Zwarts (1997) and Zwarts and Winter (2000), and the fine structure of the locative PP proposed by Watanabe (2008a), will be adopted. Sections 4 and 5 focus on the syntax of DP. In section 4, it is argued that the covert PLACE is required in order to explain one of the three interpretations of the locative arguments with a measure phrase. Section 5 introduces another covert noun, that is, the null PART. It is argued that assuming this null noun can account for the other two interpretations. Section 6 concludes the paper.

⁵ CP can also be a subject. It is obvious that apparent PPs in (1) are not CPs.

⁶ Some may think it is not mysterious for PPs to be followed by the Case marker, because Japanese allows PPs to be marked with the nominative case, when they are focused. See (i). However, PPs with the accusative case are not possible as in (ii). Thus, locative arguments in the object position remain mysterious. See note 2.

(i) Tokyo-kara-ga ryokou-si-yasui.
 Tokyo-from-NOM travel-do-easy
 'It is easy to travel from Tokyo.'
 (ii) *Taro-ga Tokyo-kara-o ryokou-si-yasui-to kangaeta.
 Taro-NOM Tokyo-from-ACC travel-do-easy-that considered
 'Taro thought that it was easy to travel from Tokyo.'

⁷ Following Bresnan (1994) and Kayne (2005), I will use the small capital PLACE for a covert version of a noun *place*.

⁸ Whether a null determiner exists or not in the locative argument in English is not obvious. This problem is of little relevance here and we will not discuss it in this paper. PP is argued to be PoP in section 4.

2. Basic Data

This section provides basic data on the locative arguments in Japanese. The Japanese locative argument exhibits complex behavior when combined with the measure phrase.

2.1. Tokoro

Before looking at the properties of the measure phrase, let us consider properties of *tokoro*, which is often translated as ‘place.’ *Tokoro* has been often considered as a formal noun in the traditional grammar. *Tokoro* seems to be like other nouns in that it can be a subject or an object. It has a different property from other nouns, however. It has to be preceded by some modifier as in (4).

- (4) a. *Taro-ga tokoro-o kaete kibuntenkansita.
Taro-NOM TOKORO-ACC by.changing refreshed
‘Taro moved to another place for a change of pace.’
b. Taro-ga hiroi-tokoro-ga sukida.
Taro-NOM large-TOKORO-NOM like
‘Taro likes a large place.’

Tokoro has been considered not to have enough semantic content to be used alone, and its meaning has to be supplemented by some modifier, hence ‘formal’ nouns.^{9,10}

Tokoro can optionally appear after the adposition in the locative argument, which is shown in (5). Linker like elements *-no* appear in (5). It is controversial whether two types of *-no* exist or not.¹¹

- (5) a. Mado-no ue (-no tokoro)-ga yogoreteiru.
window-GEN above LINK TOKORO-NOM is.dirty
‘The place above the window is dirty.’
b. Tukue-no sita (-no tokoro)-ga yogoreteiru.
desk-GEN under LINK TOKORO-NOM is.dirty
‘The place under the table is dirty.’

Saito and Murasugi (1990) and Saito, Lin and Murasugi (2008), for example, assume only one type of *-no*. On the other hand, Watanabe (2008a) claims that Japanese has two types of *-no*, that is, the genitive case marker and the linker. I follow Watanabe’s claim. In this section, *-no* is glossed cunningly as GEN (genitive) or LINK (linker) without discussion. See sections 3, 4 and 5 for the argument about this distinction.

2.2. Measure Phrases and Their Interpretations

Measure phrases can appear in locative arguments. They can follow (6a) or precede (6b) the adposition. In

⁹ *Basyo* has a similar meaning to *tokoro*, but it can be used without a modifier. Compare (i) with (4a).

(i) Taro-ga basyo-o kaete kibuntenkansita.
Taro-NOM place-ACC by.changing refreshed
‘Taro moved to another place for a change of pace.’

¹⁰ There are some idioms where *tokoro* appears without a modifier. See (i), for example.

(i) Taro-ga tokoro kamawazu wamekitirasita.
Taro-NOM TOKORO not.considering shouted
‘Taro shouted without caring where he is.’

¹¹ I set apart the pronominal *no*, which roughly corresponds to *one* in English. See Saito and Murasugi (1990) for the distinction between this pronominal *no* and the modification marker *-no*.

addition, *tokoro* can appear before the case marker. When *tokoro* appears, the measure phrase may follow (6c) or precede (6d) the adposition again. *Tokoro* can also appear between the adposition and the measure phrase as in (6e). In this case, however, the measure phrase cannot precede the adposition (6f), whether it is followed by the linker or not.¹²

- (6) a. Mado-no ue 50cm-ga yogoreteiru.
 window-GEN above 50cm-NOM is.dirty
- b. Mado-no 50cm ue-ga yogoreteiru.
 window-GEN 50cm above-NOM is.dirty
- c. Mado-no ue 50cm-no tokoro-ga yogoreteiru.
 window-GEN above 50cm-LINK TOKORO-NOM is.dirty
- d. Mado-no 50cm ue-no tokoro-ga yogoreteiru.
 window-GEN 50cm above-LINK TOKORO-NOM is.dirty
- e. Mado-no ue-no tokoro 50cm-ga yogoreteiru.
 window-GEN above-LINK TOKORO 50cm-NOM is.dirty
- f. *Mado-no 50cm(-no) tokoro ue-ga yogoreteiru.
 window-GEN 50cm(-LINK) TOKORO above-NOM is.dirty

Let us turn to the distribution of the linker *-no*. In (6), the linker *-no* obligatorily attaches to the item before *tokoro*. The measure phrase or the adposition which are not immediately followed by *tokoro* cannot precede the linker *-no*. When the linker *-no* is followed by the measure phrase, (6b) and (6d) become ungrammatical as in (7a) and (7b).

- (7) a. *Mado-no 50cm-**no** ue-ga yogoreteiru.
 window-GEN 50cm-LINK above-NOM is.dirty
- b. ?*Mado-no 50cm-**no** ue-no tokoro-ga yogoreteiru.
 window-GEN 50cm-LINK above-LINK TOKORO-NOM is.dirty
- c. #Mado-no ue-**no** 50cm-no tokoro-ga yogoreteiru.
 window-GEN above-LINK 50cm-LINK TOKORO-NOM is.dirty

(6c) remains grammatical as in (7c), but its interpretation is awkward. The interpretation of (7c) is that the place above the window is just fifty centimeters long and it is dirty. The place above the window cannot be longer than fifty centimeters.

On the other hand, the adposition in (6a) and *tokoro* in (6e) can be followed by *-no* as in (8a) and (8b).¹³ In section 5, it is argued that *-no* in (8) is not a linker, but a genitive case marker.

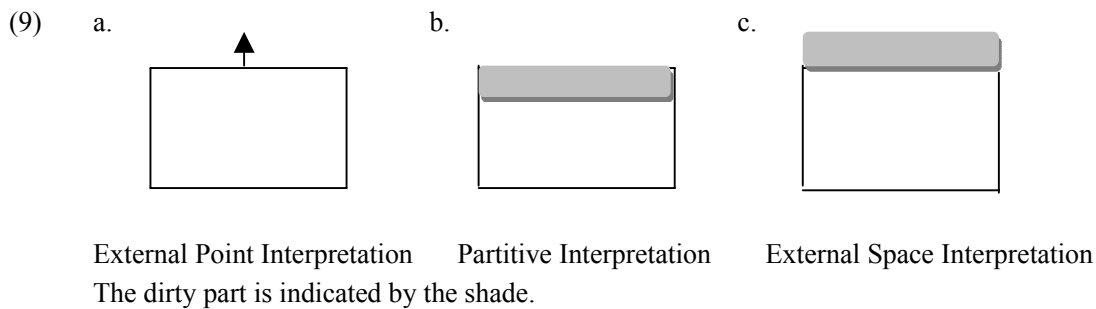
- (8) a. Mado-no ue-**no** 50cm-ga yogoreteiru.
 window-GEN above-GEN 50cm-NOM is.dirty
- b. Mado-no ue-no tokoro-**no** 50cm-ga yogoreteiru.
 window-GEN above-LINK TOKORO-GEN 50cm-NOM is.dirty

The fact is made even more complicated when we take into account the interpretations of the sentences in (6) and (8). We find three interpretations of the locative arguments with the measure phrase. Some of the sentences in (6) and (8) have one of the three interpretations, while others have two of them. Let us see the three

¹² The examples in this section are not given translations. The interpretations of them are described in detail below in this section.

¹³ The interpretation of (8) differs from the interpretations of (6a) and (6e). (6a) and (6e) have two interpretations, while (8) has one of them. See below for detail.

interpretations in detail. The first interpretation is that the dirty point is fifty centimeters above the window as in (9c). I call this interpretation the External Point Interpretation (henceforth EPI). The sentences in (6b), (6c) and (6d) have the EPI. The next interpretation is what we will call the Partitive Interpretation (henceforth PI). This interpretation is that a part of the window is dirty and the part is fifty centimeters from the top of the window. The illustration of the PI is in (9b). The examples in (6a) and (6e) have the PI, though (6e) is slightly clumsy for the PI. The last interpretation is that the dirty place is above the window and the length of the space is fifty centimeters long. This interpretation is illustrated in (9a). We call this interpretation the External Space Interpretation (henceforth ESI). The sentences in (6a), (6e), (8a) and (8b) have the ESI, while the others do not. The point is summarized in the table (10). Notice that (6a) and (6e) carry two interpretations.



(10) Table 1

Interpretation	Order of MP, P (and <i>tokoro</i>)	
EPI	MP P	(6b)
	P MP- <i>no tokoro</i>	(6c)
	MP P- <i>no tokoro</i>	(6d)
PI	P MP	(6a)
	P- <i>no tokoro</i> MP	(6e)
ESI	P MP	(6a)
	P- <i>no tokoro</i> MP	(6e)
	P- <i>no</i> MP	(8a)
	P- <i>no tokoro-no</i> MP	(8b)
No Interpretation	MP- <i>no tokoro</i> P	(6f)

MP=measure phrase, P=postposition

Before closing this section, notice that genitive case markers in the sentences (6) and (8) can alternate with *yori* ‘than’ as is shown in (11) and (12) respectively. It is noteworthy that when the genitive case marker is replaced with *yori* ‘than,’ the PI becomes impossible.

- (11) a. Mado-yori ue 50cm-ga yogoreteiru. (^{OK}ESI/*PI)
window-than above 50cm-NOM is.dirty
- b. Mado-yori 50cm ue-ga yogoreteiru.
window-than 50cm above-NOM is.dirty
- c. Mado-yori ue 50cm-no tokoro-ga yogoreteiru.
window-than above 50cm-LINK TOKORO-NOM is.dirty
- d. Mado-yori 50cm ue-no tokoro-ga yogoreteiru.
window-than 50cm above-LINK TOKORO-NOM is.dirty
- e. Mado-yori ue-no tokoro 50cm-ga yogoreteiru. (^{OK}ESI/*PI)
window-than above-LINK TOKORO 50cm-NOM is.dirty

- (12) a. Mado-yori ue-no 50cm-ga yogoreteiru.
 window-than above-GEN 50cm-NOM is.dirty
 b. Mado-yori ue-no tokoro-no 50cm-ga yogoreteiru.
 window-than above-LINK TOKORO-GEN 50cm-NOM is.dirty

3. Syntax and Semantics of the Locative PP

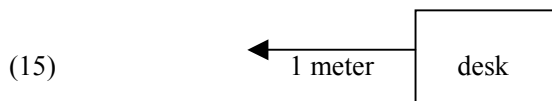
To account for the data of the locative arguments with the measure phrase which is shown in (10), (11) and (12), we first review the literature which treats the syntax and semantics of the locative PP.

PP has been generally considered to have the simple structure in (13). Recent research (Dikken (2006), Koopman (2000), Svenonius (2006, to appear) among others), however, indicates that PP has several layers. Watanabe (2008a) is one of the works which argue for the existence of the fine structures of PP. I will assume his structure of PP for two reasons. First, apart from Watanabe, there are few works that deal with the internal structure of Japanese PP in detail.¹⁴ Second, he mainly focuses on the measure phrase, which is important for my purpose, while others deal with measure phrases occasionally at most.

- (13) [PP above [DP the window]]

Before seeing Watanabe's analysis, let me introduce briefly the vector space semantics proposed by Zwarts (1997) and Zwarts and Winter (2000) because Watanabe depends on it.¹⁵ The vector space semantics treats modified PPs such as (14) compositionally. The locative PP is interpreted as a particular set of vectors emanating from the reference object. The modifier modifies the vector which the PP denotes. In (14a), for example, the PP *behind the desk* denotes a set of vectors from the desk pointing backwards and the modifier *one meter* determines that the vector is one meter long. This is illustrated in (15).

- (14) a. one meter behind the desk
 b. far outside the village
 c. right under the table (Zwarts (1997))



Let us turn to Watanabe's (2008a) analysis of the PP. First, we will see a basic difference between PPs in English and PPs in Japanese. Consider (16). Examples below in this section are all from Watanabe (2008a).

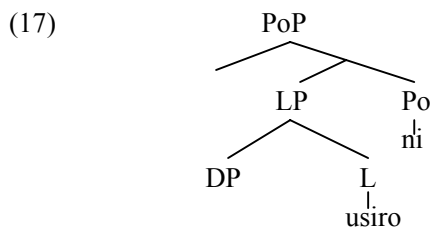
- (16) a. The bird is ten meters above/behind/beside/outside the house.
 b. John-no (ni-meetoru) usiro-ni Bill-ga iru.
 John-GEN two-meter behind-LOC Bill-NOM is
 'Bill is found (two meters) behind John.'

Japanese uses two items, that is *usiro-ni* in (16b), to express a locative concept expressed by one item in English, for example *behind* in (16a). To explain this fact (and other facts in various languages), Watanabe (1993) proposes

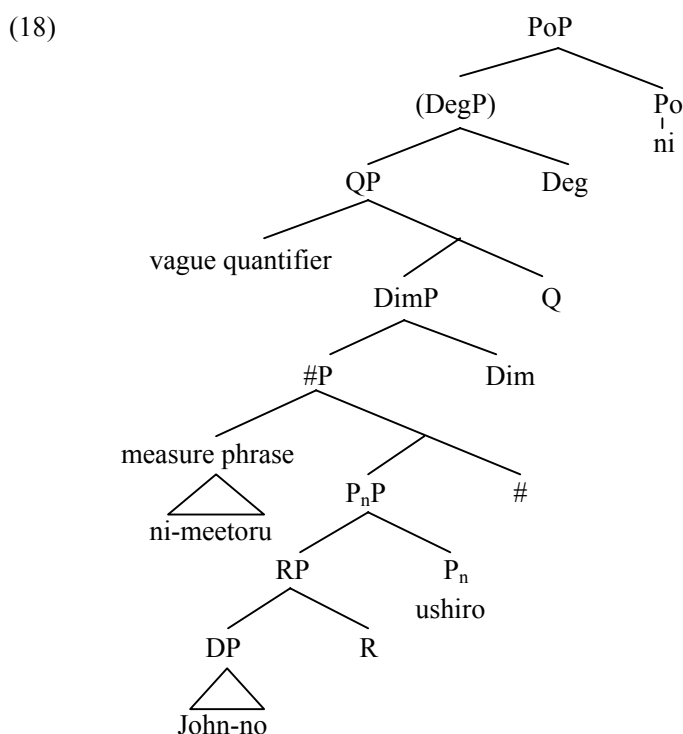
¹⁴ To the best of my knowledge, Takamine (2006) is the only exception. She does not deal with the measure phrase in PP, though.

¹⁵ The description here is rather informal. See Zwarts (1997) and Zwarts and Winter (2000) for the formal characterization.

the structure in (17).¹⁶



In English, the Po(sition) head is generally null. This explains why the meaning expressed by a single overt item in English is expressed by two items in Japanese. This, however, does not explain the position of the measure phrase at all. Thus, Watanabe (2008a) proposes a more elaborate structure than the one in (17). The structure is given in (18) with the lexical items in (16b) as an example.¹⁷



¹⁶ An anonymous reviewer suggests to me that I explain why the Po head is not occupied by *bi-* in English as *ni* in Japanese, because it seems to her or him that *behind* has the exactly same composition of morphemes, as its etymology suggests: O.E. *behindan*, from *bi* “by” + *hindan* “from behind”. I claim that *bi-* in *behind* is no longer a morpheme and that *behind* is one morpheme. It is because *bi-* is not used productively. It is used only in few words such as *behind*, *before*, *beside* and *below* (crucially **beabove*, **betop*). On the contrary, *ni* in Japanese is used very productively; it can follow the all kinds of P_n . In addition *ni* can be used without a P_n head, which indicates the independency of the morpheme *ni*, while *bi-* cannot be used without attaching to *hind*, *fore*, *side* and *low*. See the contrast between (i) and (ii).

- (i) Taro-ga kouen-ni iru.
Taro-NOM park-LOC is
“Taro is in the park.”
(ii) *John is bi the park.

¹⁷ He borrows DegP and QP from Corver (1997), who investigates adjectival projections. Watanabe includes DegP considering the parallelism between AP and PP. See Winter (2005) and Watanabe (2008a) for the parallelism between AP and PP.

The P_n head (Watanabe's (1993) L head)¹⁸ takes the reference object from which the vector projects, as its complement. The P_n determines the direction of the vector. *Usiro* 'behind,' for example, determines that the vector is backward. The R(eference) head is required to enable a DP to function as a reference object. The measure phrase is located in the specifier of #P and it determines the length of the vector. The role of the Dim(ension) head is to distinguish the temporal and spatial dimensions. The R head and the Dim head are null in (16b). We see instances of the overt R head and the overt Dim head below. Vague quantifiers such as *sukosi* 'a little' and *kanari* 'a lot' lie in the specifier of QP. The P_o head mediates the relation between a phrase which refers to a location (or time), and another phrase.

The structure in (18) alone cannot account for the order within Japanese PoP. Note that in (16b), the measure phrase is located between the genitive-marked DP (more accurately, RP with the covert R head) and the adposition (P_n in Watanabe's term). The movement of RP (or DP) to the higher position than the measure phrase is required to derive the right order. The specifier of DimP is not an appropriate position to which RP moves, because RP moves to the position higher than the vague quantifier such as *chotto* 'a little' as is shown in (19). Watanabe (2008a) claims that RP moves to the specifier of PoP as is illustrated in (20).

- (19) a. John-no **chotto/sukosi/kanari** usiro(-no-tokoro¹⁹)-ni Bill-ga iru.
 John-GEN a.little/a.little/a.lot behind-LINK-place-LOC Bill-NOM is
 'Bill is found a little/far behind John.'
 b. *John-no usiro **chotto/sukosi/kanari**(-no-tokoro)-ni Bill-ga iru.
- (20) [_{PoP} [_{RP} [_{DP} John-no] R⁰] [_{QP} **chotto** [_{DimP} [_{#P} [_{PnP} t_{RP} usiro] Dim⁰] #⁰] Q⁰] ni]



Now let us consider the order between the measure phrase and the P_n head. The measure phrase may appear before the P_n head as is seen in (21a). It may also appear after the P_n head as is shown in (21b). The latter order is possible only when *-no tokoro* follows the P_n head. The appearance of *-no tokoro* is optional in the former.

- (21) a. John-no **ni-meetoru** usiro(-no-tokoro)-ni Bill-ga iru.
 John-GEN two-meter behind-LINK-place-LOC Bill-NOM is
 'Bill is found two meters behind John.'
 b. John-no usiro **nimeetoru** *(-no-tokoro)-ni Bill-ga iru.

To account for this fact, he proposes the movement of P_nP to the specifier of DimP triggered by the Dim head. The Dim head which triggers the movement must be an overt head *tokoro*, which explains the unacceptability of (21b) with the covert Dim head. The Dim head which does not trigger the movement may be overt or covert. This is illustrated in (22).

- (22) a. [_{DimP} [_{#P} 2-meetoru [_{PnP} usiro] #] [_{Dim} (tokoro)]]
 b. [_{DimP} usiro [_{#P} 2-meetoru t #] [_{Dim} tokoro]]



Another piece of evidence provided by Watanabe that the Dim head determines the presence or absence of the movement of P_nP is from temporal expressions. Consider (23).

¹⁸ Watanabe (2008a) notes that he uses P_nP instead of LP to abstract away from the conceptual status of this projection. As we will see below, P_nP can be used to express the temporal conception as well as spatial one. Watanabe does not clarify from what term P_n is abbreviated.

¹⁹ *Tokoro* is an overt Dim head as we will see below. I gloss it as 'place' in this section following Watanabe (2008a), though I gloss it simply as TOKORO in other sections.

- (23) a. John-wa jiken-no **ni-jikan** mae-/ato-ni Mary-ni atta.
 John-TOP incident-GEN two-hours before/after-LOC Mary-DAT met
 ‘John saw Mary two hours before/after the incident.’
- b. *John-wa jiken-no mae/ato **ni-jikan**(-no-toki/koro)-ni Mary-ni atta.
 John-TOP incident-GEN before/after two-hours-LINK-time-LOC Mary-DAT met

When the dimension is temporal, the measure phrase always precedes the P_n head. This indicates that the Dim head for temporal dimension does not trigger the movement.²⁰

We will then consider the fact about the R head. The genitive-case-marked DP can alternate with the DP marked with *yori* ‘than’ as in (24).

- (24) a. John-**no** (ni-meetoru) usiro-ni Bill-ga iru.
 John-GEN two-meter behind-LOC Bill-NOM is
 ‘Bill is found (two meters) behind John.’
- b. John-**yori** (ni-meetoru) usiro-ni Bill-ga iru.
 John-than two-meter behind-LOC Bill-NOM is

Watanabe (2008a) proposes that *yori* ‘than’ is an overt R head. Descriptively, when the R head is null, the DP in its complement is marked with the genitive Case as in (24a). When the R head is overt *yori* ‘than,’ the DP in its complement is not followed by the overt case marker as is seen in (24b).²¹ This is illustrated in (25).

- (25) a. [_{PnP} [_{RP} John-**no** [_R ∅]] [_{Pn} usiro]]
 b. [_{PnP} [_{RP} John [_R yori]] [_{Pn} usiro]]

As noted in section 1, the P_n head has been treated as a noun both by traditional grammarians and by Japanese generative linguists (for example, Okutsu (1974) and Inoue (1976)). *Tokoro* also has been considered as a noun as we saw in the section 2.1. Watanabe demonstrates, however, that the P_n head and *tokoro* should not be treated as nouns.²² A property relevant here is observed by Kitagawa and Ross (1982). Non-clausal modifiers of the noun are marked by a genitive-like linker *-no* as in (26). All modifiers must be followed by the linker.

- (26) a. san-satu-**no** Chomsky-nituite-**no** hon
 3-CL-LINK Chomsky-about-LINK book
 ‘three books about Chomsky’
- b. tugi-**no** suugaku-**no** mondai
 next-LINK math-LINK problem
 ‘(the) next math problem’

²⁰ Watanabe (2008a) observes, however, that when the P_o head is *de*, the measure phrase can follow the P_n head as in (i).

(i) John-wa jiken-no mae/ato futu-ka-no-jiten-de/*ni Mary-ni
 John-TOP incident-GEN before/after two-day-LINK-time-LOC/LOC Mary-DAT
 atte iru.
 met is
 ‘John met Mary two days before/after the incident.’

²¹ He suggests that the case of the complement of RP is determined by the property of the P_n head rather than that of the R head. See Watanabe (2008a) for the discussion.

²² He does not deny that *tokoro* such as the one used in the sentence (16b) is a noun. His point is that *tokoro* which is used with the P_n and the measure phrase should not be treated as a noun. More concretely, it should be treated as a Dim head.

The measure phrase modifying the noun also must be followed by the linker as in (27a). The measure phrase before the P_n head, however, must not be marked with the linker as in (27b). The same thing can be said about the vague quantifier. The linker cannot follow it as in (27c).

- (27) a. John-wa yon-rittoru-**no** mizu-o suisou-ni ireta.
 John-TOP four-litre-LINK water-ACC tank-LOC entered
 ‘John put four litres of water into the tank.’
- b. *John-no yon-meetoru-**no** usiro-ni Bill-ga iru.
 John-GEN four-meter-LINK behind-LOC Bill-NOM is
 ‘Bill is found four meters behind John.’
- c. John-no chotto/sukosi/kanari(*-no) usiro(-no-tokoro)-ni Bill-ga iru.
 John-GEN a.little/a.little/a.lot behind-LINK-place-LOC Bill-NOM is
 ‘Bill is found a little/far behind John.’

Watanabe (2008a) argues that if the P_n head were a noun, (27b) and (27c) would be acceptable like (27a). Thus, these data indicate that the P_n head is not a noun.

Whether *tokoro* is a noun or not is more controversial, because it is preceded by *-no* like nouns (see (26)). Consider again (21), repeated here as (28).

- (28) a. John-no ni-meetoru usiro(-no-tokoro)-ni Bill-ga iru.
 John-GEN two-meter behind-LINK-place-LOC Bill-NOM is
 ‘Bill is found two meters behind John.’
- b. John-no usiro nimeetoru *(-no-tokoro)-ni Bill-ga iru.

He argues that treating *tokoro* as a noun does not solve the problem. His argument is as follows. As we saw in (26), non-clausal modifiers of the noun must be followed by the linker. All modifiers, not only the one closest to the head noun, must be marked by the linker *-no* as in (29).

- (29) *tugi suugaku-**no** mondai
 next math-LINK problem
 ‘(the) next math problem’
- (30) [John-no usiro(*-no) nimeetoru]-no-tokoro

If *tokoro* were a noun, all the elements before it in (28b) must be a constituent as is seen in (30). If they did not form a constituent, the P_n head *usiro* ‘behind’ would be followed by the linker *-no*, which is contrary to the fact. The order in (28b) (= (30)) must be derived by the movement of P_nP over the measure phrase within the bracketed phrase. In the version of (28a) without *tokoro*, the same movement should be observed, since the structure of the bracketed phrase in (28a) does not differ from that in (28b). But this movement does not occur, as is shown by the fact that the version of (28b) without *tokoro* is unacceptable. Therefore Watanabe concludes that *tokoro* in (28) is not a noun and proposes a hypothesis that the linker must appear in front of the Dim head.

To sum up, Watanabe (2008a) proposes the structure in (18) and the two movements within the structure in order to account for the various orders of Japanese locative expressions. P_nP optionally moves to the specifier of DimP when the Dim head is overt and RP obligatorily moves to the specifier of PoP. He also demonstrates that the P_n head and *tokoro* are not nouns in sentences like (21)

4. Null Place

Now let us turn to the data of the locative arguments described in section 2. In this section we are concerned

with the examples with the EPI.

4.1. Covert Noun Analysis

In the covert noun analysis, as we saw in section 1, it is argued that the covert noun PLACE is the head of the locative argument and the PP is a modifier of the noun as in (3b), repeated here as (31a). This analysis can be extended easily to Japanese locative arguments as in (31b).²³

- (31) a. [DP (A) [NP (PLACE) [PP under the bed]]]
 b. [DP [NP [FP Mado-no ue] PLACE]-ga]
 window-GEN above place-NOM

A question about the structure (31a) arises. Now that it is shown that the locative PP has several layers in (18), what is the category of the modifier (FP in (31b))? The examination of the example in (32) enables us to answer the question.

- (32) Mado-no chotto/sukosi/kanari ue-ga yogoreteiru.
 window-GEN a.little/a.little/a.lot above-NOM is.dirty
 ‘The place just/far above the window is dirty.’

Lexical items such as *chotto* ‘a little’, *sukosi* ‘a little’ and *kanari* ‘a lot’ are located in the specifier of QP. Thus, FP projects at least to QP. Another piece of evidence is from the position of genitive marked DP *mado* ‘window’, which is analyzed as being in the complement of the null R head. The base position of RP is the complement of the P_n head and the order of RP and the measure phrase in (32) indicates that RP moves to the position higher than QP, that is, the specifier of PoP as is shown in (33). If PoP did not exist in (32), the RP would not move and the order will be like (34), which is ungrammatical.²⁴

- (33) [PoP [RP Mado-no R⁰] [QP chotto/sukosi/kanari [P_{nP} t_{RP} ue]] Q⁰] Po⁰]
 ↑
 (irrelevant structures omitted)
- (34) *Chotto/sukosi/kanari mado-no ue-ga yogoreteiru.
 a.little/a.little/a.lot window-LINK above-NOM is.dirty
 ‘intended. The place just/far above the window is dirty.’

Thus, FP in (31b) is PoP. This is not unnatural, because the role of the Po head is to mediate the relation between the location and another phrase. The Po head is necessary for PP to adjoin to another phrase, NP in this case.

Let us see an empirical advantage to assume the structure in (31b). The covert noun analysis explains the distribution of locative arguments and the presence of the case marker. The locative argument can be in an argument position like DP since it is DP. It is followed by the case marker since the head of it is a noun. The covert noun analysis can also give an explanation of the locative arguments with the EPI. Note that the interpretation of locative PPs which are not in an argument position is the EPI as we can see in (16b). Thus when PoP modifies the covert PLACE as in (31b), the interpretation will be the EPI. The three orders of the locative arguments with the EPI, that is, (6b), (6c) and (6d) are analyzed as in (35).

²³ Following Watanabe (2006), I assume that there are some structures between the D head and the N head. These structures are omitted here for the sake of simplicity. See section 5 for these structures.

²⁴ (34) is acceptable with the irrelevant interpretation that the place above the window is a little/quite dirty.

- (35) a. [NP<sub>[PoP] Mado-no 50cm ue] PLACE]-ga yogoreteiru. (= (6b))
 window-GEN 50cm above place-NOM is.dirty
 ‘The place fifty centimeters above the window is dirty.’ (EPI)</sub>
- b. [NP<sub>[PoP] Mado-no ue 50cm-no tokoro] PLACE]-ga yogoreteiru. (= (6c))
 window-GEN above 50cm-LINK TOKORO place-NOM is.dirty</sub>
- c. [NP [PoP Mado-no 50cm ue-no tokoro] PLACE]-ga yogoreteiru. (= (6d))
 window-GEN 50cm above-LINK TOKORO place-NOM is.dirty

The orders of elements within PoP in (35) are possible as we saw in (21). When the Dim head is covert, the movement of P_nP is impossible and the order “DP-*no* P MP” cannot be derived as we saw in (21b), repeated as (36a) with some modification. The covert noun analysis predicts that the same order is also impossible in the locative argument and this prediction is borne out as in (36b).²⁵

- (36) a. *John-no usiro nimeetoru-ni Bill-ga iru.
 John-GEN behind two-meter-LOC Bill-NOM is
 ‘John is found two meters behind Bill’
- b. Mado-no ue 50cm-ga yogoreteiru.
 window-GEN above 50cm-NOM is.dirty
 *‘The place fifty centimeters above the window is dirty.’ (EPI)

The fact that the genitive case marker of the initial DP can alternate with the R head *yori* ‘than’ in the locative argument with the EPI as we saw in (6) and (11) is also predicted since the alternation is possible in PoP (see (25)). PoP simply adjoins to the head noun PLACE in the locative argument with the EPI.

4.2. Overt Place

In the last subsection, we saw that assuming the covert counterpart of the noun *place* explains the syntactic properties of the locative arguments with the EPI. If the covert counterpart of the noun *place* exists in the locative argument, it is natural to expect that the overt noun can appear in the position where the covert noun is claimed to exist. I claim that the Japanese equivalent of English *place* is *tokoro*. It is rather difficult to show that this item can be a head of the locative argument, because it is homophonous with the Dim head *tokoro*. Let us see why it is difficult by using a simple example. Consider (37a). *Tokoro* can appear in the locative argument. *Tokoro* in (37a), however, can be analyzed as a Dim head as in (37b) and thus the sentence in (37a) cannot be the strong evidence for the overt noun *tokoro* in the locative argument. The same argument applies to the locative argument with the measure phrase.

- (37) a. Mado-no ue-no tokoro-ga yogoreteiru.
 window-GEN above-LINK TOKORO-NOM is.dirty
 ‘The place above the window is dirty.’
- b. [NP [PoP Mado-no ue-no [Dim tokoro]] PLACE]-ga yogoreteiru.

In addition, when both the Dim head and the head noun are overt, we will get the sentence in (38). The sentence is, however, unacceptable.

²⁵ (36b) is acceptable with the ESI and the PI as we saw in (1a).

- (38) *Mado-no ue-no tokoro-no tokoro-ga yogoreteiru.
 window-GEN above-LINK TOKORO-LINK TOKORO-NOM is.dirty
 ‘The place above the window is dirty.’

Why is (38) unacceptable? There are two possibilities. The first possibility is that the head noun of the locative argument must be covert. This possibility is, however, difficult to defend. The overt noun *tokoro* can be the head of the argument when modified by the adjective as in (4b). We cannot find any plausible reason why the overt noun *tokoro* cannot be a head of the argument when modified by the PoP. The second possibility is that Obligatory Contour Principle (henceforth OCP) prohibits homophonous elements, namely the Dim head *tokoro* and the noun *tokoro* in this case, from being adjacent. Because of OCP, one of the homophonous elements as in (39) is deleted at PF. OCP has been used to explain the various phenomena in phonology and it is well motivated (see Yip (1998), for example). Moreover, there is a piece of evidence for this analysis. When the relative clause intervenes between the head noun and the Dim head, both of them can be overt as in (40a). What is important here is not the existence of the relative clause, but the fact that the homophonous elements are not adjacent. Even if the relative clause modifies the head noun, the adjacent homophonous elements cannot be both overt as in (40b). The second analysis explains the contrast in (40), while the first one does not.²⁶

- (39) Mado-no ue-no ~~tokoro-no~~ tokoro-ga yogoreteiru.
 window-GEN above-LINK TOKORO-LINK TOKORO-NOM is.dirty
 ‘The place above the window is dirty.’
- (40) a. ?Mado-no ue-no tokoro-no te-ga todokanai tokoro-ga
 window-GEN above-LINK TOKORO-LINK hand-NOM cannot.reach TOKORO-NOM
 yogoreteiru.
 is.dirty
 ‘The unreachable place above the window is dirty.’
- b. * Te-ga todokanai mado-no ue-no tokoro-no tokoro-ga
 hand-NOM cannot.reach window-GEN above-LINK TOKORO-LINK TOKORO-NOM
 yogoreteiru.
 is.dirty

Thus, we conclude that the head noun of the locative argument can be overt, but OCP restricts its distribution.

Note that the surface representation in (6c) is two-way ambiguous and the surface representation in (6d) is three-way ambiguous, if we are on the right track. In (6c), the Dim head must be overt, because the P_nP moves to the specifier of the DimP. The head noun may be overt or covert and if it is overt, the Dim head must be deleted at PF to satisfy OCP. This is illustrated in (41).

- (41) a. [NP_{[PoP} Mado-no ue 50cm-no tokoro] PLACE]-ga yogoreteiru.
 window-GEN above 50cm-LINK TOKORO place-NOM is.dirty
 ‘The place fifty centimeters above the window is dirty.’
- b. [NP_{[PoP} Mado-no ue 50cm-no ~~tokoro~~] tokoro]-ga yogoreteiru.

In (6d), the Dim head may be covert or overt, because the movement of the P_nP does not occur. The head noun may also be covert or overt. The Dim head and the head noun, however, cannot be covert at the same time to derive the sentence (6d).²⁷ This is shown in (42).

²⁶ The deleted element is indicated by the strike-through.

²⁷ When both the Dim head and the head noun are covert, we get the sentence in (1b).

- (42) a. [NP [PoP Mado-no 50cm ue-no tokoro] PLACE]-ga yogoreteiru.
 window-GEN 50cm above-LINK TOKORO place-NOM is.dirty
 b. [NP [PoP Mado-no 50cm ue-no ~~tokoro~~ tokoro]-ga yogoreteiru.
 c. [NP [PoP Mado-no 50cm ue-no Dim⁰] tokoro]-ga yogoreteiru.

4.3. Covert Noun or Ellipsis

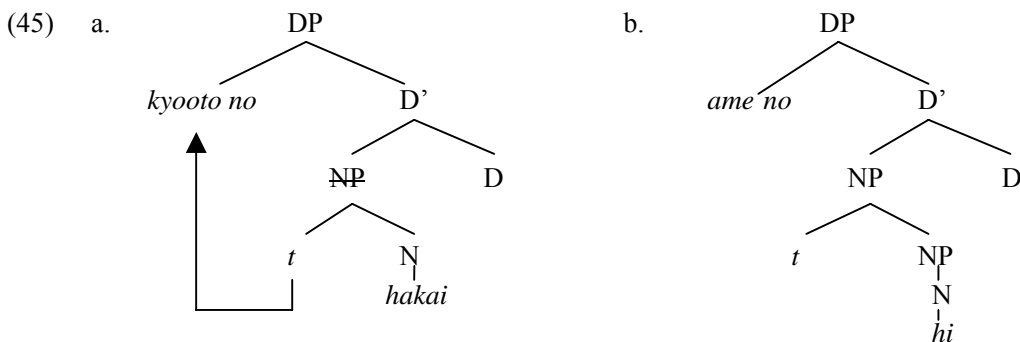
We saw that the covert noun can be the head of the locative argument. Yet, we did not consider whether the covert noun *place* lacks phonological features at all or it has phonological features in the lexicon but it is elided at PF. Kayne (2005) assumes the former, while Bresnan (1994) the latter. In this section, it is shown that Japanese locative arguments support the former analysis.

First, let us look at the property of the nominal ellipsis in Japanese. Saito and Murasugi (1990) explain the contrast in (43) by combining two claims which are motivated independently. First, they claim that the argument can move to the specifier of DP, but the adjunct cannot. They give independent evidence for this from English. See the contrast in (44). In (44a) the argument *destruction* moves to the specifier of DP. The ungrammaticality of (44b) is accounted for by their claim that an adjunct cannot move to the specifier of DP.

- (43) a. [Rooma no hakai] -wa [Kyooto no ~~hakai~~]-yorimo hisaN datta.
 Rome no destruction TOP no destruction-than miserable was
 ‘Rome’s destruction was more miserable than Kyoto’s.’
 b. *[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.’
 (44) a. [DP [the city’s]_i [NP destruction *t_i* then]]
 b. *[DP [then’s]_i [destruction of the city *t_i*]]

Second, they argue that the deletion of the complement is possible, only when the specifier is filled. This claim is motivated by various data such as sluicing, VP-ellipsis and NP-ellipsis (see Saito and Murasugi (1990), Lobeck (1990) for detail).

These two proposals explain the contrast in (43). In (43a), the stranded *-no* phrase is an argument, while it is an adjunct in (43b). Thus, *kyooto-no* in (43a) can move to the specifier of DP, while *ame-no* in (43b) cannot. In (43a), the specifier of DP is filled and the deletion of the complement, that is, NP, is possible. The deletion is not possible in (43b), because the specifier of DP is not filled, which results in the unacceptability of (43b). This is illustrated in (45).



This argument can be extended to the analysis of the locative arguments. PoP in the locative argument is a modifier of the head noun. The movement of PoP to the specifier of DP is impossible. Therefore the deletion is impossible in the locative argument with the PI. Some may argue that PoP moves to the specifier of DP for some

reason. Notice that, however, even if PoP moves to the specifier of DP, the ellipsis approach cannot account for the absence of the linker *-no* after the adposition or *tokoro* (cf. (35)). This linker cannot appear as is seen in (46). The stranded DP, on the contrary, must be followed by *-no* as is shown in (47) (compare with (43a)).

- (46) a. *Mado-no 50cm ue-**no** ga yogoreteiru.
 window-GEN 50cm above-LINK NOM is.dirty
 ‘The place fifty centimeters above the window is dirty.’
 b. *Mado-no ue 50cm-**no** tokoro-no ga yogoreteiru.
 window-GEN above 50cm-LINK TOKORO-LINK NOM is.dirty
 c. *Mado-no 50cm ue-**no** tokoro-no ga yogoreteiru.
 window-GEN 50cm above-LINK TOKORO-LINK NOM is.dirty
- (47) *Rooma-no hakai-wa Kyoto-yorimo hisaN datta
 Rome-GEN destruction-TOP Kyoto-than miserable was
 ‘Rome’s destruction is more miserable than Kyoto’s.’

We are left with only one option, that is, we have to analyze that the covert noun PLACE does not have any phonological features throughout the derivation.

5. Null Part

We are concerned with locative arguments with the PI and those with the ESI in this section. We will see that another covert noun, that is, PART, is necessary to explain them.

5.1. The Partitive Interpretation

Let us consider first the PI and then the ESI in section 5.2. Section 5.1.1 proposes an analysis which explains the properties of the locative arguments with the PI by assuming a covert noun corresponding to English *part*. Section 5.1.2 shows that some of the locative arguments with the PI do not involve the covert noun PART.

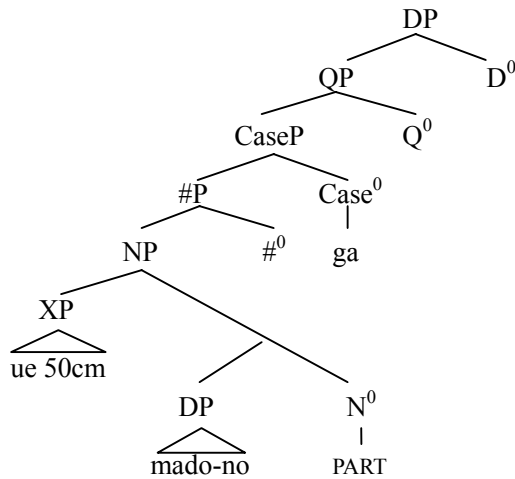
5.1.1. Null Part

This section mainly focuses on the sentence in (6a), repeated here as (48) with translation. As we saw in section 2, (48) has the PI as well as the ESI. I would like to propose that the locative argument with the PI in (48) is structurally ambiguous.²⁸ The two base structures are given in (49).

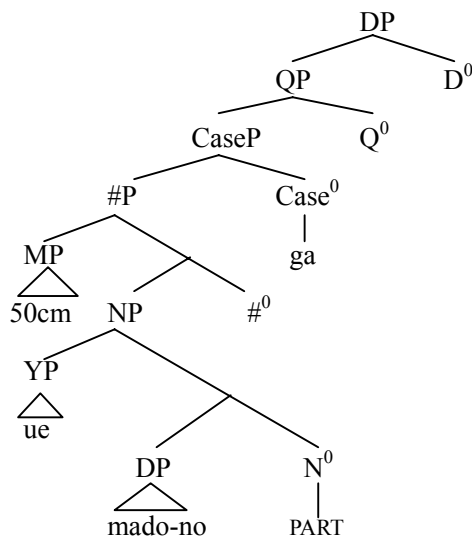
- (48) Mado-no ue 50cm-ga yogoreteiru.
 window-GEN above 50cm-NOM is.dirty
 ‘The upper part of the window is dirty and the part is fifty centimeters long.’ (PI)
 ‘The space above the window is dirty and the space is fifty centimeters long.’ (ESI)

²⁸ In section 5.2, I argue that the locative argument with the ESI in (48) is also structurally ambiguous. Thus, the locative argument in (48) is four-way ambiguous.

(49) a.



b.



The structures in (49) include a covert noun PART, which is required for the semantic interpretation of the partitive.²⁹ Following Watanabe (2006), I assume that Japanese nominals have layers of the functional structures; DP, QP, CaseP and #P. We also follow his claim that the measure phrase is located in the specifier of the #P.³⁰ Two case-driven movements are required to derive (48) from (49). First, again following Watanabe (2006), I assume that NP moves to the specifier of the CaseP to check the nominative Case feature on the noun head PART. This is illustrated in (50a) for (49a) and (51a) for (49b). Second, the genitive-marked DP *mado-no* moves to the specifier of the above DP to check the genitive Case as is shown in (50b) for (49a) and (51b) for (49b).³¹

²⁹ The null PART is proposed first by Chierchia (1998) to account for examples like (i).

- (i) a. most PART of the country
 b. most PART of that cake

(Chierchia (1998) with modifications)

³⁰ The categorial status of the measure phrase is left open in Watanabe (2006). I do not pursue the issue, either.

³¹ Note that though the first movement and the second movement are both required to satisfy the Case feature, they are different in that the former is DP-internal movement of NP and the latter is the movement of the whole DP. The nominative Case is also checked by a head outside DP, probably by the T head. The genitive Case feature on the noun head will be also checked inside DP as in (i)

- (i) [DP [QP [CaseP [NP *mado*]_i [#P *t_i*] no] Q⁰] D⁰]

- (50) a. [DP [QP [CaseP [NP ue 50cm mado-no PART]_i [_{#P} t_i #⁰] ga] Q⁰] D⁰]
 b. [DP [DP mado-no]_j [QP [CaseP [NP ue 50cm t_j PART]_i [_{#P} t_i #⁰] ga] Q⁰] D⁰]
 (51) a. [DP [QP [CaseP [NP ue mado-no PART]_i [_{#P} 50cm t_i #⁰] ga] Q⁰] D⁰]
 b. [DP [DP mado-no]_j [QP [CaseP [NP ue t_j PART]_i [_{#P} 50cm t_i #⁰] ga] Q⁰] D⁰]

A question arises whether there is any evidence to assume the covert noun PART. We can find some evidence. The overt *part* can appear in the position where the covert PART is argued to be located as in (52). The Japanese equivalent of the English *part* is *bubun*.³²

- (52) a. Mado-no ue 50cm-no bubun-ga yogoreteiru.
 window-GEN above 50cm-LINK part-NOM is.dirty
 ‘The upper part of the window is dirty and the part is fifty centimeters long.’
 b. Mado-no ue-no bubun 50cm-ga yogoreteiru.
 window-GEN above-LINK part 50cm-NOM is.dirty

Other languages also provide support for postulating the null PART. Svenonius (2006) observes that the P_n head, for example *front* in (53), behaves like nouns when the interpretation is the PI.³³ It is preceded by a determiner as in (53a), it can be modified by an adjective (53b), it can be pluralized (53c) and it can be the antecedent of a pronoun (53d). The P_n head has none of these properties when the interpretation is the EPI as in (54).

- (53) Partitive Interpretation
 a. There was a kangaroo in the front of the car.
 b. There was a kangaroo in the smashed-up front of the car.
 c. There were kangaroos in the fronts of the cars.
 d. The kangaroo was in [the front of the car]_i, but the koala wasn’t in it_i.
 (54) External Point Interpretation
 a. There was a kangaroo in (*the) front of the car.
 b. *There was a kangaroo in smashed-up front of the car.
 c. *There were kangaroos in fronts of the car.
 d. *The kangaroo was in [front of the car]_i, but the koala wasn’t in it_i.

(Svenonius (2006))

My proposal explains the differences between (53) and (54) in a straightforward way. In (53), the null PART

³² *Itibu* can also be translated as *part*. The difference between *itibu* and *bubun* is that the former must be used without modifiers, while the latter with modifiers. See the contrast in (i).

- (i) a. Mado-no (*ue-no) itibu-ga yogoreteiru.
 window-GEN above-LINK part-NOM is.dirty
 ‘Part of the window is dirty.’
 b. Mado-no *(ue-no) bubun-ga yogoreteiru.
 window-GEN above-LINK part-NOM is.dirty

(ia) with *ue-no* is acceptable with the reading that a part of the place above the window is dirty. In this reading, *ue-no* is not the modifier of *itibu*, but the structure must be like in (ii).

- (ii) [DP [DP Mado-no ue PLACE-no]_i [QP [CaseP [NP t_i itibu #⁰]_j [_{#P} t_j] ga] Q⁰] D⁰]

The null *part* can be modified. Thus, we assume that the overt *part* in Japanese is *bubun*, rather than *itibu*.

³³ His term for P_n is Ax(ial) Part. He claims that a lexical item such as *front* is a noun, when the interpretation is partitive.

exists after the P_n head *front* as in (55a) (for comparison, the structure of the PP in (54) is given in (55b)). The nominal properties in (53) are due to the covert noun PART, rather than the P_n head *front*. PART can be overt also in English and the locative argument is possible as in (55c).

- (55) a. in [DP the [NP front [N₀ PART] of the car]]
 b. [PoP in [PnP front of [DP the car]]]
 c. The front part of the car is dirty.

The same contrast can be seen in Korean (56) and Kannada (57). The overt equivalent of English *part* must appear for the PI, while it must not with the EPI. Only when the interpretation is partitive, an adjective can appear before the P_n head as in (56a) and (57a) and the P_n head can be pluralized as in (57c).³⁴

- (56) a. Kay-han mali-ka cha-uy (kunulcin) ap-pwupwun-ey anc-a iss-ta
 dog-one CL-NOM car-GEN shady front-part-LOC sit-CONN be-DC
 ‘A dog is sitting on the (shady) front part of the car.’
 b. Kay-han mali-ka cha (*kunilcin) ap-ey anc-a iss-ta.
 dog-one CL-NOM car shady front-LOC sit-CONN be-DC
 ‘A dog is sitting in (*shady) front of the car.’ (Svenonius (2006))
- (57) a. Kaar(-ina) (oḍeda) mum-bhaaga-da meelee ondu kangaroo nint-ittu.
 car-GEN broken front-part-GEN top a kangaroo was.standing
 ‘A kangaroo was standing on the (broken) front (part) of the car.’
 b.³⁵ Kaar(-ina) (*oḍeda) munde ondu kangaroo nint-ittu.
 car-GEN broken front a kangaroo was.standing
 ‘There was a kangaroo in front of the car’
 c. kaaru-ga[a(-ina) mum-bhaaga-ga[u]
 car-PL-GEN front-part-PL
 ‘the front parts of the car’
 d. kaaru-ga[a(-ina) munde(*-ga[u]
 car-PL-GEN front-PL
 ‘in front of the cars’ (Amritavalli (2007) with modifications)

Thus, we conclude that the noun equivalent to English *part* is required for the partitive interpretation and that the noun may be overt or covert.³⁶

Then let us examine the structures in (50) and (51) more closely. First, we will see the status of *mado-no* ‘window-GEN’. Remember that the genitive case marker of the initial DP can alternate with *yori* ‘than’ when the interpretation is the EPI (and the ESI), but it is not possible with the PI. See the contrast in (58).

- (58) a. Mado-no/yori 50cm ue-ga yogoreteiru.
 window-GEN/than 50cm above-NOM is.dirty
 ‘The place fifty centimeters above the window is dirty.’ (EPI)
 b. Mado-no/*yori ue 50cm-ga yogoreteiru.
 Window-GEN/than above 50cm-NOM is.dirty
 ‘The upper part of the window is dirty and the part is fifty centimeters long.’ (PI)

³⁴ Korean does not have a plural marker.

³⁵ Amritavalli (2007) observes that the element *gaḍe* ‘place’ can optionally appear after *munde* ‘front’ in (57b). One possibility is that *gaḍe* ‘place’ is a Dim head, but there is no conclusive evidence at present.

³⁶ The obligatoriness of the overt noun *pwupwun* in Korean and *bhaaga* in Kannada indicates that the null PART must be licensed. In Japanese, the overt noun *bubun* ‘part’ can always be replaced with the null PART.

The contrast is explained straightforwardly by assuming the structures in (50) and (51). *Yori* ‘than’ is an R head, but the initial DP is not in the complement of the R head when the interpretation is the PI. Thus, replacement of the genitive case marker with *yori* ‘than’ is impossible as in (58b).

Next, let us consider the categorial status of XP in (49a) and YP in (49b). The question is whether *ue* ‘above’ in (49) is a P_n head as well in other cases. Svenonius (2006) claims that *front* in (53) is a noun and that *ap-pwupwun* ‘front-part’ in (56a) is a compound noun, because they have nominal properties. The nominal properties, however, can be explained by the existence of the noun PART. We do not have to consider *front* in sentences like (53) as a noun. I would like to claim that *ue* ‘above’ in (49) is a P_n head, too. Note that *ue* ‘above’ in (49) can take an overt complement as in (59). This complement may be a genitive-marked DP or a DP followed by *yori* ‘than’, which indicates that the complement of *ue* ‘above’ in (49) is RP rather than DP. To take RP as its complement is a property of the P_n head. Thus, we conclude that *ue* ‘above’ in (49) is also a P_n head.

- (59) Mado-no Taro-ga tuketa kizu-no/yori ue 50cm-ga yogoreteiru.
 window-GEN Taro-NOM scared scratch-GEN/than above 50cm-NOM is.dirty
 ‘The part of the window above the scratch mark which Taro left is dirty and the part is fifty centimeters long.’

XP includes #P because the measure phrase is located in the specifier of #P as in (18).

The next question is whether XP and YP in (49) include DimP. As we saw in section 3.2.2, the P_n head has the uninterpretable locative feature, which must be checked by the interpretable locative feature on the Dim head. XP and YP include the P_n head. Therefore XP and YP must include the Dim head. Now, three candidates are left for the category of XP and YP: DimP, QP and PoP. PoP is the best candidate among them. Modifiers such as *sukosi* ‘a little’ are located in the specifier of QP as we saw in section 3. These modifiers can appear within YP as in (60). The order of RP and these modifiers indicates that RP moves to the higher position than QP, that is, the specifier of PoP.³⁷ The relevant structures of XP and YP in (49) are illustrated in (60), where the relative clause is omitted for the sake of simplicity.

- (60) Mado-no Taro-ga tuketa kizu-no/yori chotto/sukosi/kanari ue
 window-GEN Taro-NOM scarred scratch-GEN/than a.little/a.little/a.lot above
 50cm-ga yogoreteiru.
 50cm-NOM is.dirty
 ‘The part of the window a little/far above the scratch mark which Taro left is dirty and the part is fifty centimeters long.’

³⁷ This test cannot apply to XP. Note that the measure phrase and the modifiers posited in the specifier of QP cannot co-occur within the same PoP as in (i).

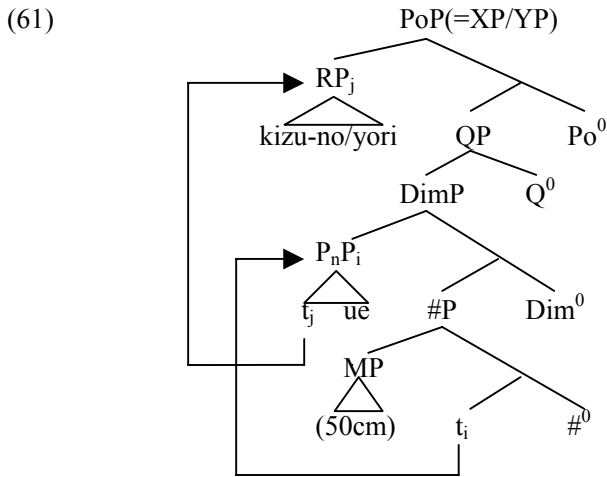
- (i) *Mado-no/yori chotto ue 5cm (-no tokoro)-ni musu-ga iru.
 window-GEN/than a.little above 5cm -LINK TOKORO-LOCin sect-NOM is
 ‘An insect is found a little/five centimeters above the window.’

The fact that the overt *part* can appear before the measure phrase, but cannot appear after the measure phrase as in (ii) also indicates that (60) is possible only in the structure (59b).

- (ii) Mado-no Taro-ga tuketa kizu-no/yori chotto/sukosi/kanari ue
 window-GEN Taro-NOM scarred scratch-GEN/than a.little/a.little/a.lot above
 (-no bubun) 50cm (?*-no bubun)-ga yogoreteiru.
 LINK PART 50cm LINK part-NOM is.dirty

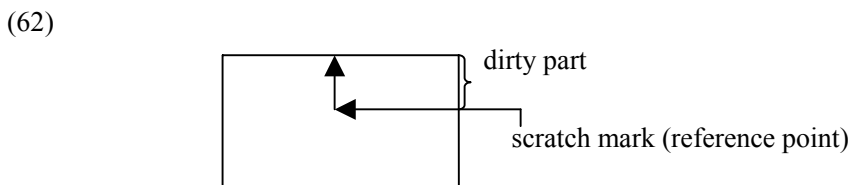
‘The part of the window a little/far above the scratch mark which Taro left is dirty and the part is fifty centimeters long.’

Although we do not have any direct evidence that XP is PoP as well as YP, it is more natural to consider that XP is the same category as YP than to consider that they belong to different categories. Thus we will assume that XP is PoP in this paper.



The measure phrase exists in XP, while it does not in YP. Note that the movement of P_nP to the specifier of DimP is obligatory in (61) to derive the right order. I assume that the Dim head in the modifier of the partitive always requires the movement of PoP.

Before going back to (48), we should consider the interpretation of (59) more closely. The modifier of the noun PART determines which part of the window is dirty. In (59), the part is above the scratch mark. This is illustrated in (62). Note that the role of the P_n head in this case is exactly the same as the one in normal PPs.



Then let us consider (48), where the P_n head does not take an overt complement. It is argued that the reference point is determined by the context in (48). There is a covert RP in (48) and when RP is covert, the reference point is determined by the context. In (48), the reference point is determined so that the end point of the vector is positioned on the top of the window.

Examination of the dimensional adjective provides indirect evidence for this claim. As Watanabe (2008a) observes, the R head *yori* ‘than’ is used in the comparative construction as in (63a). He claims that this supports Winter’s (2005) idea that vector space semantics can treat comparatives as well as locative PPs.³⁸ In both locative PPs and comparative adjectives, the role of the R head is to enable DP to function as a reference object. Let us turn to the example of absolute adjectives in (63b). Absolutes are generally analyzed as comparing the subject of the adjective with a contextually determined standard in a particular dimension. For example, Bill’s height must exceed a standard point s_h which is determined by the pragmatic factor for (63b) to be true.

- (63) a. Bill-wa John-**yori** (go-senti) se-ga takai.
 Bill-TOP John-than five-centimeter height-NOM tall
 ‘Bill is (five centimeters) taller than John.’ (Watanabe (2008a))
- b. Bill-wa se-ga takai.
 Bill-TOP height-NOM tall
 ‘Bill is tall.’

Assuming a covert RP which refers to the reference point determined by the pragmatic factor accounts for (48) and

³⁸ See Winter (2005) for detail. See also Faller (2000) for a similar approach.

(82b) at the same time. Thus, it is reasonable to consider that the covert RP exists in (48), though formalization of the mechanism remains to be done.

5.1.2. The Partitive Interpretation without the Noun ‘part’

In this section, we will see that there are some locative arguments which do not contain a noun PART. The examples in (64a, b) have the PI like (48), repeated here (64c).

- (64) a. Ue 50cm mado-ga yogoreteiru.
 above 50cm window-NOM is.dirty
 ‘The upper part of the window is dirty and the part is fifty centimeters long.’
- b. Mado-ga ue 50cm yogoreteiru.
 window-NOM above 50cm is.dirty
- c. Mado-no ue 50cm-ga yogoreteiru. (= (48))
 window-GEN above 50cm-NOM is.dirty

I would like to claim that (64a, b) do not have the same base structures as (64c), that is, the structure in (49). *Ue 50cm* ‘above 50cm’ is located within the nominal projection in (64c) as we saw in the previous section, but it is outside the nominal projection in (64a, b) and is a modifier of the predicate *yogoreteiru* ‘is dirty.’ Let us look at three pieces of evidence for this claim. First, see (65).

- (65) a. Ue (*-no bubun) 50cm (*-no bubun) mado-ga yogoreteiru.
 above LINK part 50cm LINK part window-NOM is.dirty
 ‘The upper part of the window is dirty and the part is fifty centimeters long.’
- b. Mado-ga ue (*-no bubun) 50cm (*-no bubun) yogoreteiru.
 window-NOM above LINK part 50cm LINK part is.dirty
- c. Mado-no ue (-no bubun) 50cm (-no bubun)-ga yogoreteiru.
 window-GEN above LINK part 50cm LINK part-NOM is.dirty

When the adposition + the numeral are located between the genitive-marked DP and the nominative case marker as in (64c), the overt noun *bubun* ‘part’ can appear as we saw in (65c) (cf. (48)), but it is not possible in (64a, b) as in (65a, b), respectively. This fact indicates that the subjects in (64a, b) do not involve a covert noun PART.

Let us see the second evidence. Notice that *part* can be modified by other modifiers than PoP. *Hidari-sumi* ‘left-corner’, for example, can modify a noun *bubun* ‘part’ or a covert noun PART as in (66).

- (66) Mado-no **hidari-sumi**(-no bubun)-ga yogoreteiru.
 window-GEN left-corner LINK part-NOM is.dirty
 ‘The left-hand corner of the window is dirty.’

PoP in (83c) can be replaced with *hidari-sumi* ‘left-corner’ as in (67c).^{39,40} This is what we predict, because PoP

³⁹ Remember that (64c) (= (48)) is structurally ambiguous (cf. (49)). The measure phrase may be inside PoP or may be outside PoP. Thus, the measure phrase may appear or may not appear in (67c).

⁴⁰ (64c) with the measure phrase is a little awkward as indicated by ‘?’ before the measure phrase. This awkwardness is due to semantics. The left-hand corner of the window is difficult to be measured in length. When *50cm* is replaced with the sequence of numeral + classifier *san-kasho* ‘three-CL’, the sentence becomes perfect as in (i). Note that in Watanabe’s (2006) nominal structure, which we assume here, the classifier occupies the # head and the numeral is located in the specifier of #P, so the measure phrase is replaced with the sequence of numeral + classifier without any syntactic difference in this case. (64a, b) do not improve even when the measure phrase is replaced with the sequence of numeral + classifier as in (ii a, b).

in (64c) is a modifier of the noun PART. On the other hand, it is impossible to replace PoP in (64a, b) with *hidari-sumi* ‘left-corner’ as is seen in (67a, b).

- (67) a. *Hidari-sumi (-no bubun) (50cm) mado-ga yogoreteiru.
left-corner LINK part 50cm window-NOM is.dirty
‘The left-hand corner of the window is dirty and the dirty part is fifty centimeter long.’
b. *Mado-ga hidari-sumi (-no bubun) (50cm) yogoreteiru.
window-NOM left-corner LINK part 50cm is.dirty
c. Mado-no hidari-sumi (-no bubun) (?50cm)-ga yogoreteiru.
window-GEN left-corner LINK part 50cm-NOM is.dirty

Again, the data supports the hypothesis that the noun PART is not contained in the locative arguments in (64a, b).

Third, we can find the evidence that *ue 50cm* ‘above 50cm’ in (64a, b) modifies the predicate rather than the noun PART. The predicate must be gradable to be modified by the measure phrase. The predicate *yogoreteiru* ‘is.dirty’ is gradable. We can say how dirty the window is and vague quantifiers such as *totemo* ‘very’ can modify the predicate as is shown in (68a). In contrast, the predicate *torankuninateiru* ‘is.a.trunk’ is not gradable. A vague quantifier cannot modify it as in (68b).

- (68) a. Mado-ga (totemo) yogoreteiru.
window-NOM very dirty
‘The window is very dirty.’
b. Sore-ga (*totemo) torankuninateiru.
it-NOM very is.a.trunk
‘It is a trunk.’

If the adposition + the measure phrase in constructions like (64a, b) are modifiers of the predicate, an ungradable predicate like *torankuninateiru* ‘is.a.trunk’ cannot be used in constructions like (64a, b). The prediction is borne out as in (69a, b).

- (69) a. *Usiro 1m kuruma-ga torankuninateiru.
behind 1m car-NOM is.a.trunk
‘The back of the car is a trunk and the part is one meter long.’
b. *Kuruma-ga usiro 1m torankuninateiru.
car-NOM behind 1m is.a.trunk
c. Kuruma-no usiro 1m-ga torankuninateiru.
car-GEN behind 1m-NOM is.a.trunk

On the other hand, the adposition + the measure phrase in a construction like (64c) are a modifier of the noun PART. Hence, a non-gradable predicate can be used as in (69c).

To summarize, (64a, b) and (64c) are similar on the surface, but they are syntactically different. In the former, the sequence of the adposition and the numeral is a modifier of the predicate, while it modifies the noun

-
- (i) Mado-no hidari-sumi (-no bubun) san-kasyo-ga yogoreteiru.
window-GEN left-corner LINK part three-CL-NOM is.dirty
‘Three places in the left-hand corner are dirty.’
(ii) a. *Hidari-sumi (-no bubun) san-kasyo mado-ga yogoreteiru.
left-corner LINK part three-CL window-NOM is.dirty
b. *Mado-ga hidari-sumi (-no bubun) san-kasyo yogoreteiru.
window-NOM left-corner LINK part three-CL is.dirty

PART in the latter.

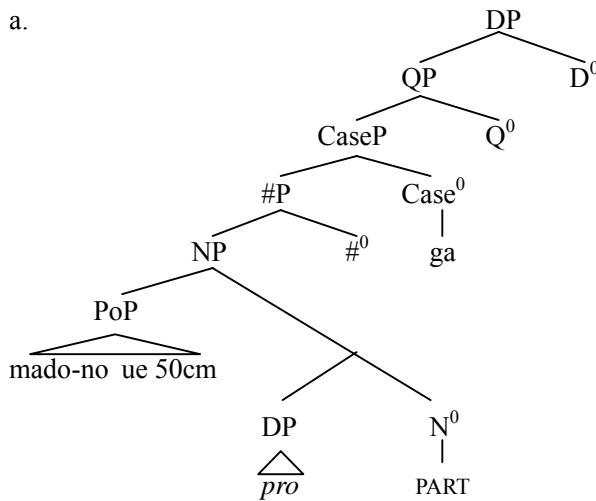
5.2. The External Space Interpretation

This section treats with the locative arguments with the ESI. Consider again (6a) (= (48)), repeated here as (70). As we saw in section 2, (6a) (= (70)) has two readings, that is, the PI and the ESI.

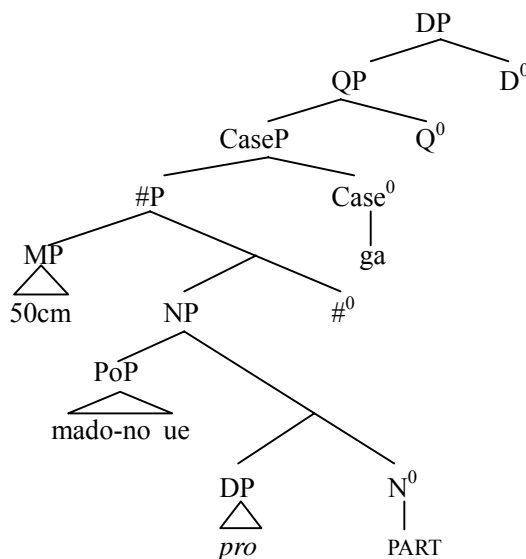
- (70) Mado-no ue 50cm-ga yogoreteiru.
 window-GEN above 50cm-NOM is.dirty
 ‘The upper part of the window is dirty and the part is fifty centimeters long.’ (PI)
 ‘The space above the window is dirty and the space is fifty centimeters long.’ (ESI)

I would like to argue that the sentences like (70) with the ESI are structurally ambiguous like those with the PI. I propose that the structures of (70) with the ESI are like (71). Compare the structures in (68), which have the PI. The structures in (71) are basically the same as those in (49). There are two differences between them. One is that the complement of the null PART is *pro* in the former, while it is the genitive-marked DP *mado-no* ‘window-GEN’. The other is that the complement of the P_n head *ue* ‘above’ within PoP is overt in (71), while it is a covert RP in (49).

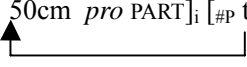
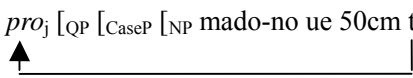
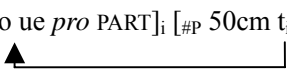
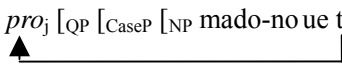
(71) a.



b.



There are two case-driven movements in (72) as well as (49). NP moves to the specifier of CaseP for the nominative Case to be checked and the lower DP moves to the specifier of the higher DP for the genitive Case. This is shown in (72) for (71a) and (73) for (71b).

- (72) a. [DP [QP [CaseP [NP mado-no ue 50cm *pro* PART]_i [_{#P} t_i #⁰] ga] Q⁰] D⁰]

 b. [DP *pro*_j [QP [CaseP [NP mado-no ue 50cm t_j PART]_i [_{#P} t_i #⁰] ga] Q⁰] D⁰]

 (73) a. [DP [QP [CaseP [NP mado-no ue *pro* PART]_i [_{#P} 50cm t_i #⁰] ga] Q⁰] D⁰]

 b. [DP *pro*_j [QP [CaseP [NP mado-no ue t_j PART]_i [_{#P} 50cm t_i #⁰] ga] Q⁰] D⁰]


Let us see evidence for this claim. There are three pieces of evidence for considering that (70) with the ESI has the structures in (71) and that the movements in (72) and (73) occur. First, the noun PART can be overt as in (74).

- (74) a. Mado-no ue 50cm-no bubun-ga yogoreteiru.
 window-GEN above 50cm-LINK part-NOM is.dirty
 ‘The space above the window is dirty and the space is fifty centimeters long.’
 b. Mado-no ue-no bubun 50cm-ga yogoreteiru.
 window-GEN above-LINK part 50cm-NOM is.dirty

Second, the structures in (73) account for the fact we saw in (11a) that the genitive marker following the initial DP in (70) can alternate with the R head *yoru* ‘than’ when the interpretation is ESI. It is because the initial DP is located in the complement of the null R head and the R head may be overt as we saw in section 2. See (75).

- (75) Mado-yori ue (-no bubun) 50cm (-no bubun)-ga yogoreteiru.
 window-than above LINK part 50cm LINK part-NOM is.dirty
 *‘The upper part of the window is dirty and the part is fifty centimeters long.’ (PI)
 ‘The space above the window is dirty and the space is fifty centimeters long.’ (ESI)

The alternation between the genitive case marker and the overt R head is possible with the overt *bubun* ‘part’ as is predicted.

The third evidence for my proposal is that the complement of the null PART, which I claim to be *pro* in (70), may be an overt DP, for example *kabe-no* ‘wall-GEN’ as in (76). We can find no reason to prohibit the DP in the complement of the noun PART from being overt. The referent of the *pro* in the complement of the noun PART is determined by the pragmatics. In the case of (70), it is probably the wall.

- (76) Kabe-no mado-no ue 50cm-ga yogoreteiru.
 wall-GEN window-GEN above 50cm-NOM is.dirty
 ‘The part of the wall above the window is dirty and the part is fifty centimeters long.’

So far we have considered the example (70). Let us turn to other locative arguments with the ESI. As we saw in section 2, *-no* can appear after the adposition in (70), which results in (8a), repeated here as (77a). In addition, *tokoro* can be located between the adposition and the measure phrase as in (8b), repeated here as (77b).

- (77) a. Mado-no ue-no 50cm-ga yogoreteiru.
 window-GEN above-GEN 50cm-NOM is.dirty
 ‘The space above the window is dirty and the space is fifty centimeters long.’
- b. Mado-no ue-no tokoro-no 50cm-ga yogoreteiru.
 window-GEN above-LINK TOKORO-GEN 50cm-NOM is.dirty

These data are explained in a straightforward way. The complement of the null PART is not *pro* in (77), but it is DP whose head is the noun PLACE/*tokoro* modified by PoP. The head noun is covert in (77a) and overt in (77b). The measure phrase must be a modifier of the null PART rather than being in the specifier of the #P, because the noun PART must be modified as we saw above. The relevant structure of (77b) is illustrated in (78). Again, the two case-driven movements occur.

- (78) a. [DP [QP [CaseP [#P [NP 50cm [DP mado-no ue-no tokoro-no] PART] #⁰] -ga] Q⁰] D⁰]
 b. [DP [QP [CaseP [NP 50cm [DP mado-no ue-no tokoro-no] PART]_i [#P t_i #⁰] -ga] Q⁰] D⁰]
 c. [DP [DP mado-no ue-no tokoro-no]_j] [QP [CaseP [NP 50cm t_j PART]_i [#P t_i #⁰] -ga] Q⁰] D⁰]
-

To sum up, the locative arguments with the ESI include the null PART like the locative arguments with the PI. The most important difference is that the former has *pro* or the DP whose head is the noun *tokoro* as the complement of the noun PART, while the complement is the overt DP which does not include PLACE or *tokoro* in the latter.

5.3. Further Issues

In this section, we examine two issues which have to do with both the locative argument with the PI and the locative arguments with the ESI. One issue is concerned with the status of *tokoro*. We have seen that there are two kinds of *tokoro*: the Dim head and the noun which is equivalent to English *place*. I argue that the third kind of *tokoro* exists, which means roughly ‘part’ as in (79a).

- (79) a. Sono huku-no sode-no tokoro-ga yogoreteiru.
 that cloth-GEN sleeve-LINK part-NOM is.dirty
 ‘A sleeve of that cloth is dirty.’
- b. Sono huku-no sode-no bubun-ga yogoreteiru.
 that cloth-GEN sleeve-LINK part-NOM is.dirty

As we see in (79b), *tokoro* in (79a) can be replaced with a noun *bubun* ‘part,’ whose meaning is almost identical to it. With this in mind, consider the example (6e), repeated here as (80). The example has both the PI and the ESI, though it is a little awkward with the PI.

- (80) Mado-no ue-no tokoro 50cm-ga yogoreteiru.
 window-GEN above-LINK TOKORO 50cm-NOM is.dirty
 ?‘The upper part of the window is dirty and the part is fifty centimeters long.’ (PI)
 ‘The space above the window is dirty and the space is fifty centimeters long.’ (ESI)

(80) can be explained easily. *Tokoro* in (80) is the one which can alternate with *bubun* ‘part,’ and a sentence which we get when *tokoro* is replaced with *bubun* ‘part’ is grammatical as we saw in (71b). Therefore, (80) is grammatical.

It is, however, not always possible for *bubun* ‘part’ to alternate with *tokoro*. The example (74a) shows that *bubun* ‘part’ can appear after the measure phrase. When *bubun* ‘part’ in (74a) is replaced with *tokoro*, the sentence becomes unacceptable for the PI and ESI as is shown in (6c) (= (35b)). It seems that some restriction is imposed on the distribution of *tokoro*, but I have no analysis for this at present and I leave the problem open for the future research.

The other issue focuses on the movement within the nominal projection. I assume the nominal projection which Watanabe (2006) proposes. We have not, however, considered some of the movements within the nominal projection he proposes. Japanese allows the sequence of the numeral + the classifier to appear at least in three positions as in (81).⁴¹

- (81) a. John-wa hon **san-satu**-o katta.
 John-TOP book three-CL-ACC bought
 ‘John bought three books.’
 b. John-wa **san-satu**-no hon-o katta.
 John-TOP three-CL-LINK book-ACC bought
 c. John-wa hon-o **san-satu** katta.
 John-TOP book-ACC three-CL bought (Watanabe (2006) with modifications)

He argues that the structure in (82a) and some DP-internal movements explain the data in (81) straightforwardly. His argument is as follows. NP moves obligatorily to the specifier of the CaseP as in (82b). If other movements do not occur, (81a) is derived. Then, #P can move optionally to the specifier of QP as in (82c), which results in (81b). Finally, CaseP may move to the specifier of DP as in (82d) and we get (81c). This movement is also optional.

- (82) a. [DP [QP [CaseP [#P san [NP hon] satu] o] Q⁰] D⁰]
 b. [DP [QP [CaseP [NP hon]_i [#P san t_i satu] o] Q⁰] D⁰] (= (81a))
 c. [DP [QP [#P san t_i satu]_j-no [CaseP [NP hon]_i t_j o] Q⁰] D⁰] (= (81b))
 d. [DP [CaseP [NP hon]_i t_j o]_k [QP [#P san t_i satu]_j t_k Q⁰] D⁰] (= (81c))
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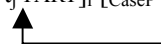
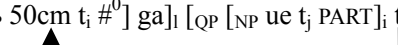
We have considered the movement of NP to the specifier of CaseP within the locative argument, but we did not consider the possibility of the other two movements, that is, the movement of #P and the movement of CaseP. These movements of #P seem to be impossible within the locative arguments. I consider the locative argument with the PI as an example. The structure of it is shown in (51b), repeated here as (83b).⁴² If the movement of #P to the specifier of QP occurs, the ungrammatical sentence in (83a) is generated as in (83c). Note that the measure phrase must be followed by the linker *-no* since it is a maximal projection immediately dominated by the nominal projection.

- (83) a. *Mado-no 50cm-no ue-ga yogoreteiru.
 window-GEN 50cm-LINK above-NOM is.dirty
 b. [DP [DP mado-no]_j [QP [CaseP [NP ue t_j PART]_i [#P 50cm t_i #⁰] ga] Q⁰] D⁰]
 c. [DP [DP mado-no]_j [QP [#P 50cm t_i #⁰]_k-no [CaseP [NP ue t_j PART]_i t_k ga] Q⁰] D⁰]
-

⁴¹ Scrambling enables the sequence to appear in another position. We do not treat with sentences which involve scrambling.

⁴² I use (51) rather than (50) because the movement of #P is not observable in (50).

We have two analyses to explain why (83) is ungrammatical. One is simply to say that the Q head for the partitive does not trigger the movement of #P. The other proposal is that NP obligatorily to the specifier of QP as in (84a) and that this blocks the movement of #P.^{43,44} In this case, the other movement, that is, the movement of CaseP to the specifier of DP should be prevented because it generates an ungrammatical sentence in (84b) with the structure (84c).

- (84) a. $[_{DP} [_{DP} \text{mado-no}]_j [_{QP} [_{NP} \text{ue } t_j \text{ PART}]_i [_{\text{CaseP}} t_i [_{\#P} \text{50cm } t_i \#^0] \text{ga}] Q^0] D^0]$

 b. *Mado-no 50cm-ga ue yogoreteiru.
 window-GEN 50cm-NOM above is.dirty
 c. $[_{DP} [_{DP} \text{mado-no}]_j [_{\text{CaseP}} t_i [_{\#P} \text{50cm } t_i \#^0] \text{ga}]_i [_{QP} [_{NP} \text{ue } t_j \text{ PART}]_i t_i Q^0] D^0]$


This movement would be blocked by the semantic properties of the partitives. Watanabe (2006) shows that when CaseP moves to the specifier of DP as in (82d), the non-specific reading is forced.⁴⁵ DP which has the partitive interpretation must be specific as Diesing (1992) argues. Therefore, it follows that the movement of CaseP to the specifier of DP is impossible in the locative argument with the PI. I do not have enough evidence to choose between the two alternatives and leave it open for the future research.

6. Conclusion

In this paper I have investigated the locative arguments with a measure phrase in Japanese, which have never been observed and analyzed as far as I know.⁴⁶ It has been shown that the locative arguments with measure phrases in Japanese may carry the three kinds of interpretation. The order of the postpositions and the measure phrases, and the presence or absence of *tokoro* determine which interpretations the locative arguments can take. This phenomenon has been explained by the combination of two assumptions. First, one of the two types of covert noun, that is PLACE and PART, is a head noun of the locative arguments. Second, there are two positions where the measure phrase may be generated. One is the specifier of #P in the PoP, which is a modifier of DP in the locative arguments. In this position, the measure phrase determines the length of the vector. The other position is also the specifier of #P, but this #⁰ is one of the DP layers. The measure phrase in this position measures the length of the head noun.

From the theoretical perspective, my proposal that the covert nouns PLACE and PART exist indirectly supports an idea proposed by Watanabe (2008b). He suggests the possibility that UG has a fixed set of covert items with fixed feature contents and that the only variation is which subset particular languages use for their lexical items.⁴⁷ If my conclusion is right, PLACE and PART are in the fixed set of UG.

My proposal has some remaining problems. For example, semantics of the partitives and their modifier is

⁴³ An alternative is to allow #P to move to a second specifier of QP. We adopt here Richards's (1997, 2001) idea that a second specifier must be the inner one as in (ia). The movement of CaseP must be prohibited under this proposal, because the movement results in an ungrammatical sentence in (ib). The structure of (ib) is given in (ic).

- (i) a. $[_{DP} [_{DP} \text{mado-no}]_j [_{QP} [_{NP} \text{ue } t_j \text{ PART}]_i [_{\#P} \text{50cm } t_j \#^0]_k [_{\text{CaseP}} t_k \text{ga}] Q^0] D^0]$
 b. *Mado-no ga ue 50cm yogoreteiru.
 window-GEN NOM above 50cm is.dirty
 c. $[_{DP} [_{DP} \text{mado-no}]_j [_{\text{CaseP}} t_k \text{ga}]_i [_{QP} [_{NP} \text{ue } t_j \text{ PART}]_i [_{\#P} \text{50cm } t_j \#^0]_k t_i Q^0] D^0]$

⁴⁴ The movement of NP headed by PART to the specifier of QP is not entirely arbitrary. The noun PART is of course necessary for the partitive interpretation and consequently quantification. It is not implausible that the Q head agrees with the noun PART and causes the movement of NP to its specifier.

⁴⁵ As he notes, the observation that the order in (81c) (= (82d)) forces the non-specific interpretation dates back to Kamio (1977).

⁴⁶ Of course, as anonymous reviewer notes, there is much work which treats the measure phrase itself including Kobuchi-Philip (2003) and Nakanishi (2007).

⁴⁷ See also Kayne (2005), who proposes several covert lexical items such as NUMBER, AGE and COLOR.

not at all clear. In addition, my analysis expects there to be locative arguments with measure phrases in other languages than Japanese because PLACE and PART are items in the UG and also because it is obvious that most, perhaps all, languages have two positions in which the measure phrase lies. Without any condition which prohibits them, languages with PART or PLACE or their overt counterparts, should have the locative arguments with measure phrases. I leave these issues for the future research.

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