The Axial Part Phrase in Japanese

Kaori Takamine
CASTL, University of Tromsø

Abstract

In this paper, I investigate the categorial status of spatial terms in locative/directional expressions in Japanese. I will show that a certain class of spatial terms have a distinct categorial status from both regular postpositions and nouns. On one hand, syntactic diagnostics such as doubling, coordination by *to*, and co-occurrence with demonstratives indicate that these spatial terms belong to a nominal category rather than to a postpositional category. On the other hand, the fact that these spatial terms are modified by range modifiers indicates that they are more similar to regular postpositions than to nouns. On the basis of these diagnostics, I will argue that spatial terms in Japanese need to be assigned a new category Axial Part Phrase which is proposed by Svenonius (2006).

1. Introduction

Cross-linguistically complex adpositional phrases of space relations such as *in front of* in English consist of an adpositional head *in* and a spatial term *front* that is a complement of the adposition. Like English, complex adpositional phrases of space relations in Japanese consist of spatial terms and regular postpositions, as illustrated by the example in (1).

(1)　Taro-ga basu-no mae-ni　　tatteiru
　　 T-NOM *bus*-GEN *front*-LOC *standing*
　　 'Taro is standing in front of the bus'

The categorial status of these spatial terms is not well studied in the literature on Japanese syntax. At first glance, however, they seem to belong to a nominal class due to the fact that they can be followed by a case-marker that typically marks a nominal constituent, as illustrated in (2).

(2)　Taro-ga basu-no mae-o　　 arukimawatta
　　 T-NOM *bus*-GEN *front*-ACC *walked.around*
　　 'Taro walked around in front of the bus'

In current literature, Svenonius (2006) proposes that these spatial terms have a syntactic status that is distinguished both from regular prepositions

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and regular nouns, which he calls Axial Part. In Japanese, syntactic diagnostics also indicate that the spatial terms appearing in the postpositional environment are neither regular nouns nor regular postpositions. This paper attempts to show that spatial terms in spatial postpositional phrases in Japanese should be categorially distinguished from regular postpositions and regular nouns and they should be given a new category such as Axial Part.

The organization of the paper is as follows. In section 2, I claim that the spatial terms should be distinguished from postpositions on the basis of doubling. Section 3 provides the distributional similarity between the spatial terms and regular nouns based on the coordination facts and co-occurrence with demonstratives. Despite the similarities, section 4 claims that spatial terms do not project full DPs, since they lack some prototypical noun syntax with regard to floating quantifiers and since they show adjectival properties in terms of *ma* affixation. In section 5, I show that the spatial terms are more similar to regular postpositions based on the facts regarding modification. Section 6 gives an analysis.

2. Distinguishing spatial terms from postpositions

2.1. Regular postpositions

Spatial relations in Japanese can be expressed by a closed class of particles *de* 'in/on/at', *ni* 'in/on/at/to', *e* 'to', *made* 'to/up to' and *kara* 'from' that are suffixed to nouns. Locational relations are expressed by *ni* and *de*, whereas directional relations are expressed by *ni, e, made* and *kara*, as illustrated by the examples below:

(3)   a.   Taro-ga kooen-de hashitta
           T-NOM *park*-IN *ran*
           'Taro ran in the park'
      b.   Taro-ga isu-ni   suwatta
           T-NOM *chair*-ON *sat*
           'Taro sat on the chair'

(4)   Taro-ga kooen-e/kara   hashitte-kita
      T-NOM *park*-TO/FROM *run-came*
      'Taro ran to/from the park'

From now on I will gloss postpositional particles that are used in locative expressions as 'LOC', and the postpositional particles that are used in directional expressions as 'DIR'.

In addition to these regular postpositions, Japanese contains special locative words like *mae* 'front', which can be called spatial terms. These spatial terms are combined with regular postpositions in order to express spatial relations projected from the axes of the object such as *mae-de* 'in front (of)'. The tables in (5) and (6) provide examples of spatial terms

followed by a locative postposition *de* and a directional postpostion *e*.

(5)   Spatial terms followed by a locative postposition *de*

spatial terms-P	gloss
mae-de	front-LOC
ushiro-de	behind-LOC
yoko-de	beside-LOC
naka-de	inside-LOC
ue-de	above-LOC
shita-de	below-LOC

(6)   Spatial terms followed by a directional postposition *e*

spatial terms-P	gloss
mae-e	front-DIR
ushiro-e	behind-DIR
yoko-e	beside-DIR
naka-e	inside-DIR
ue-e	above-DIR
shita-e	below-DIR

Intuitively one might think that spatial terms belong to the class of postpositions by looking at the English glosses. However, spatial terms and postpositions exhibit distinct syntactic behaviors, which suggest that the spatial terms are distinct from regular postpositions. In the next subsections, I will show the differences.

2.2. Doubling

Postpositions may allow doubling, whereas spatial terms do not. Kuno (1973) observes that there is a very peculiar phenomenon of particle doubling that applies only to some particles. For example, postpositions such as *ni, e* and *de* may be duplicated, as illustrated by an example in which a locative postposition *de* occurs twice in (7).

(7)   Boku-wa Tokyo-de-de-wa tomatta   ga, Osaka-de-de-wa
       I-TOP   *T*-LOC-LOC-TOP *stay*.PAST *but, Osaka*-LOC-LOC-TOP
       tomaranakatta
       stay.NEG.PAST
       'I stayed in Tokyo, but did not stay in Osaka'

Doubling takes place when a PP receives a contrastive focus. This is shown by the fact that the doubling is not allowed when the PP is not followed by a particle *wa* that expresses a contrastive focus. Compare the sentence in (7) which contains a PP followed by a contrastive *wa* and a related sentence in (8) which lacks a contrastive *wa*.

(8) *Boku-wa Tokyo-de-de tomatta   ga, Osaka-de-de
     I-Top   *T*-loc-loc *stay.*past *but, Osaka*-loc-loc
     tomaranakatta
     *stay.*neg.past
     ('I stayed in Tokyo, but did not stay in Osaka')

In (8) the lack of the contrastive *wa* in the PP *Tokyo-de-de* makes the sentence ungrammatical, indicating that a PP must be contrastively focused in order for doubling to take place.

I assume that the doubling of a postposition does not give a semantic effect, since the truth conditions of the sentence with doubling and the ones without doubling are exactly the same except that a PP receives a contrastive focus in the doubling construction. The sentence in (9) is a non-doubling counterpart of the doubling construction in (7). Both (7) and (9) are true under the same truth conditions.

(9) Boku-wa Tokyo-de-wa tomatta ga, Osaka-de-wa
     I-top   *T*-loc-top *stay.past but, Osaka*-loc-top
     tomaranakatta
     *stay.*neg.past
     'I stayed in Tokyo, but did not stay in Osaka'

Doubling seems to apply only to functional categories and not to lexical categories. Regular nouns do not double. In (10), *kodomo-wa* and *otona-wa* receive contrastive focus, however they cannot be duplicated as illustrated by the example in (11).

(10)   Kodomo-wa kita   ga, otona-wa kitenai
       child-top   *came but adult*-top *came.*neg
       'Children came but adults did not'

(11) *Kodomo kodomo-wa kita   ga, otona otona-wa kitenai
       child   child-top *came but adult adult*-top *came.*neg
       ('Children came but adults did not')

There are cases where doubling may seem to apply to lexical categories such as a noun.

(12)   Taro-wa kodomo kodomo shiteiru
       T-top *child   child   do*
       'Taro behaves childishly'

The duplication of *kodomo* 'child' above, however, is not an instance of doubling, since the duplicated *kodomo kodomo* changes the meaning of *kodomo*. A noun *kodomo* means 'child', whereas the duplicated form *kodomo kodomo* means 'childish'. Hence, we should distinguish doubling of postpositions from an instance of reduplication of the lexical categories. Doubling is a syntactic operation that does not give a semantic effect and it applies to

functional categories, while reduplication gives rise to a semantic effect and it applies to lexical categories.

If spatial terms belong to a category of regular postpositions, they should undergo doubling just like postpositions such as *de, e* and *ni*. There are some cases in which the multiple occurrence of a spatial term is possible.

(13) Mary-ga Taro-no mae-no   mae-ni   suwatteiru
      M-NOM *T*-GEN *front*-GEN *front*-LOC *sit*
      'Mary is sitting in front of the front row of Taro'

This is not an instance of doubling, however, since the second *mae* takes part in the interpretation. Compare the sentence with two instances of *mae* in (13) with the sentence with one *mae* in (14).

(14) Mary-ga Taro-no mae-ni   suwatteiru
      M-NOM *T*-GEN *front*-LOC *sit*
      'Mary is sitting in front of Taro'

The truth conditions of the sentence in (14) are different from the truth conditions of the sentence in (13) which contains two instances of *mae*. Since doubling of postpositions does not change the truth conditions of the sentences, the multiple occurrence of the spatial term *mae* in (13) is not doubling. If both regular postpositions and spatial terms belong to the same categorial membership, doubling should equally apply to both of them. The fact that doubling only applies to regular postpositions not to spatial terms indicate that they should not belong to the same category.

3. The nominal properties of spatial terms

If spatial terms are not regular postpositions, what are they? Since they are case marked, as we have seen in (2), one may suspect that they are nouns. This section demonstrates that the spatial terms exhibit some noun syntax.

3.1. Coordination by *to* 'and'

Japanese has a coordination morpheme *to* 'and' that connects only nouns Kuno (1973). When other categories such as verbs, adjectives and clauses are coordinated, they use the gerundive forms.

(15) Taro to   Ziro-ga subayaku hashitta (Noun)
      T   *and Z*-NOM *quickly*   *ran*
      'Taro and Ziro ran quickly'

(16) a. waka-ku-te   utukushi-i musume (Adjective)
          young-KU-TE *beautiful-i girl*
          'young and beautiful girl'

    b. *waka-ku-to   utukushi-i musume
        young-KU-*and beautiful-i girl*
        ('young and beautiful girl')

(17) a. Taro-ga tabe-te nonda (Verb)
        T-NOM *eat*-TE *drank*
        'Taro ate and drank'
    b. *Taro-ga tabe-to nonda
        T-NOM *eat-and drank*
        ('Taro ate and drank')

As shown in the examples above, regular nouns use *to* whereas adjectives and verbs use gerundive forms marked by *te* for coordination. Spatial terms pattern with the regular nouns in this respect, since they are also coordinated by *to*.

(18) Taro-ga ie-no   mae to ushiro-ni benchi-o oita
     T-NOM *house*-GEN *front and behind*-LOC *bench*-ACC *put*
     'Taro put a bench in front and behind the house'

Contrast (18) with the ungrammatical examples in which a postposition is coordinated with another postposition by *to* and an example in which a PP is coordinated with another PP by *to*.

(19) a. *Kuukoo-e to   kara
        airport-to and from
        ('to and from the airport')
    b. *Kuukoo-e to   kuukoo-kara
        airport-to and airport-from
        ('to the airport and from the airport')

The fact that regular nouns and spatial terms are both coordinated by *to*, whereas regular postpositions cannot be coordinated by *to*, indicates that the spatial terms are more similar to regular nouns than to regular postpositions.

3.2. Demonstratives

Demonstratives *ko-no* 'this', *so-no* 'that', *a-no* 'that over there' appear prenominally when they modify nouns.

(20) ko-no /so-no   /a-no   ie
     this-GEN/*that*-GEN/*that.over.there*-GEN *house*
     'this/that/that house'

Like regular nouns, spatial terms can be preceded by demonstratives.

(21)   Kuruma-o ko-no   /so-no   mae-ni   tomete!
        car-ACC   *this*-GEN/*that*-GEN *front*-LOC *park*
        a) 'Park the car here/there in front!'
        b) 'Park the car in front of this/that!'

(21) gives rise to two interpretations: 'here/there in front' in (21a) and 'in front of this/that' in (21b). At first sight, therefore, one might suspect that demonstratives *ko-no* and *so-no* are phonologically reduced forms of demonstrative pronouns *kore* and *sore* in the (21b) reading. If this is the case, *ko-no* and *so-no* are Ground DP complements rather than modifiers of *mae* in the (21b) reading, just like a demonstrative pronoun *kore* in an example below in (22).

(22)   Koko-ni terebi-ga aru. Kore-no   mae-ni   oite!
        here-LOC *TV*-NOM COPL *this.one*-GEN *front*-LOC *put*
        'Here is a TV. Put (it) in front of this one'

In (22) the pronoun *kore* is a Ground complement of *mae*, as the translation indicates.

However, *ko-no/so-no* are not reduced forms of the demonstrative pronoun *kore-(no)/sore-(no)*. First, if *ko-no/so-no* were reduced forms of *kore-(no)/sore-(no)*, it would be possible to replace *ko-no/so-no* with demonstrative pronouns *kore/sore* without changing the meaning.

(23)   a. kore-no   /sore-no   nedan
            this.one-GEN/*that.one*-GEN *price*
            'the price of this/that'
        b. ko-no   /so-no   nedan
            this-GEN/*that*-GEN *price*
            'this/that price'

However, as the translations show, (23a) and (23b) give different meanings, which indicates that *ko-no/so-no* are not the reduced forms of *kore-no/sore-no*.

Furthermore, *ko-no* may cooccur with *kore-(no)*.

(24)   kore-no   ko-no   mae-ni
        this.one-GEN *this*-GEN *front*-LOC
        'here in front of this one'; *'in front of this'

In (24), the Ground phrase is *kore*, indicating that *ko-no* is not a complement but a modifier of *mae*. Again if *ko-no* is a reduced form of *kore*, it should be possible to replace *kore* with *kono*. This replacement is not possible, however.

(25)   *ko-no   ko-no   mae-ni
        this-GEN *this*-GEN *front*-LOC
        ('here in front of this one')

Hence *ko-no* is not a reduced form of demonstrative pronoun but is a modifier of the spatial terms. Spatial terms can be modified by demonstratives and are like regular nouns in this respect.

4. Difference between nouns and spatial terms

This section argues that despite the similarities between spatial terms and nouns, the spatial terms cannot be of the same category as true nouns in the strict sense due to the fact that they lack prototypical nominal syntax.

4.1. Floating quantifier

When a noun is counted or quantified in Japanese, it is associated with numeral quantifiers. Numeral quantifiers may appear prenominally, in which case they are connected to its modifying noun by a genitive particle *no*.

(26)　Taro-ga subete-no omocha-o kinoo　　kowashita
　　　T-NOM *all*-GEN　*toy*-ACC　*yesterday destroyed*
　　　'Taro destroyed all the toys yesterday'

Alternatively, numeral quantifiers can be separated from the nouns which they modify without changing the meaning of the sentence significantly.

(27)　Taro-ga omocha-o kinoo　　subete kowashita
　　　T-NOM *toy*-ACC *yesterday all*　　*destroyed*
　　　'Taro destroyed all the toys yesterday'

This 'floating quantifier' is licensed by argument NPs. Oblique PPs do not license a floating quantifier.

(28)　a.　Taro-ga tegami-o　subete-no gakusei-kara moratta
　　　　　T-NOM *letter*-ACC *all*-GEN　*student-from received*
　　　　　'Taro got letters from all the students'
　　　b.　*Taro-ga tegami-o　gakusei-kara subete moratta
　　　　　T-NOM *letter*-ACC *student-from all*　　*received*
　　　　　('Taro got letters from all the students')

If spatial terms are of nominal category, they should be able to license the floating quantifier. Contrary to this expectation, spatial terms cannot combine with floating quantifiers.

(29)　a.　Taro-ga kyooshitsu-no naka-ni　　hana-o　　kazatta
　　　　　T-NOM *classroom*-GEN *inside*-LOC *flower* ACC *decorate*
　　　　　'Taro decorated the classroom with flowers'
　　　b.　*Taro-ga kyooshitsu-no naka-ni　　subete hana-o
　　　　　T-NOM *classroom*-GEN *inside*-LOC *all*　　*flower* ACC
　　　　　kazatta
　　　　　decorate
　　　　　('Taro decorated the classroom all over with flowers')

The ungrammaticality is due to the categorial membership of the spatial term. This is shown by the fact that *kyooshitu-nai*, which is a nominal counterpart of *kyooshitsu-no naka*, combines with the floating quantifier.

(30) Taro-ga kyooshitu-nai-o   subete hana-de   kazatta
      T-NOM *classroom-interior*-ACC *all*   *flower-with decorate*
      'Taro decorated the classroom all over with flowers'

A spatial term *kyooshitsu-no naka* and a noun *kyooshitsu-nai* give rise to approximately the same meaning. In (30) *kyooshitsu-nai*, like other regular nouns, combines with the floating quantifier, whereas in (29b) *kyooshitsu-no naka* does not. This contrast indicates that the spatial term *kyooshitsu-no naka* should be distinguished from the category of nouns.

4.2. Adjectival properties: *Ma* affixation

In this sub-section, I will demonstrate that spatial terms exhibit adjectival behavior with regard to *ma* affixation. There is a derivational affix *ma* that can be added to some adjectives. When *ma* is attached to an adjective, the meaning of it will be 'intensified', as illustrated by the examples below:

(31) a. kura-i 'dark' → ma-kkura-na 'really dark'
      b. aka-i 'red' → ma-kka-na 'really red'
      c. kuro-i 'black' → ma-kkuro-na 'really black'
      d. shikaku-i 'quadrilateral' → ma-shikaku-na 'regular square'

Ma affixation is sensitive to the categorial membership of the word, and it applies only to adjectives. The examples below demonstrate that *ma* does not combine with other categories, like verbs, nouns and postpositions.

(32) a. oko-ru 'get angry' → *ma-oko-ru 'really get angry'
      b. gakusei 'student' → *ma-gakusei 'really student'
      c. ie-kara 'from home' → *ie-ma-kara 'really from home'

There are however, some instances in which *ma* attaches to nouns. One might, therefore, think that *ma* is sensitive to the meaning of the word rather than the categorial membership of the word.

(33) a. wata 'cotton' → ma-wata 'floss'
      b. natu 'summer' → ma-natu 'mid-summer'
      c. tara 'cod' → ma-dara 'cod'

However, *ma* affixation is sensitive to categorial status, not to the meaning of the word. I assume that cases of *ma* attaching to nouns are instances of idioms. The meaning after *ma* attachment to a noun, in most cases, is rather idiomatic and *ma* affixation does not give rise to the 'intensified' readings.

Furthermore, if *ma* affixation is a semantic process, we predict that *ma* attaches to both nouns and adjectives that have similar meanings. This is not the case, however. For instance, *akairo*—a nominal counterpart of an adjective *akai*, to which *ma* attaches—does not combine with *ma*.

(34) a. aka-i (Adj) → ma-kka-na *"ma-red"* 'really red'
      b. akairo (Noun) → *ma-kka-iro *"ma-red.color"* ('really red color')

The contrast between (34a) and (34b) indicates that *ma* affixation is sensitive to the category and not to the meaning of the word to which it attaches. Hence I assume that *ma* affixation applies to adjectives.

Spatial terms productively combine with the intensifier *ma*:

(35) a. mae 'front' → man-mae 'right in front'
      b. ushiro 'behind' → ma-ushiro 'right behind'
      c. ue 'above' → ma-ue 'right above'
      d. shita 'below' → ma-shita 'right below'
      e. yoko 'beside' → ma-yoko 'right next to'

If *ma* affixation is a syntactic operation which applies to adjectives not to nouns, the fact that *ma* also attaches to spatial terms such as *mae* indicates that they have an adjectival property in this respect.

Again, *ma* does not pick out the meaning of the spatial terms but it seems to be sensitive to the category of them. Contrast a spatial term *mae* 'front' and a related noun *zenbu* 'front part'. *Zenbu* is a noun, since it patterns with regular nouns in all syntactic diagnostics, i.e. (i) it is coordinated by *to* and (ii) it licenses floating quantifiers as illustrated by examples in (36a,b) respectively.

(36) a. Sharyoo-no zenbu   to koobu-ni   hana-o
          *wagon-*GEN *front.part and back.part.*LOC *flowers*ACC
          kazatta
          decorated
          '(I) decorated the front part and the back part of the wagon with flowers'
      b. Sharyoo-no zenbu-o   subete nuno-de   kabaa-o
          *wagon-*GEN *front.part*ACC *all*   *cloth-with sheet.*ACC
          kaketa
          covered
          '(I) covered all of the front parts of the wagon with a sheet of cloth'

Unlike *mae*, *zenbu* does not combine with the *ma* affix.

(37) *ma-zenbu

The fact that *zenbu* is a nominal paraphrase of *mae* and minimally differs from it in not combining with the *ma* affix shows that *ma* affixation does not apply to a noun category. From this fact and the fact that spatial terms combine with *ma* we can draw a conclusion that the spatial terms such as *mae* show an adjectival property in terms of the *ma* affixation.

5. Modifiers

5.1. Attributive adjectival modifiers

Regular nouns combine with attributive adjective modifiers, whereas spatial terms do not.

(38)   a.   Ie-no   kitanai mae-niwa-o   soozishita
            house-GEN *dirty*   *front-garden*-ACC *cleaned*
            '(I) cleaned the dirty garden in front of my house'
       b. *Ie-no   kitanai mae-ni   benchi-o   oita
            house-GEN *dirty*   *front*-LOC *bench*-ACC *put*
            ('(I) put a bench in the dirty front of my house')

At first glance it seems that the ungrammaticality comes from the semantic property of the spatial terms rather than their syntactic property, since a related noun *omote* 'front space', which has a meaning similar to that of *mae*, also disallows attributive adjectives.

(39)   a.   Ie-no   omote-o   soozishita
            house-GEN *front.space*-ACC *cleaned*
            '(I) cleaned the front space of my house'
       b. *Ie-no   kitanai omote-o   soozishita
            house-GEN *dirty*   *front.space*-ACC *cleaned*
            ('(I) cleaned the dirty front space of my house')

One could argue that *kitanai mae* 'dirty front' is ungrammatical due to the fact that 'front' has only one front, therefore cannot be modified by an restricted adjectival modifier irrelevant to the category.

   If so, other spatial terms such as *yoko* 'beside/side' should be able to combine with a restricted modifier. However, this is not the case.

(40)   *Ie-no   kitanai yoko-ni   neko-ga suwatteiru
        house-GEN *dirty*   *beside*-LOC *cat*-NOM *sitting*
        ('A cat is sitting dirty beside the house')

On the other hand, a regular noun *yokomen* that has a meaning similar to that of *yoko* can be modified by the restricted modifier.

(41)   Hako-no kitanai yokomen-ni mushi-ga   tomatteiru
        box-GEN *dirty* *side*-LOC *insect*-NOM *attach*
        'An insect is on the dirty side of the box'

The contrast between *yoko* and *yokomen* indicates that unlike nouns, spatial terms as categories do not allow restricted modifiers.

5.2. Degree modification

Schwarzschild (2006) argues that degree expressions are divided into *degree* and *range* in relation to a scale, which he defines as a set of strictly ordered points. In his terms, *degree* is defined as a point on a scale, whereas *range* is a set that contains two points in a particular scale as well as all the points between them. Examples of *degree* and *range* are illustrated below:

(42) Degree
      very/too/so/enough/as/more, less, -er

(43) Range
      much/a lot/a little/little/a bit/enough/measure phrases

In Japanese, degree modifiers such as *totemo* 'very' freely modify regular adjectives, whereas they do not modify regular nouns, verbs and postpositions.

(44) a. Ano biru-ga   *totemo* takai
          that building-NOM *very*   *high*
          'That building is very high'
      b. *Taro-ga   *totemo* gakusei da
          Taro-NOM *very*   *student* COPULA
          (*'Taro is a very student')
      c. *Taro-ga *totemo* aruita
          T-NOM *very*   *walked*
          (*'Taro very walked')
      d. *Taro-ga *totemo* ie-kara   aruita
          T-NOM *very*   *house*-DIR *walked*
          (*'Taro walked very from home')

Since *totemo* exclusively combines with adjectives, this can be used to test the 'adjectivehood' of spatial terms. In the previous section, I showed that spatial terms are more similar to adjectives in terms of *ma* affixation. If spatial terms belong to the categorial membership of adjectives, they should be modified by degree modifiers. However, the spatial terms cannot be modified by *totemo*.

(45) *Keikan-ga   Taro-no ie-no   totemo mae-ni   tatteiru
       policeman-NOM *T*-GEN *house*-GEN *very* *front*-LOC *standing*
       (*'A policeman is standing very in front of Taro's house')

The ungrammaticality of (45) shows that spatial terms are distinct from regular adjectives.

Zwarts and Winter (2000) observe that locative PPs can be modified by expressions that involve some measure of distance or duration, which are called measure phrases (cf. (43)).

(46)   *two meters* behind the house

Japanese data conforms to the observation of Zwarts and Winter. Like English, Japanese PPs take measure phrases.

(47)   Keikan-ga   *ni-meetoru* Taro-kara hanarete aruiteiru
          policeman-NOM *two-meter T-from   apart   walking*
          'A policeman is walking two meters from Taro'

Adjectives and regular nouns, on the other hand, cannot be modified by measure phrases in Japanese, as illustrated by the examples below.

(48)   a. *Ano biru-ga   *ni-meetoru* takai
              that building-NOM *two-meter high*
              ('That building is two meters high')
         b. *Taro-ga *ni-meetoru* shinchoo da
              T-NOM *two-meter height*   COPULA
              (*'Taro is two meter height')

The contrasts between (47) and (48) indicate that measure phrases select postpositional elements as their modifiee. Like PP, spatial terms productively combine with measure phrases.

(49)   Keikan-ga   Taro-no ie-no   ni-meetoru mae-ni
          policeman-NOM *T*-GEN *house*-GEN *two-meter front*-LOC
          tatteiru
          standing
          'A policeman is standing two meters in front of Taro's house'

In this respect, spatial terms are more similar to postpositions than regular adjectives.

(50)   Conclusions so far

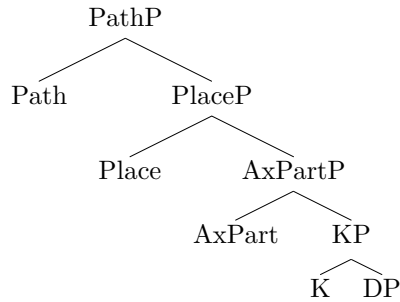| tests	Noun	Adjective	Postposition	Spatial term
doubling	no	no	yes	no
coordination by *to*	yes	no	no	yes
demonstrative	yes	no	no	yes
floating quantifier	yes	no	no	no
adjectival modifier	yes	no	no	no
degree modifier	no	yes	no	no
ma affixation	no	yes	no	yes

6. Analysis

6.1. Spatial terms are AxParts

I apply a layered PP structure proposed by Svenonius (2005-06) and Sveno-
nius (2006) for the locative/directional phrases that contain spatial terms.
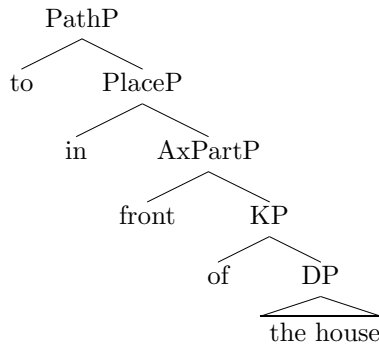
On the basis of the view that spatial adpositions involve an asymmetric
Figure-Ground relation, Svenonius (2004) proposes an adpositional system
that consists of a head P and a Ground DP as its complement.

In his system, the head P can be further decomposed into a series of
functional phrases which comprises a Path head that expresses the rela-
tionship of the Path to the Ground (TO/FROM/VIA), a Place head that
expresses location (IN/ON/AT/etc.), an Axial Part head that expresses the
position of a Figure relative to a Ground represented by its relation to the
Ground's axes, and KP.

(51)

```
                    PathP
                   /     \
                Path     PlaceP
                        /      \
                     Place     AxPartP
                              /       \
                          AxPart       KP
                                      /  \
                                     K    DP
```

(52)

```
                PathP
               /     \
             to      PlaceP
                    /      \
                  in       AxPartP
                          /       \
                      front        KP
                                  /  \
                                of    DP
                                      /\
                                 the house
```

The layered PP system is motivated by complex prepositional phrases in
English such as *to in front of the house*. The ordering of the constituents
within such a complex PP nicely matches with the ordering of the heads in
the layered PP: the Path head hosts directional prepositions such as *to*, the
Place head hosts locative prepositions such as *in*, the AxPart hosts spatial
terms such as *front* and KP hosts a Ground phrase such as *of the house*.

The layered PP system can be applied to the Japanese PPs. Japanese
locative expressions such as the one in (53) conforms to the structural
relationship between the Path head, Place head, the Axial Part head and

the K head proposed by Svenonius. Assuming a head final structure for Japanese, the base structure of the locative PP in (53) will be (54) which is the mirror image of its English counterpart: the Place head selects the Axial Part head, which selects a K head (no Path, since it is locative), just like English.

(53) Taro-ga ie-no   mae-ni   tatteiru
      T-NOM *house*-GEN *front*-LOC *standing*
      'Taro is standing in front of the house'

(54)

```
                              TP
                   _____
                  /                        \
                 DP                        T'
                /\                    _____
              Taro-ga               /             \
                                   VP              T
                              _____          |
                             /           \       PRESENT
                          PlaceP          V
                       _____         |
                      /          \      tatteiru
                   AxPartP       Place
                  _____        |
                 /         \       ni
                KP        AxPart
               /  \         |
             DP    K       mae
             |     |
             ie    no
```
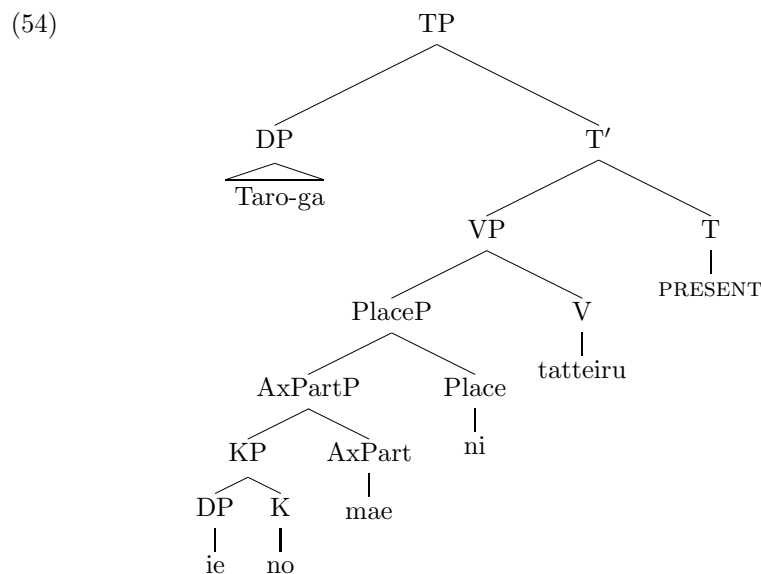
The layered PP system assumes that AxPart is a functional category that represents relational properties between the traditional P head and the Ground DP. The mixed properties of spatial terms in Japanese may represent the nature of AxPart.

6.2. The position of KP in the layered PP system in Japanese

The ordering among the modifiers, spatial terms and Ground phrases in Japanese suggest that the position of KP, at least in Japanese, is higher than what is proposed by Svenonius (2006).

The position in which modifiers such as *sugu* 'right' and *ni-meetoru* 'two meter' combine with spatial terms (cf. section 5.2) is fixed. These modifiers must precede spatial terms, as illustrated by the examples in (55):

(55) a. *Keikan-ga   Taro-no ie-no   mae-ni
          policeman-NOM *T*-GEN *house*-GEN *front*-LOC
          sugu/ni-meetoru tatteiru
          right/two-meter standing
          ('A policeman is standing right/two meters in front of Taro's
          house')
      b. Keikan-ga   Taro-no ie-no   sugu/ni-meetoru
          policeman-NOM *T*-GEN *house*-GEN *right/two-meter*
          mae-ni   tatteiru
          front-LOC *standing*
          'A policeman is standing right/two meters in front of Taro's
          house'

They cannot, however, precede a Ground phrase.

(56) *Keikan-ga   sugu/ni-meetoru Taro-no ie-no   mae-ni
      policeman-NOM *right/two-meter T*-GEN *house*-GEN *front*-LOC
      tatteiru
      standing
      ('A policeman is standing right/two meters in front of Taro's house')

They cannot intervene in the middle of a Ground phrase.

(57) *Keikan-ga   Taro-no sugu/ni-meetoru ie-no   mae-ni
      policeman-NOM *T*-GEN *right/two-meter house*-GEN *front*-LOC
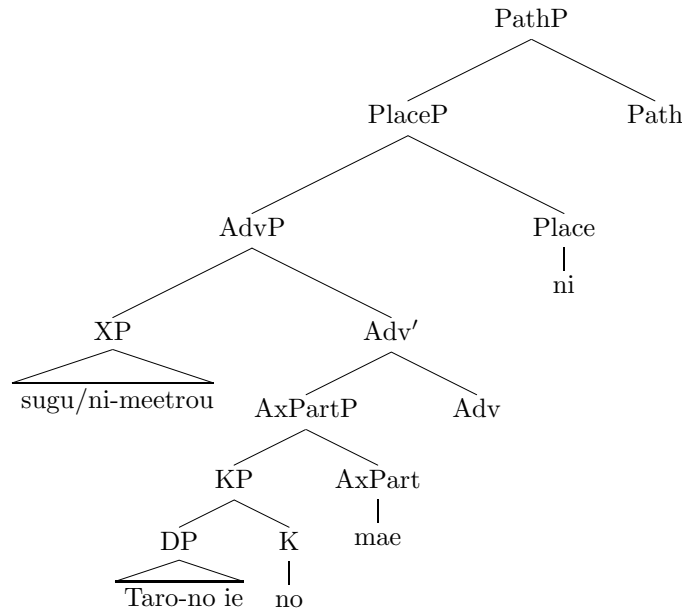   tatteiru
      standing

The ungrammaticality of (55a), (56) and (57) is not due to the unavailability
of adverb scrambling. (58) shows that *sugu* can be freely scrambled when
it modifies the VP just like a regular adverb.

(58) Taro-ga (sugu)   kooen-ni (sugu)   kita
      T-NOM *immediately park*-DIR *immediately came*
      'Taro immediately came to the park'

The contrast between ungrammatical sentences in (55a), (56) and (57), on
one hand, and a grammatical sentence in (55b), on the other hand, shows
that modifiers must immediately precede spatial terms.

 I adopt an analysis of Adverb Phrases as the unique specifiers of distinct
functional projections by Cinque (1999) and assume that modifiers are gen-
erated in the specifier position of an Adverb Phrase. Since modifiers must
immediately precede spatial terms, I assume that the position of AdvP is
right above Axial Part Phrase, as illustrated by a tree diagram in (59):

(59)

```
                                    PathP
                                   /     \
                              PlaceP      Path
                             /      \
                          AdvP       Place
                         /    \        |
                       XP      Adv′     ni
                      /  \     /    \
        sugu/ni-meetrou  AxPartP    Adv
                        /      \
                      KP        AxPart
                     /   \        |
                   DP     K       mae
                  /   \   |
          Taro-no ie    no
```
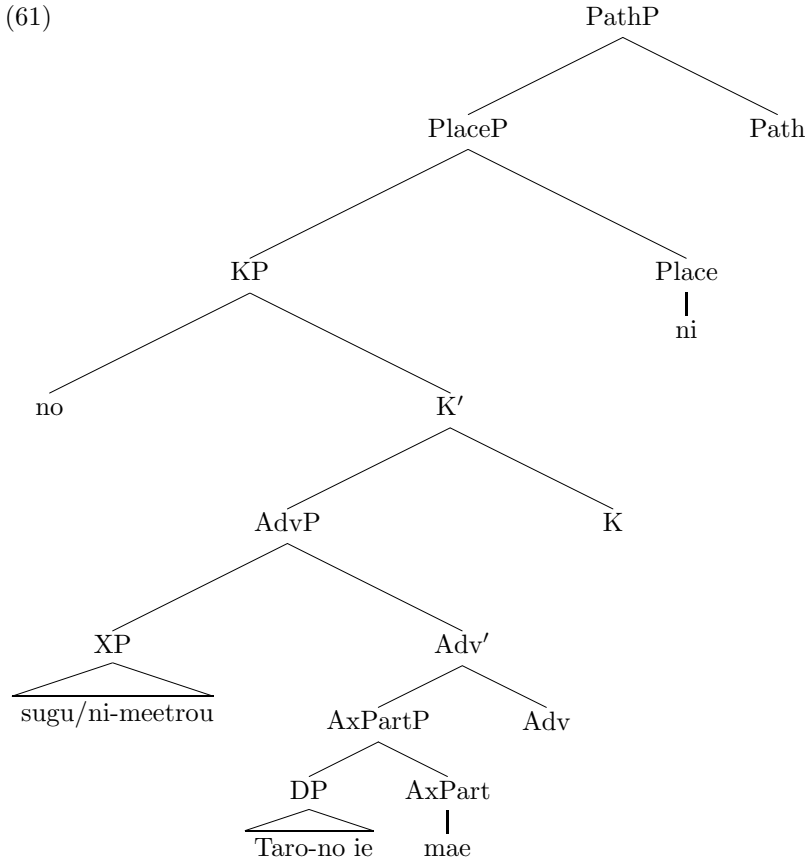
If this is the base structure of (55b), one must assume that the KP *Taro-no ie-no* moves to in front of AdvP in order to get the right order. However, the movement of KP is not generally allowed. A Genitive marked dependent of the NP cannot be moved in Japanese.

(60) a. Keikan-ga   ie-no   mado-o   yabutta
          policeman-NOM *house*-GEN *window*-ACC *broke*
          'The policeman broke the window of the house'
      b. *Ie-no   keikan-ga   mado-o   yabutta
          house-GEN *policeman*-NOM *window*-ACC *broke*
          ('The policeman broke the window of the house')
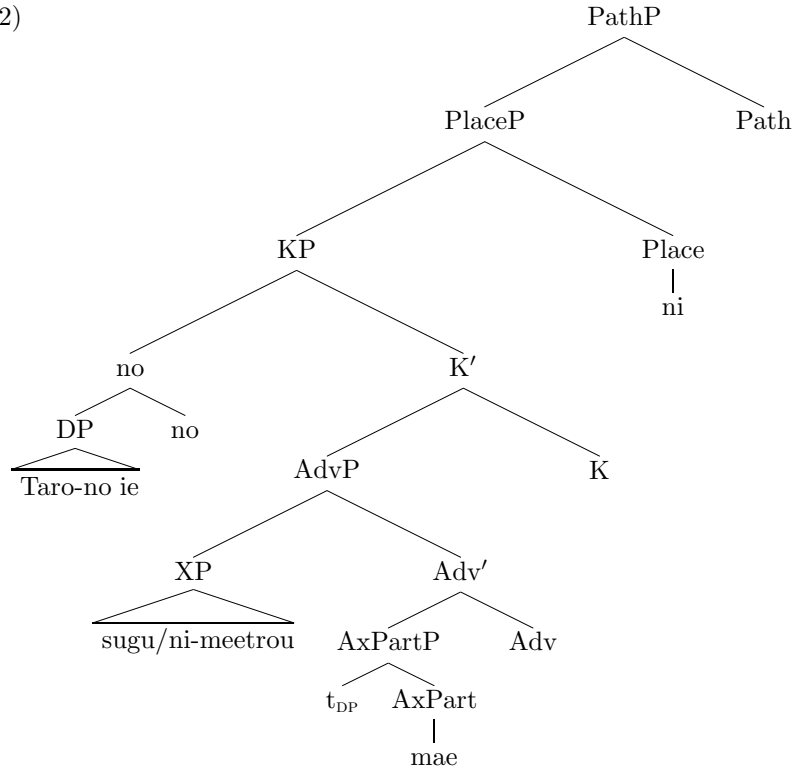
On one hand, movement of the dependent of NP is generally disallowed. On the other hand, Ground phrase complements in spatial PPs always precede modifiers. This suggests that there is something special going on inside the PP complex. I propose that KPs are rather sitting in a higher position, above AxPartP, in Japanese postpositional constructions, as illustrated by a tree diagram in (61).

(61)

```
                              PathP
                            /       \
                        PlaceP       Path
                       /      \
                     KP        Place
                    /  \          |
                  no    K'         ni
                       /  \
                    AdvP    K
                   /    \
                 XP      Adv'
                /|\      /   \
        sugu/ni-meetrou AxPartP  Adv
                       /    \
                     DP     AxPart
                    /|\       |
             Taro-no ie      mae
```

A Ground DP obligatorily moves up to KP for case reasons, resulting in the linear order in which the Ground DP phrase *Taro-no ie* precedes the modifier *sugu/ni-meetrou* which precedes the AxPartP *mae*, in (62).

(62)

```
                                          PathP
                                         /      \
                                     PlaceP      Path
                                    /      \
                                  KP        Place
                                 /   \         |
                               no     K′       ni
                              /  \   /    \
                            DP   no AdvP    K
                           /  \      /   \
                      Taro-no ie   XP      Adv′
                                  /  \    /    \
                        sugu/ni-meetrou AxPartP  Adv
                                        /    \
                                     t_DP    AxPart
                                               |
                                              mae
```

If we assume that KP is higher than the AdvP that modifies AxPartP, as in (62), and further assume that Ground DP complements move to KP for case reasons, we can predict that modifiers always follow Ground complement DPs but must precede spatial terms.

7. Conclusion

In this paper I have attempted to show that spatial terms in spatial PPs should be analyzed as having a distinct categorial status from regular postpositions and regular nouns. I have shown that the spatial terms exhibit some noun syntax on the basis of the coordination facts by *to* and demonstratives. These are prototypical nominal properties and therefore it seems that spatial terms should belong to a category of a noun. However, whether the spatial terms form full DPs or not is far from obvious, since they lack other prototypical nominal properties. Furthermore, spatial terms show some adjectival properties in terms of *ma* affixation. The last test in relation to degree/range modifiers, however, shows that the spatial terms are different from adjectives. These 'strange' mixed properties of the spatial terms may be deduced from the categorical properties of AxPart in the layered PP system.

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