

The Syntax and Semantics of the Japanese Pseudo-Partitive Construction*

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1 Introduction

In Japanese, there are at least two kinds of constructions that consist of a numeral and a classifier: numeral-classifier constructions and pseudo-partitive constructions. Although the numeral classifier constructions have been the focus of extensive study in both syntactic and semantic literature, the pseudo partitive constructions have not. In such a situation, Watanabe (2006) provides a highly influential syntactic structure for Japanese pseudo-partitive constructions. In this paper, we point out some empirical problems for Watanabe (2006) and we present a new analysis.

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This paper is organized as follows. Section 2 presents the empirical problems for the previous study. Section 3 proposes a new analysis. Section 4 provides this paper's implication for the Japanese numeral-classifier construction. Section 5 concludes the discussion.

2 Counterarguments

In the Japanese pseudo-partitive construction, the Measure Phrase (MP) *kago-san-ko-bun* 'three baskets' can occur in three different positions within the bracketed parts of the sentences as illustrated in (1). Concretely, the host NP is followed by the MP without the genitive marker as in (1a). In (1b), the MP with the genitive marker can precede its host NP. The MP occurs outside the phrase headed by the accusative case marker in (1c).

- (1) a. Taro-wa [boru kago-san-ko-bun-o] hakonda.
Taro-Top ball basket-three-Cl-amount-Acc carried
b. Taro-wa [kago-san-ko-bun-no boru-o] hakonda.
Taro-Top basket-three-Cl-amount-Gen ball-Acc carried
c. Taro-wa [boru-o kago-san-ko-bun] hakonda.
Taro-Top ball-Acc basket-three-Cl-amount carried
'Taro carried three baskets of balls.'

Watanabe (2006) assumes the hierarchical structure as shown in (2), and the three word orders in (1) is derived from one underlying structure. According to (2), there are at least three layers of functional projections above NP and below DP. Based on the assumption, Watanabe (2006) analyzes (1) as the derivational steps as in (3).

- (2) [DP [QP [CaseP [NumP [NP N] Num] Case] Q] D] (Watanabe 2006: 252)

- (3) a. [NumP san [NP kago] ko]
b. [CaseP [NP kago]_i [NumP san *t_i* ko] Case]
c. [QP [NumP san-ko]_i [CaseP kago *t_i* Case] Q]
d. [DP [CaseP kago]_i [QP san-ko *t_i* Q] D]
e. [NumP [DP kago-san-ko] [NP boru] bun]
The structure of (1a)
f. [CaseP [NP boru]_i [NumP kago-san-ko *t_i* bun] o]
The structure of (1b)
g. [QP [NumP kago-san-ko-bun]_i [CaseP boru *t_i* o] Q]

The structure of (1c)

h. [DP [CaseP boru-o]_i [QP kago-san-ko-bun t_i Q] D]

Let us briefly introduce Watanabe's (2006) account focusing on the point which is relevant to the later discussion. (3a) shows the underlying structure. In (3a-e), movements take place and *bun* is inserted. Moreover, (1a) is derived when *boru* moves to Spec, CaseP. (1b) obtains when *kago-san-ko-bun* moves to Spec, QP. When *boru-o* is raised to Spec, DP, we get (1c). To sum up, Watanabe (2006) accounts for three word orders in (1) by adopting the movement of the MP as illustrated in (3g). In addition, the bracketed parts of the sentences in (1) can be reduced to the same underlying structure.

However, whether the above assumption is empirically adequate is questionable, considering the two counterarguments we will provide against Watanabe (2006). To be concrete, an MP occurring outside the DP where its host is located behaves differently from that occurring inside the DP where its host is located. We show that Watanabe's (2006) analysis is insufficient to capture the full range of relevant facts. Consider (4).

- (4) Rabo-de Taro-wa [ekitai-ga motsu] tokusei-o
 lab-in Taro-Top liquid-Nom have property-Acc
 biikaa-san-ko-bun shirabeta.
 beaker-three-Cl-amount investigated
 'In the lab, Taro investigated characteristics of liquid contained in
 three beakers.'

In the structure Watanabe (2006) proposes, the host NP and the MP are contained in the same DP. In other words, Watanabe's analysis predicts that if the two phrases are coded separately, it involves some movement of one of them. In (4), *biikaa-san-ko-bun* is associated with the host NP *ekitai* and it is base-generated within the bracketed relative clause. Then, the MP *biikaa-san-ko-bun* moves outside the relative island. Thus, Watanabe (2006) wrongly predicts that (4) is ungrammatical.¹

¹ Murasugi (1991) argues based on (i) that certain relative clauses in Japanese are not islands.

(i) [t_i t_j mensetsu-o uketa] gakusei-ga mina ukaru] kaigisitsu_j
 interview-Acc had student-Nom all pass meeting.room

'an meeting room such that all the students who have an interview there pass it'

However, we suggest based on (ii) that the relative clause in Japanese in general constitutes a syntactic island.

(ii) *[Taro-ga [t_i motsu t_j] tokusei-o shirabeta] ekitai_i
 Taro-Nom have characteristic-Acc examined liquid
 'liquid such that Taro examined the characteristics it has'

Next, we show that there is an interpretive contrast between the case where the MP occurs adjacent to its host within the same DP and the one where it occurs outside the accusative case phrase as in (5a) and (5b).

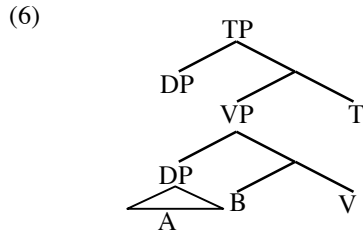
- (5) a. Taro-ga sono-kago-san-ko-bun-no 600-ko-no-boru-o
 Taro-Nom that-basket-three-Cl-amount-Gen 600-Cl-Gen-ball-Acc
 hakonda.
 carried
 ‘(Lit.) Taro carried those three baskets of, 600, balls.’
- b. Taro-ga sono-600-ko-no-boru-o kago-san-ko-bun
 Taro-Nom that-600-Cl-Gen-ball-Acc basket-three-Cl-amount
 hakonda.
 carried
 ‘(Lit.) Taro carried three baskets of those 600 balls.’

The interpretation of (5a) is that Taro carried all the 600 balls whose amount is equivalent to the one measured by three baskets, while (5b) means that as for the 600 balls, Taro carried some of them whose amount is the one of three baskets, i.e., in (5b), Taro carried some portion of the 600 balls with three baskets. Watanabe (2006) notes that the full range of distribution of MPs can be reduced to one underlying structure. However, the analysis is not able to explain the interpretive contrast between (5a) and (5b). Of course, a theory of the pseudo-partitive construction is more desirable if it accounts for the contrast in (5). Thus, this section claims that Watanabe’s (2006) analysis is problematic because it predicts that MPs cannot be associated with their hosts across the boundary of syntactic islands, and also that his analysis have nothing to say about the interpretive difference in cases like (5).

3 Proposal and Illustration

We have seen that Watanabe (2006) faces empirical problems, exemplified by (4) and (5). We will propose that an MP occurring outside the DP where its host is located is base-generated in a VP-modifier position, rather than in that DP. This straightforwardly solves the problem in (4), where the MP occurs outside the relative clause and is successfully associated with its host in the clause. Specifically, we propose the following simple structure.

The NP *ekitai* is extracted from the relative clause (bracketed in (ii)). The extraction from the relative island is generally said to be impossible (Ishii 1991). In this paper, we assume that at least relative clauses like that in (ii) are islands and extraction from them is prohibited.



If an MP occurs within a DP, that is, at the A-position, it is combined with the noun in the DP, and if it occurs at the B-position, it is combined with the verb.

To explain how we derive the interpretive contrast observed in (5), we adopt Nakanishi's (2007) analysis of Japanese floating numeral quantifiers (FNQs). She proposes that they are VP-modifiers that measure some dimension of an individual that participates in an event. Before introducing the components of her analysis relevant to the current discussion, let us present our semantic assumptions.

3.1 Semantic Ingredients

Our first assumption is that the denotation of a noun is ordered by the part-whole relation (Link (1983)) and therefore has a lattice-structure. Likewise, a set of events denoted by a verbal predicate is assumed to have a part-whole structure (Bach (1986)).

The second assumption concerns the denotation of a verb. Following the neo-Davidsonian style, we assume that every verb denotes a set of events, as in (7).

- (7) a. $\llbracket \text{run} \rrbracket = \lambda e. \text{run}(e)$.
 b. $\llbracket \text{carry} \rrbracket = \lambda e. \text{carry}(e)$.

Thematic functions such as Agent and Theme are introduced by case-markers during the semantic composition.² We simply assume that Japanese nominative and accusative case markers have the following denotations:

² We make this assumption for the sake of simplicity of our analysis. For our semantics of MPs, it is desirable if the type of verbs is parallel to that of nouns, that is, if both verbs and nouns are of type $\langle \sigma, t \rangle$, where σ is a flexible type. The mainstream of event semantics assumes that only an external argument is introduced during the semantic composition, and a transitive verb takes an object as one of its arguments (Kratzer (1996)), so the denotation of a transitive verb is of type $\langle e, \langle v, t \rangle \rangle$, which goes against the assumption here. However, adopting a certain kind of type-shifting mechanism, which will be presented in footnote 4, solves this conflict. What should be noted is that our semantics is independent from how we treat the denotation of a transitive verb and that our intention is not to support the original neo-Davidsonian view, but just to make our semantics as simple as possible.

- (8) a. $\llbracket -ga \rrbracket = \lambda x. \lambda P_{\langle v, t \rangle}. \lambda e. P(e) \wedge \text{Agent}(e) = x.$
 b. $\llbracket -o \rrbracket = \lambda x. \lambda P_{\langle v, t \rangle}. \lambda e. P(e) \wedge \text{Theme}(e) = x.$

3.2 The Semantics of MPs

Nakanishi (2007) proposes that the semantics of Japanese FNQs contains two context-sensitive functions: the measure function μ and the homomorphism h . The former measures some dimension of an individual, like $\mu(\text{snow}) = 3\text{kg}$, where $\mu = \text{weight}$. The latter takes an event and returns an individual involved in it. The homomorphism h is structure-preserving: If the input has a part-whole structure, so does the output. Formally:

- (9) h is a homomorphism iff $h(x \oplus y) = h(x) \oplus h(y)$, where \oplus is the join-operation in any domain.

In Nakanishi's proposal, h takes an event and returns an individual, and μ measures it, such as $\mu(h(e)) = 3$ individuals, where $\mu = \text{cardinality}$. She assumes that any structure-preserving function can be employed by FNQs, so h can be either Agent or Theme.

Let us now apply Nakanishi's (2007) semantics to MPs in the current discussion. We propose that the semantic value of MPs is constant regardless of whether they modify nouns or verbs. Nakanishi focuses on the case where an FNQ modifies the co-occurring verb, and the homomorphism h takes the event denoted by the verb. Therefore, we have to add some changes to Nakanishi's proposal in order to allow the semantics of MPs to take a noun as its argument. We assume that the identity function of a set of individuals can be h in the semantics of MPs. This is compatible with Nakanishi's assumption that h must be structure-preserving, as such an identity function maps an individual in the input set to the same one in the output.

The following is the semantics of MPs we propose:

- (10) $\llbracket [kago-san-ko-bun] \rrbracket = \lambda P_{\langle \sigma, v \rangle}. \lambda a_{\sigma}. P(a) \wedge \mu(h(a)) = \text{three baskets}$, where $\mu = \text{amount}$.

As this paper is concerned with MPs that quantify the amount of their host, μ is fixed as *amount*. σ is a flexible type, so an MP can take either a noun (of type $\langle e, t \rangle$) or a verb (of type $\langle v, t \rangle$) as one of its argument. The homomorphism h is a contextually salient function from the event or individual domain to the individual one.

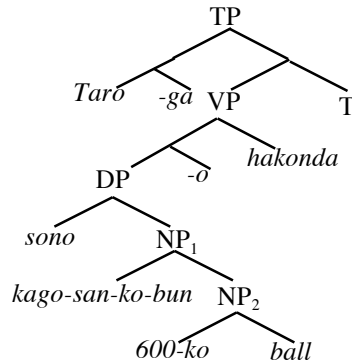
Let us illustrate how the semantics in (10) derives the interpretive contrast seen in (5). We assume that the cardinal-classifier combination *600-ko*

‘600-Cl’ in (5) is a set of individuals whose cardinality is determined by the cardinal. Specifically:

$$(11) \llbracket 600\text{-}ko \rrbracket = \lambda x. |x| = 600.$$

With this denotation and the structure in (12a), the derivation of the truth-condition of (5a) will be as in (12b):³

(12) a.



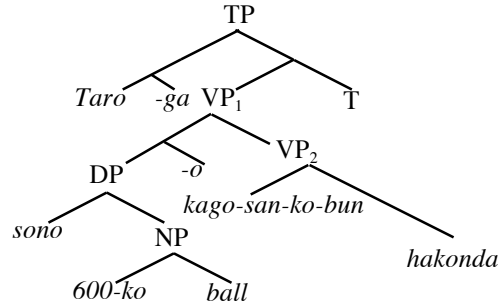
- b.
- $\llbracket NP_2 \rrbracket = \lambda x. ball(x) \wedge |x| = 600.$
 - $\llbracket NP_1 \rrbracket = \lambda x. ball(x) \wedge |x| = 600 \wedge amount(h(x)) = \text{three baskets}.$
 - $\llbracket DP \rrbracket = \iota x[ball(x) \wedge |x| = 600 \wedge amount(h(x)) = \text{three baskets}].$
 - $\llbracket DP\text{-}o \rrbracket = \lambda P_{\langle v, t \rangle}. \lambda e. P(e) \wedge Theme(e) = \iota x[ball(x) \wedge |x| = 600 \wedge amount(h(x)) = \text{three baskets}].$
 - $\llbracket VP \rrbracket = \lambda e. carried(e) \wedge Theme(e) = \iota x[ball(x) \wedge |x| = 600 \wedge amount(h(x)) = \text{three baskets}].$
 - $\llbracket TP \rrbracket = \lambda e. carried(e) \wedge Theme(e) = \iota x[ball(x) \wedge |x| = 600 \wedge amount(h(x)) = \text{three baskets}] \wedge Agent(e) = \text{Taro}.$
 - (Existential closure)
 - $\llbracket TP \rrbracket = \exists e[carried(e) \wedge Theme(e) = \iota x[ball(x) \wedge |x| = 600 \wedge amount(h(x)) = \text{three baskets}] \wedge Agent(e) = \text{Taro}].$

Now, as thematic role functions, whose domain is that of events, cannot take an individual variable x , h must be an identity function. The resulting truth-condition says that Taro carried x , the cardinality of x is 600, and the amount of x is that measured by three baskets, which is out intended result.

³ Watanabe (2006) assumes based on Kitagawa and Ross (1982) that the genitive marker is inserted at PF. Following this approach, which we adopt in this paper, *-no* within the noun phrase has no specific semantic content.

Let us move on to (5b), with the structure in (13a):⁴

(13) a.



- b. $\llbracket \text{DP-}o \rrbracket = \lambda P_{\langle v, t \rangle} . \lambda e . P(e) \wedge \text{Theme}(e) = \iota x [\text{ball}(x) \wedge |x| = 600]$.
 $\llbracket \text{VP}_2 \rrbracket = \lambda e . \text{carried}(e) \wedge \text{amount}(h(e)) = \text{three baskets}$.
 $\llbracket \text{VP}_1 \rrbracket = \lambda e . \text{carried}(e) \wedge \text{amount}(h(e)) = \text{three baskets} \wedge$
 $\text{Theme}(e) = \iota x [\text{ball}(x) \wedge |x| = 600]$.
 $\llbracket \text{TP} \rrbracket = \lambda e . \text{carried}(e) \wedge \text{amount}(h(e)) = \text{three baskets} \wedge$
 $\text{Theme}(e) = \iota x [\text{ball}(x) \wedge |x| = 600] \wedge \text{Agent}(e) = \text{Taro}$.
 (Existential closure)
 $\llbracket \text{TP} \rrbracket = \exists e [\text{carried}(e) \wedge \text{amount}(h(e)) = \text{three baskets} \wedge$
 $\text{Theme}(e) = \iota x [\text{ball}(x) \wedge |x| = 600] \wedge \text{Agent}(e) = \text{Taro}]$.

In this case, unlike (12b), h must be a function from events to individuals, given that it is applied to an event variable. The agent, Taro, cannot be measured in terms of baskets, so h has to be the Theme function. The truth-condition says that Taro carried x , x is 600 balls, and the amount of the theme in the carrying-ball-event is that measured by three baskets. In other words, the theme is the 600 balls but the amount of what was carried equals three baskets. This is the desirable interpretation of (5b).

⁴ As we mentioned in footnote 2, even in Kratzer's (1996) framework, where transitive verbs have a slot for their internal arguments in their denotation (and accordingly, the accusative case-marker is semantically empty), our proposal works well if we assume that a type shifter like (ia) is applied to the transitive verb before the verb is combined with the MP. The derivation will be as in (ib).

- (i) a. $\llbracket \text{TS} \rrbracket = \lambda P_{\langle e, \langle v, t \rangle \rangle} . \lambda Q_{\langle v, t, \langle v, t \rangle \rangle} . \lambda x \lambda e . Q(P(x))(e)$.
 b. $\llbracket \text{hakonda} \rrbracket = \lambda x . \lambda e . \text{carried}(x)(e)$.
 $\llbracket \text{TS hakonda} \rrbracket = \lambda Q_{\langle \sigma, t, \langle \sigma, t \rangle \rangle} . \lambda x \lambda e . Q(\lambda e . \text{carried}(x)(e))(e)$.
 $\llbracket \text{kago-san-ko-bun TS hakonda} \rrbracket = \lambda x . \lambda e . \llbracket \text{kago-san-ko-bun} \rrbracket (\lambda e . \text{carried}(x)(e))(e)$
 $= \lambda x . \lambda e . \text{carried}(x)(e) \wedge \text{amount}(h(e))$.

(ib) derives the same result as in (13b).

3.3 Association

We have shown that the semantics of MPs in (10) correctly derives the interpretive contrast in (5). However a problem remains: How do we exclude impossible associations between an MP and its host? We have proposed that an MP occurring outside the DP containing its host is in fact base-generated in a VP-modifier position. It follows that such an MP can be associated with its host wherever the latter occurs, but this is not borne out:

- (14)*Taro-ga [mizu-o nonda] hito-ni koppu-san-bai-bun atta.
 Taro-Nom water-Acc drank person-to cup-three-Cl-amount met
 '(Intended) Taro met a person who drank three cups of water.'

The MP *koppu-san-bai-bun* is intended to be associated with its host *mizu*, 'water' but that fails. Watanabe (2006) correctly rules out examples like (14), because in his analysis, the MP and its host are base-generated in the same DP; (14) should involve a certain movement out of the bracketed relative clause, which is a syntactic island. To the contrary, (14) is problematic for the current proposal that an MP occurring outside the DP containing its host is base-generated in that position.

However, as we saw in Section 2, (4) is an example where an MP and its host are associated across the boundary of syntactic islands. While this poses a problem for Watanabe's analysis, it is compatible with ours. What we have to do is pose a restriction strong enough to rule out examples like (14), but weak enough to allow those like (4).

(15) is the semantic restriction we propose for the association between an MP and its host.

- (15) Let h be the homomorphism in the denotation of an MP M modifying a predicate P . Then an individual x can be associated with M iff if there are e and an individual y such that $P(e)$ and $y < x$, then there is e' such that $h(e') = y$ and $e' < e$.^{5,6}

(15) says that the homomorphic function h of an MP must be a function whose input gets smaller if its output does. In (14), the MP *koppu-san-bai-bun* modifies the verb *atta* 'met'. If the MP tries to associate with the NP

⁵ Even though here we address only MPs that occur adjacent to the verb, (15) is also applicable to the MPs that modify NPs like those in (5a), if e and e' in (15) are interpreted outputs of h . In cases like (5a), the homomorphism involved is the identity function. Therefore, if its input becomes smaller, so does its output automatically, satisfying (15).

⁶ This requirement is equivalent to saying that the homomorphism employed by an MP must have the property MAP-E (Krifka (1992: 39)). We add to this the requirement that the event related to an individual by h be in the denotation of the verbal predicate modified by the MP.

mizu ‘water’, the homomorphic function h involved in the MP would be a function that takes a meeting-person event and returns the water that the person Taro met in that event drank. In this case, h need not assign a subevent to some part of that water; even if the amount of the water involved in the meeting event gets smaller, this has nothing to do with how many times Taro met the person. Hence, the MP in (14) does not fulfill (15). In contrast, the homomorphism employed in (4) is a function that takes an investigating-property-of-liquid-event and returns the liquid whose property Taro investigated in that event. Unlike (14), if a smaller part of that liquid is involved, the investigating event must be commensurately smaller (in other words, the time length of that event must be shorter), satisfying (15). Thus, we conclude that the deviance of (14) is caused by a semantic factor, rather than a syntactic one, and an MP occurring outside the DP containing its host is base-generated in a VP-modifier position.

4 Implication

The semantic constraint in (15) can be applied to FNQs. Nakanishi (2007) analyzes the semantics of Japanese FNQs, but she suggests that the deviance of examples like (16) is attributed to the syntactic requirement that an FNQ must be c-commanded by its host. In (16), the FNQ *san-dai* ‘three-Cl’ cannot be associated with its host *kuruma* ‘car’. Given that the host is inside a PP, it does not c-command the FNQ, so Nakanishi’s syntactic requirement succeeds in predicting the unacceptability of (16).

- (16)**Gakusei-ga kuruma-de san-dai eki-ni kita.*
 student-Nom car-by three-Cl station-to came.
 ‘(Intended) The students came to the station with three cars.’

In some cases, however, an FNQ can be associated with its host even if the latter does not c-command the former, such as in MPs (e.g., (4)):

- (17) *Sensei-ga [jibun-no gakusei-ga totta] tensuu-o*
 teacher-Nom self-Gen student-Nom got mark-Acc
san-nin kirokushita.
 three-Cl recorded
 ‘The teacher recorded the marks that three of her students got.’

The FNQ, *san-nin* ‘three-Cl’ is associated with its host *gakusei* ‘student’ in the relative clause enclosed by the square brackets. Syntactically, the host clearly does not c-command the FNQ because it is in the relative clause. Therefore, Nakanishi’s syntactic constraint incorrectly rules out (17).

If FNQs are subject to the same semantic constraint as MPs, the contrast between (16) and (17) is explicable. Recall that (15) says that the smaller the host becomes, the smaller the event must be. In (16), when students come to the station by car, they may come in more than one car, so an atomic coming-to-station event can involve two car-individuals. Let the sum of the two cars be $x \oplus y$, and the atomic event be e . It follows that $h(e) = x \oplus y$, but there is no event that is a part of e and that h maps to y or x , since e is atomic. Such a homomorphism clearly infringes (15). In (17), on the other hand, the fewer students are involved in the recording-students'-marks events, the fewer marks the teacher will have to record, hence a smaller set of events. Thus the semantic constraint in (15) correctly captures the distribution of Japanese FNQs, and we can say that the constraint is applicable both to FNQs and to MPs.^{7,8} The unacceptability of examples like

⁷ One might claim that (15) is in fact the constraint Gunji and Hashida (1998) posit for the distribution of FNQs. Their constraint is that the host measured by an MP must be an 'incremental theme' of the predicate involved. While that constraint resembles the one we posited in (15), Gunji and Hashida adopt Dowty's (1991) concept of the incremental theme, a homomorphic image of the event involved. Dowty allows a many-individuals-to-one-event mapping (see Dowty (1991: footnote 14)). Such a function can map an atomic event to two atomic individuals, which is the situation in (16). Therefore, Gunji and Hashida's constraint incorrectly rules in examples like (16).

⁸ In this paper, we pointed out empirical problems with Watanabe's (2006) analysis. Then, we offered a new constraint that has some semantic implication. In addition, our analysis is also theoretically preferable from a syntactic point of view. The argument is the following. It is well known that the numeral and a classifier *600-ko* can appear in the vicinity of the host NP *boru* (bracketed in (i)). In order to deal with (i), Watanabe (2006) provides the derivational steps in (ii).

- (i) a. Taro-wa [boru 600-ko-o] hakonda.
Taro-Top ball 600-Cl-Acc carried
b. Taro-wa [600-ko-no-boru-o] hakonda.
Taro-Top 600-Cl-Gen-ball-Acc carried
c. Taro-wa [boru-o 600-ko] hakonda.
Taro-Top ball-Acc 600-Cl carried
'Taro carried 600 balls.'
- (ii) a. [_{NumP} 600 [_{NP} boru] ko]
The structure of (ia)
b. [_{CaseP} [_{NP} boru]_i [_{NumP} 600 *t*_i ko] o]
The structure of (ib)
c. [_{QP} [_{NumP} 600-ko]_i [_{CaseP} boru *t*_i o] Q]
The structure of (ic)
d. [_{DP} [_{CaseP} boru-o]_i [_{QP} 600-ko] *t*_i Q] D]

(iia) shows the underlying structure and (iib-d) are equivalent to (ia-c), respectively. In (iid), the CaseP moves. In this situation, the CaseP contains a trace of the NP, as the NP raises in (iib). With this in mind, the trace of the NP *boru* included in the CaseP cannot be c-commanded by its antecedent *boru* 'ball' in (iid), as this may violate the Proper Binding Condition (PBC) (Saito 1989). In this paper, we argued that a numeral and a classifier occurring

(16) has been attributed to syntactic factors in the literature on FNQs, but this paper's line of analysis raises the possibility of treating the distribution of FNQs as a purely semantic matter.⁹

5 Conclusion

This paper deals with the Japanese pseudo-partitive construction and argues against Watanabe's (2006) proposal that the various word orders of the said construction are derived from one underlying structure. His analysis predicts that an MP occurring outside the DP where its host is located should have undergone some movement, and that therefore an MP cannot be associated with its host across the boundary of syntactic islands. This prediction is not borne out, as such association is successful in some cases. Semantically, his analysis has nothing to say about the interpretive contrast between the case where the MP occurs adjacent to its host within the same DP and the one where it occurs outside the accusative case phrase. We propose, following Nakanishi's (2007) analysis of Japanese FNQs, that the semantics of MPs contains a contextually determined homomorphic function h . Allowing h to be both a thematic function and an identity function enables an MP to be combined with either a noun or a verb, and the semantics correctly derives the interpretive contrast. As for the distribution of MPs, we proposed a semantic requirement that the larger an individual measured by an MP is, the larger the event involved must be. This semantic requirement can be applied to Japanese FNQs, and raises the possibility that licensing FNQs is driven solely by semantics.

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outside the phrase headed by the accusative case marker occupy the VP-modifier position: next to V. Following this assumption, *600-ko* '600-CL' is base-generated in the VP modifier position. This means that (ic) is not related to (ia) and (ib) so our analysis enables us not to encounter PBC violation.

⁹ Hirayama (2017) discusses this possibility in more detail.

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