

## On the Types and the Structure of Partitives\*

Mioko Miyama  
University of Tokyo

mmyama92@gmail.com

*In this paper it is claimed that there is a new type of partitive in Japanese which has never been treated as partitives in Japanese. Included in this type of partitive are Alternative Questions (AltQs) and constructions involving disjunction. I propose that these constructions should be treated uniformly and are best analyzed as partitives related to choice functions. In English also, these constructions are taken to be partitives and moreover, there is previous research which claims that choice functions are involved in their interpretation. My proposal makes it necessary to revise the previously proposed structures of partitives. Further, the status of *uti-no* 'out of,' the item typically used in partitives, is revealed to be problematic.*

*Keywords: partitives, alternative questions, disjunction, choice function*

### 1. Introduction

I first give an example of the subtypes of partitives given in previous research. Ionin et al. (2006: 357) give (1) for English partitives (taking the form  $NP_1$  of  $NP_2$ ), as the classification according to the type of  $NP_1$  (underlined by the author).

- |     |    |  |                          |
|-----|----|--|--------------------------|
| (1) | a. | <u>two</u> of these eight girls / <u>two</u> of some girls that I know | cardinal partitives      |
|     | b. | <u>two liters</u> of water / <u>five feet</u> of snow                  | measure partitives       |
|     | c. | <u>three quarters</u> of the cake / the beans / my friends             | fraction partitives      |
|     | d. | <u>a number/lot/bunch</u> of cats / my friends                         | vague measure partitives |

In what follows, it is claimed that there is another type of partitive in Japanese. Included in this type of partitive are Alternative Questions (AltQs) and constructions involving disjunction. In Japanese, these constructions have never been treated as partitives. As for English, some previous literature treats the constructions as partitives, although the constructions have not been discussed enough in the study of partitives. My proposal makes it necessary to revise the previously proposed structures of partitives.

The paper consists of the following sections. Section 2 states the main claim of this paper: AltQs and constructions involving disjunction are a type of partitive which is related to choice functions. I first give data which suggest that the two constructions are partitives, and then argue for the adequacy of analyzing the interpretation of the constructions as involving choice functions. In Section 3, two points are made. First, the proposed new type of partitive does not have the structure proposed for partitives in previous studies. Second, the status of *uti-no* 'out of,' the item typically used in partitives, is discussed. I point out the possibility that *uti-no* 'out of' is a postposition. Section 4 concludes the paper.

### 2. Choice Function-Related Partitives as a Type of Partitive

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## 2.1. Existential Quantifier in the “Part” of Partitives

First, consider the Japanese partitive example (2).<sup>1</sup>

- (2) a. Taro-wa sara-ni notte-iru kukkii-no #(uti-no) san-mai-o tabeta.  
 T-Top dish-on put-is cookie-Gen out-of three-Cl-Acc ate  
 ‘Taro ate three of the cookies on the dish.’  
 b. Watasi-no kazoku-no ??(uti-no) san-nin-ga isya da.  
 I-Gen family-Gen out-of three-Cl-Nom doctor is  
 ‘Three of my family members are doctors.’

As Watanabe (2008) notes, Japanese partitives typically make use of the item *uti-no* ‘out of.’ Although there are differences in judgments between speakers, the sentences in (2) become degraded without *uti-no* ‘out of.’<sup>2</sup> *Uti-no* ‘out of’ strengthens the reading of “part-whole.”

A noticeable fact is that in constructions such as AltQs and constructions involving disjunction (including the Japanese counterpart of the *either...or...* construction), also, the item *uti-no* ‘out of’ can be used. See examples (3) and (4).

- (3) Taro-wa [koohii to otya-no (uti-no) dotti]-o nonda no?  
 Taro-Top coffee and tea-Gen out-of which-Acc drank Q  
 ‘Did Taro drink [coffee or tea]?’  
 (4) Taro-wa [koohii to otya-no (uti-no) dotti-ka]-o nonda.  
 Taro-Top coffee and tea-Gen out-of which-ka-Acc drank  
 ‘Taro drank either [coffee or tea].’

This fact suggests that the two constructions have the characteristics of partitives. I thus claim that the two constructions are partitives. The situation is similar in English. In English also, AltQs and constructions with disjunction can be restated by using *of*, the item typically employed in partitives. They are treated as partitives in previous studies (cf. Huddleston & Pullum (2002)).

- (5) a. Either of the drinks will do.  
 b. Which of quiche, pizza, and lasagna did you eat?

Note that when a universal quantifier is involved in NP<sub>1</sub>, *uti-no* ‘out of’ cannot be used. This point is illustrated in sentence (6) in which *dotti-mo* ‘both’ is used.

- (6) Taro-wa [koohii to otya-no (\*uti-no) dotti-mo](-o) nonda.  
 Taro-Top coffee and tea-Gen out-of which-mo-Acc drank  
 ‘John drank both [coffee and tea].’

<sup>1</sup> The abbreviations used in this paper are: Acc = Accusative, Cl = Classifier, Dat = Dative, Gen = Genitive, Neg = Negation, Nom = Nominative, Nonfin = Nonfinite, Pres = Present, Q = Question Particle, Top = Topic.

<sup>2</sup> The judgment of (2a) without *uti-no* ‘out of’ is taken from Watanabe (2008). Note that Japanese partitives like (2a) have two more possible word orders as exemplified in (i).

- (i) a. Taro-wa sara-ni notte-iru kukkii san-mai-o tabeta.  
 T-Top dish-on put-is cookie three-Cl-Acc ate  
 b. Taro-wa sara-ni notte-iru kukkii-o san-mai tabeta.  
 T-Top dish-on put-is cookie-Acc three-Cl ate  
 ‘Taro ate three of the cookies on the dish.’

These two versions do not require *uti-no* ‘out of.’

The descriptive generalization that can be drawn from Japanese examples (3), (4), and (6) is that an existential quantifier has to be involved in NP<sub>1</sub> (the “part”) in these constructions as partitives, while a universal quantifier cannot be.

Japanese *dotti-ka* ‘either’ and *dotti-mo* ‘both’ thus behave differently. Interestingly, similar data exist in English. As shown in (7), it is impossible to delete *of*, the item which corresponds to *uti-no* ‘out of’, in sentences with *either*. However, in sentences with *both*, *of* can be deleted except when it is in front of a pronoun as in (8).

(7) either \*(of) the days / either \*(of) them

(8) both (of) these toys / both \*(of) them

The data suggest the possibility that the sentence with *both* has a different structure from that with *either*.

## 2.2. Proposal

In this section, I first introduce choice functions, which are employed in Reinhart (1997) to explain the behavior of *in situ wh*-phrases and certain indefinite pronouns. I next show that there are previous studies which claim that choice functions are involved in the interpretation of AltQs too and claim that constructions involving disjunction can be treated in a similar way. The proposal is that AltQs and constructions involving disjunction are choice function-related partitives.

### 2.2.1. Choice Function

Reinhart (1997) proposes that choice functions are involved in the interpretation of *in situ wh*-phrases and some indefinites. (9) is an example which is difficult to handle with analyses that do not employ choice functions.

- (9) Who will be offended if we invite which philosopher? (Reinhart (1997: 359))
- a. Lucie will be offended if we invite Donald Duck. (wrong answer)
  - b. For which  $\langle x, y \rangle$ , if we invite  $y$  and  $y$  is a philosopher, then  $x$  will be offended.

The problem which arises with the *in situ wh* in (9) is that its interpretation cannot be explained by either Quantifier Raising or Unselective Binding. QR cannot be applied to the *wh*-phrase *in situ* in (9) since it is inside a conditional island. Moreover, if Unselective Binding were applied to (9) and the *wh*-phrase were interpreted *in situ* as in (9b), an answer like (9a) would be predicted to be acceptable even if Donald Duck is not a philosopher in the real world. This is because the restriction of the *wh* phrase in (9b) is in the *if*-clause and as a characteristic of conditionals, when the truth value of the *if*-clause is false, the whole sentence would be true regardless of the truth value of the *then*-clause. Therefore the prediction would be that any non-philosopher would do as a value of  $y$ . But this is not the case for the interpretation of (9) and (9a) is not a possible answer.

Choice functions take a set as their argument and give back one of its elements. Under Reinhart’s (1997) choice function analysis, a variable introduced in the position of a *wh*-phrase or an indefinite is bound by an existential operator. The formula for (10a) with an indefinite, for example, would be as in (10b).

- (10) a. Every lady read some book.
- b.  $\exists f (\text{Ch}(f) \ \& \ \forall z (\text{lady}(z) \rightarrow z \text{ read } f(\text{book})))$  (Reinhart (1997: 372))

With a choice function applied to ‘some book,’ one member of the set of books becomes the argument of *read*. This yields the intended wide scope reading of *some book* without moving it.

In a similar fashion, the formula for (9) under the same choice function analysis is the following:

- (11) a. For which  $\langle x, f \rangle$ , if we invite  $f(\text{philosopher})$ ,  $x$  will be offended.  
 b.  $\{P | (\exists \langle x, f \rangle) (\text{Ch}(f) \ \& \ P = \hat{\lambda}((\text{we invite } f(\text{philosopher})) \rightarrow (x \text{ will be offended})) \ \& \ \text{true}(P))\}$   
 (Reinhart (1997: 376))

The problem which gave rise to the ‘wrong answer’ in (9a) is avoided, since the invited individual is forced to be chosen from the set of philosophers.

### 2.2.2. Choice Function-Related Partitives as a Type of Partitive: Evidence from Intervention Effect

In the two subsections in this section, it is shown that the two constructions which have been taken up in section 2.1 can be analyzed as involving choice functions in their interpretation. Building on the argument made by Beck & Kim (2006), I give the intervention effect observed in the two constructions as a piece of evidence for the proposal. The intervention effect indicates that the “alternatives” in the two constructions have to be interpreted in their base position.

#### 2.2.2.1. Alternative Questions

Romero & Han (2003) propose for English AltQs that the interpretation is obtained through the following steps: (i) making a set which consists of the given “alternatives” (*coffee* and *tea* in (3)), (ii) making use of a choice function which takes the set as its argument, and (iii) the choice function giving back one member from the set. According to their claim, the LF representation of (3) is like the one in (12) and the formula giving its interpretation would be as in (13).<sup>3</sup>

- (12)  $[_{CP} Q [_{IP} \text{Taro drank } [wh \text{ coffee or tea}]]]$   
 (13)  $\lambda p_{\langle s, t \rangle}. \exists f_1 (\text{Ch}(f_1) \ \& \ p = \lambda w'. \text{Taro drank } f_1(\{\text{coffee, tea}\}) \text{ in } w')$ <sup>4</sup>

(13) means: “give me all the possible  $p$  in a certain  $w$ .” Thus the value given back is the set of possible answers, namely, ‘Taro drank coffee’ and ‘Taro drank tea.’ According to Romero & Han’s (2003) analysis the covert *wh* element in (12) has the semantics of a choice function. Although the choice function analysis of AltQs does not stand on the point that the *wh* element has the semantics of a choice function and it is possible to attribute the semantics of a choice function to something else, I adopt their claim in this paper. This is because AltQs seem to involve some kind of *wh* element in both English and Japanese, although it can be covert in English, as in the repeated examples below.

- (5) b. **Which** of quiche, pizza, and lasagna did you eat?  
 (3) Taro-wa [koohii to otya-no (uti-no) **dotti**]-o nonda no?  
 Taro-Top coffee and tea-Gen out-of which-Acc drank Q  
 ‘Did Taro drink [coffee or tea]?’

At least in Japanese, *dotti* ‘which’ is indispensable for AltQs, since when we make a sentence only with a DisjP and without *dotti* ‘which,’ the sentence is unambiguously a Yes-No question as in (14).<sup>5</sup>

<sup>3</sup> Although Romero & Han (2003) claim that the covert *wh* element has to move to the sentence-initial position at LF if Larson’s (1985) operator analysis of AltQs is adopted, I remain neutral about the adequacy of the operator analysis and assume that the *wh* element does not move.

<sup>4</sup> Romero & Han (2003) state overtly the presupposition that in interpreting AltQs only one of the alternatives is true in a given world. They add the following formula to (13).

(i)  $\lambda w: \{r: \exists h (\text{Ch}(h) \ \& \ r(w) \ \& \ r = \lambda w'. \text{Taro drank } h(\{\text{coffee, tea}\}) \text{ in } w')\} = 1$

<sup>5</sup> Beck & Kim (2006) note that in Korean also, AltQs have a different form from Yes-No questions. As shown in (ia),

- (14) Q: Taro-wa [koohii ka otya]-o nonda no?  
 Taro-Top coffee or tea-Acc drank Q  
 A: \*Koohii-o nonda. (AltQ reading)  
 coffee-Acc drank  
 A: Hai. (Yes-No question reading)  
 yes

The fact is that AltQs seem to have a *wh* element absent in Yes-No questions. I propose that this *wh* element (realized as *dotti* ‘which’ in Japanese and potentially covert in English) introduces the choice function in Japanese too. This goes against the analysis made by von Stechow (1991), who gives interpretation of AltQs not from choice functions but only from the interpretation of the Disjunctive phrase (DisjP). I give the fact in (14) that Japanese AltQs cannot be formed with just a DisjP as a piece of evidence to argue against von Stechow’s (1991) analysis and to support the present proposal that AltQs involve some kind of *wh* element which introduces the semantics of a choice function.

Below I review a study which gives supporting data to analyze the semantics of AltQs as involving a choice function. Beck & Kim (2006) claim that, with a choice function analysis of AltQs, we can explain the intervention effect in AltQs in the same manner as *wh*-questions. They observe that focusing elements and quantificational elements cause an intervention effect not only in *wh*-questions as in (15) but also in AltQs as in (16).

- (15) ?\* Which boy did only Mary introduce which girl to?<sup>6</sup> (Beck & Kim (2006: 172))  
 (16) a. ?\* Did only John drink coffee or tea?  
 b. Did John or Susan invite only Mary? (Beck & Kim (2006: 172))

A *wh*-question is uninterpretable if a focusing element such as *only* intervenes between the *in situ wh* phrase and the interrogative complementizer. Similarly, (16a) in which *only* intervenes between DisjP and the interrogative complementizer cannot be interpreted as an AltQ (although as a Yes-No question it is grammatical), while (16b) can be.

The assumption is that in order for a focusing expression to be interpreted, both the ordinary semantic value of *John* in (17a) and its focus semantic value in (17b) are required.

- (17) Only [<sub>φ</sub> John left].  
 a. [[John]]<sup>o</sup> = John  
 b. [[John]]<sup>f</sup> = D = {John, Bill, Amelie...} (Beck & Kim (2006: 176))

The focus semantic value is the set of alternatives. Using the two values in (17), the interpretation of the larger structure  $\phi$  in (17) also has both an ordinary semantic value and a focus semantic value as described in (18).

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the alternatives in Korean AltQs are connected by a special connective *animyen* ‘if not,’ which combines two elements larger than a VP.

- (i) a. Mina-ka cha-lul masi-ess-ni animyen coffee-lul masi-ess-ni?  
 M-Nom tea-Acc drink-Past-Q if.not coffee-Acc drink-Past-Q  
 ‘Which of tea or coffee did Mina drink?’ [only AltQ] (Beck & Kim (2006: 171))  
 b. Mina-ka cha-na coffee-lul masi-ess-ni?  
 ‘Did Mina drink tea or coffee or not?’ [only Yes-No Question] (Beck & Kim (2006: 171))

As in (ib), when the disjunction *na* ‘or’ is used, the sentence is unambiguously a Yes-No question.

<sup>6</sup> As Beck & Kim (2006: 172) note, the intervention effect in English *wh*-questions arises only in “*wh*-questions in otherwise permissible violations of superiority.” Pesetsky (2000) illustrates the point with the following examples using negation:

- (i) a. Which book did which person read \_\_?  
 b. Which book did which person not read \_\_?  
 c. \*Which book didn’t which person read \_\_? (Pesetsky (2000: 60))

- (18) a.  $[[\phi]]^o = \lambda w. \text{John left in } w.$   
 b.  $[[\phi]]^f = \{p: p = \lambda w. x \text{ left in } w \mid x \in D\} = \{\text{that John left, that Bill left, that Amelie left, ...}\}$   
 (Beck & Kim (2006: 176))

*Only* makes use of both (18a) and (18b) and conveys the meaning that out of all the alternatives introduced by the focus semantic value of its sister, the only true one is the one given by the ordinary semantic value of its sister. The interpretation of the whole sentence would be as in (19).

- (19)  $[[\text{Only } [\phi \text{ John left}]]]^o$   
 $= \lambda w. \text{for all } p \text{ such that } p(w) = 1 \ \& \ p \in [[\phi]]^f : p = [[\phi]]^o$   
 $= [\lambda w. \text{for all } x \text{ such that } x \text{ left in } w: x = \text{John}]$   
 (Beck & Kim (2006: 176))

Based on this background assumption, Beck & Kim (2006) explain the intervention effect observed in *wh*-questions (15) as follows. Following Hamblin (1973) among others, questions are interpreted as sets of possible answers. *Wh* phrases thus have a focus semantic value as their basic meaning and their ordinary semantic value is undefined. The whole *wh*-question becomes interpretable in its ordinary semantic meaning through the work of the Q operator, which makes the focus semantic value of its sister into the ordinary semantic value of the whole sentence. Therefore, if a focus sensitive operator is introduced by an expression such as *only* and it intervenes between the *wh* phrase and the Q operator, the sentence will be uninterpretable. This is because the focus sensitive operator has to use both the ordinary and focus semantic values of its sister but the ordinary semantic value is undefined without the Q operator.

The intervention effect in AltQs as in (16) can be explained in a similar fashion since Romero & Han (2003) relate the choice function to the covert *wh* element and AltQs are a kind of *wh*-question according to their analysis, as Beck & Kim (2006) note. For example, take a look at an AltQ without a focused element as in (20a).

- (20) a. Did Pfrondorf win or lose?  
 b.  $[_{CP} Q [\phi \text{ Pfrondorf } [_{DisjP} \text{win or lose}]]]$   
 (Beck & Kim (2006: 181))

On the assumption that the DisjP is interpreted as in (21), Beck & Kim (2006) argue that Romero & Han's (2003) analysis amounts to claiming that the semantics of a choice function is active at the level of the focus semantic value. For the structure that involves the covert *wh* element and the DisjP in (20b), the ordinary semantic value is undefined and the focus semantic value would be the one in (22b).

- (21)  $[_{DisjP} \text{win or lose}] \rightarrow \{[[\text{win}]], [[\text{lose}]]\}$   
 $= \{[\lambda w. \lambda x. x \text{ win in } w], [\lambda w. \lambda x. x \text{ lose in } w]\}$   
 (22) a.  $[[\text{wh } [_{DisjP} \text{win or lose}]]]^o$  is undefined  
 b.  $[[\text{wh } [_{DisjP} \text{win or lose}]]]^f = \{f\{[[\text{win}]], [[\text{lose}]]\} \mid \text{Ch}(f)\}$   
 (Beck & Kim (2006: 181))

The focus semantic value is the set of the values that the choice function gives back, namely the set with the members  $[[\text{win}]]$  and  $[[\text{lose}]]$  as in (22b). As was the case with *wh*-questions, the whole AltQ becomes interpretable in its ordinary semantic meaning through the work of the Q operator, which makes the focus semantic value of its sister into the ordinary semantic value of the whole sentence. A focus sensitive operator would thus bring about an intervention effect when it is placed between the DisjP and the Q. The fact is that the DisjP is interpreted in its overt position and this is what the choice function analysis accounts for.

If both the claim made by Beck & Kim (2006) that choice functions give rise to the intervention effect in AltQs and the present proposal that choice functions are involved in the interpretation of Japanese AltQs are on the

right track, we predict that Japanese AltQs should also display intervention effects.<sup>7</sup>

This prediction seems to be borne out. When the subject occurs with a focusing morpheme as in (23) or the subject is an NPI as in (24), the sentence becomes slightly less acceptable.

- (23) a. ?Taro-**dake**-ga [koohii to otya]-no uti-no dottedi-o nonda no?  
 T-only-Nom coffee and tea-Gen out-of which-Acc drank Q  
 ‘Which of coffee or tea did only Taro drink?’  
 b. ?Taro-**sika** [koohii to otya]-no uti-no dottedi-o noma-naka-tta no?  
 T-only coffee and tea-Gen out-of which-Acc drink-Neg-Past Q  
 c. ?Taro-**sae** [koohii to otya]-no uti-no dottedi-o nonda no?  
 T-even coffee and tea-Gen out-of which-Acc drank Q  
 ‘Which of coffee or tea did even Taro drink?’  
 (24) ?**Daremo** [koohii to otya]-no uti-no dottedi-o noma-naka-tta no?  
 anyone coffee and tea-Gen out-of which-Acc drink-Neg-Past Q  
 ‘Which of coffee and tea didn’t anyone drink?’

Compare the examples with the completely acceptable examples in (25) and (26) in which [*koohii to otya*]-no uti-no dottedi-o ‘which of coffee and tea’ is scrambled to the sentence-initial position and the examples in (27) and (28) in which a complex noun phrase (which does not interact with scopal elements) is used instead of the “alternatives”:

- (25) a. [Koohii to otya]-no uti-no dottedi-o Taro-**dake**-ga nonda no?  
 coffee and tea-Gen out-of which-Acc T-only-Nom drank Q  
 ‘Which of coffee or tea did only Taro drink?’  
 b. [Koohii to otya]-no uti-no dottedi-o Taro-**sika** noma-naka-tta no?  
 coffee and tea-Gen out-of which-Acc T-only drink-Neg-Past Q  
 c. [Koohii to otya]-no uti-no dottedi-o Taro-**sae** nonda no?  
 coffee and tea-Gen out-of which-Acc T-even drank Q  
 ‘Which of coffee or tea did even Taro drink?’  
 (26) [Koohii to otya]-no uti-no dottedi-o **daremo** noma-naka-tta no?  
 coffee and tea-Gen out-of which-Acc anyone drink-Neg-Past Q  
 ‘Which of coffee and tea didn’t anyone drink?’  
 (27) a. Taro-**dake**-ga [Hanako-ga tukutta okasi]-o tabeta no?  
 T-only-Nom H-Nom made cake-Acc ate Q  
 ‘Did only Taro eat the cake that Hanako made?’  
 b. Taro-**sika** [Hanako-ga tukutta okasi]-o tabe naka-tta no?  
 T-only H-Nom made cake-Acc eat Neg-Past Q  
 c. Taro-**sae** [Hanako-ga tukutta okasi]-o tabeta no?  
 T-even H-Nom made cake-Acc ate Q  
 ‘Did even Taro eat the cake that Hanako made?’  
 (28) **Daremo** [Hanako-ga tukutta okasi]-o tabe naka-tta no?  
 anyone H-Nom made cake-Acc eat Neg-Past Q  
 ‘Didn’t anyone eat the cake that Hanako made?’

<sup>7</sup> Indeed, a DisjP connected by *ka* ‘or’ intervenes between the *wh* phrase and the interrogative complementizer as shown in the example below.

(i) \*[John ka Bill]-ga nani-o nomimasita ka?  
 J or B-Nom what-Acc drank Q  
 ‘What did John or Bill drink?’

(Hoji (1985: 264))

Although the difference in the acceptability seems to be slight, the data suggest that in Japanese also, there is an intervention effect. Focal elements and negation intervene between the existential operator and the disjunctive phrase because the existential operator has to be in the sentence-initial position under the assumption that the interpretation of questions requires the existential operator that binds the set of possible answers to scope over the whole sentence.

#### 2.2.2.2. Constructions Involving Disjunction

In both English and Japanese, constructions involving disjunction can be analyzed as involving a choice function, in a fashion similar to AltQs. The formula for the English example (29a) and the Japanese example (29b) would be like the one in (29c).

- (29) a. Taro drank either coffee or tea.  
 b. Taro-wa [koohii to otya-no (uti-no) dotti-ka]-o nonda.  
 Taro-Top coffee and tea-Gen out-of which-ka-Acc drank  
 c.  $\exists f (\text{Ch}(f) \ \& \ (\text{Taro drank } f(\{\text{coffee, tea}\})))$

I propose that the semantics of a choice function is introduced by *either* in (29a) and by *dotti-ka* ‘either’ in (29b).

If the present proposal is on the right track, we can explain the fact that universal quantification cannot be involved in NP<sub>1</sub> in constructions involving disjunction when *uti-no* ‘out of’ is used as shown in (6). In order to be interpreted the “choice function-type” partitive needs to have an existential operator as in (29c). However, if the universal quantifier *mo* is attached to the indeterminate *dotti*, the sentence would be uninterpretable since the universal quantifier cannot be interpreted under the existential operator introduced by the choice function variable.

Moreover, it is also possible to reanalyze partitives with numerals like (30) as involving a choice function (cf. Reinhart (1997), Winter (1997)).

- (30) a. Taro-wa sara-ni notte-iru kukkii-no #(uti-no) san-mai-o tabeta. (=2a)  
 T-Top dish-on put-is cookie-Gen out-of three-Cl-Acc ate  
 ‘Taro ate three of the cookies on the dish.’  
 b.  $\exists f (\text{Ch}(f) \ \& \ (\text{Taro ate } f(\{Y \mid \text{cookies on the dish } (Y) \ \& \ \text{three } (Y)\})))^8$

In (30b), a choice function is applied to a set of sets each of which consists of three cookies on the dish.

In the rest of this subsection, I discuss the intervention effect observed in the *either...or...* construction and its counterpart in Japanese as a piece of supporting evidence for the claim that choice functions are involved in the interpretation of these constructions. Larson (1985: 218) notes that the *either...or...* construction in English is ambiguous when *either* is not used or is in its base position as in (31). In terms of the scope interaction between the indefinite noun and the predicate, there are two *de dicto* readings. The first is the reading in which the disjunction *or* connects two NPs as in (31a). The second is the reading in which the disjunction *or* works as a sentential connective as in (31c). (31) also has a *de re* reading in (31b).

- (31) Mary is looking for a maid or a cook. / Mary is looking for **either** a maid or a cook.  
 a. Mary is looking for ((a maid) or (a cook)). (*de dicto* reading)  
 b. for some x, a maid or a cook, Mary is looking for x. (*de re* reading)

<sup>8</sup> The audience at the 147th meeting of the Linguistic Society of Japan pointed out that the formula described in (30b) involves type mismatch: at the node where ‘the cookies on the dish (Y)’ and ‘three (Y)’ come together and at the node where ‘ate’ and ‘f({Y | the cookies on the dish (Y) & three (Y)})’ come together. The problem is related to both the syntactic structure and the semantics of partitives, and I leave a close investigation for future research. The issue of what element in the sentence has the semantics of a choice function would also be problematic in examples like (30a).



- c. Mary is looking for (a maid) or Mary is looking for (a cook). (“...but I don’t know which”)

Larson (1985) observes that *either* can float, and when it does, there is only one possible interpretation for the sentence: the ‘sentence-connective’ reading described in (32c).

- (32) Mary is **either** looking for a maid or a cook.  
 Mary **either** is looking for a maid or a cook.  
**Either** Mary is looking for a maid or a cook. (Larson (1985: 220))
- a. \*Mary is looking for ((a maid) or (a cook)).  
 b. ??for some x, a maid or a cook, Mary is looking for x. (*de re* reading)  
 c. Mary is looking for (a maid) or Mary is looking for (a cook).

The interesting point is that when the sentence becomes negative as in (33), the ‘sentence-connective’ reading disappears. ‘*Either-floating*’ is thus not very good in negative sentences, as in (34b-d).

- (33) Mary isn’t looking for a maid or a cook. (Larson (1985: 223))
- a. Mary is looking for ((a maid) or (a cook)).  
 b. for some x, a maid or a cook, Mary is looking for x. (*de re* reading)  
 c. \*Mary is looking for (a maid) or Mary is looking for (a cook).
- (34) a. Mary isn’t looking for either a maid or a cook.  
 b.(?)Mary isn’t either looking for a maid or a cook.  
 c.?? Mary either isn’t looking for a maid or a cook.  
 d.?? Either Mary isn’t looking for a maid or a cook. (Larson (1985: 224))

Further, Beck & Kim (2006) give the following examples and illustrate the point that when *either* floats in a sentence with *only*, *only* cannot be in an intervening position between *either* and the DisjP.

- (35) a. Only John ate either rice or beans.  
 b. \* Either only John ate rice or beans. (Beck & Kim (2006: 201))

The phenomena in (32)-(35) show that an intervention effect is observed in the *either...or...* construction.

The situation is apparently different in Japanese. That is, neither a focusing morpheme nor an NPI makes the sentence worse.

- (36) a. Taro-**dake**-ga [jyotyuu to ryoorinin]-no uti-no dotti-ka-o sagasite iru.  
 T-only-Nom maid and cook-Gen out-of which-ka-Acc look.for is  
 ‘Only Taro is looking for either a maid or a cook.’
- b. Taro-**sika** [jyotyuu to ryoorinin]-no uti-no dotti-ka-o sagasite i-nai.  
 T-only-Nom maid and cook-Gen out-of which-ka-Acc look.for is-Neg
- c. Taro-**sae** [jyotyuu to ryoorinin]-no uti-no dotti-ka-o sagasite iru.  
 T-even maid and cook-Gen out-of which-ka-Acc look.for is  
 ‘Even Taro is looking for either a maid or a cook.’
- (37) **Daremo** [jyotyuu to ryoorinin]-no uti-no dotti-ka-o sagasite i-nai.  
 anyone maid and cook-Gen out-of which-ka-Acc look.for is-Neg  
 ‘Anyone isn’t looking for either a maid or a cook. (= No one is looking for either a maid or a cook.)’

The acceptability of (36) and (37) is the same as the examples in (38) and (39) in which [*koohii to otya*]-no uti-no dotti-o ‘which of coffee and tea’ is scrambled to the sentence-initial position and the sentences in (40) and (41) in

which a complex noun phrase (which does not interact with scopal elements) is used instead of the “alternatives.”

- (38) a. [Jyotyuu to ryoorinin]-no uti-no dottika-o Taro-**dake**-ga sagasite iru.  
 maid and cook-Gen out-of which-ka-Acc T-only-Nom look.for is  
 ‘Only Taro is looking for either a maid or a cook.’  
 b. [Jyotyuu to ryoorinin]-no uti-no dottika-o Taro-**sika** sagasite i-nai.  
 maid and cook-Gen out-of which-ka-Acc T-only-Nom look.for is-Neg  
 c. [Jyotyuu to ryoorinin]-no uti-no dottika-o Taro-**sae** sagasite iru.  
 maid and cook-Gen out-of which-ka-Acc T-even look.for is  
 ‘Even Taro is looking for either a maid or a cook.’  
 (39) [Jyotyuu to ryoorinin]-no uti-no dottika-o **Daremo** sagasite i-nai.  
 maid and cook-Gen out-of which-ka-Acc anyone look.for is-Neg  
 ‘Anyone isn’t looking for either a maid or a cook. (= No one is looking for either a maid or a cook.)’  
 (40) a. Taro-**dake**-ga Hanako-ga kakusita okasi-o sagasite iru.  
 T-only-Nom H-Nom hid cake-Acc look.for is  
 ‘Only Taro is looking for the cake that Hanako hid.’  
 b. Taro-**sika** Hanako-ga kakusita okasi-o sagasite i-nai.  
 T-only-Nom H-Nom hid cake-Acc look.for is-Neg  
 c. Taro-**sae** Hanako-ga kakusita okasi-o sagasite iru.  
 T-even H-Nom hid cake-Acc look.for is  
 ‘Even Taro is looking for the cake that Hanako hid.’  
 (41) **Daremo** Hanako-ga kakusita okasi-o sagasite i-nai.  
 anyone H-Nom hid cake-Acc look.for is-Neg  
 ‘Anyone isn’t looking for the cake Hanako hid. (= No one is looking for the cake Hanako hid.)’

The absence of an intervention effect in Japanese constructions involving disjunction described above is different from that in Japanese AltQs exemplified in (23) and (24) (as opposed to (25)-(28)). A speculation which explains this behavior of the constructions involving disjunction in Japanese is that the scope of disjunction is frozen in place in the position of *dottika* ‘either.’ This is not unreasonable. As for the Japanese construction involving disjunction, there are three possible forms as in (42).<sup>9</sup>

- (42) a. Taro-wa [jyotyuu **ka** ryoorinin]-o sagasite iru.  
 T-Top maid or cook-Acc look.for is  
 ‘Taro is looking for (either) a maid or a cook.’  
 b. Taro-wa [jyotyuu **ka** ryoorinin **ka**]-o sagasite iru.  
 T-Top maid or cook or-Acc look.for is  
 c. Taro-wa [jyotyuu **ka** ryoorinin (?**ka**)]-no **dottika**-o sagasite iru.  
 T-Top maid or cook or-Gen which-ka-Acc look.for is

As well as the form with only the disjunctive *ka* ‘or’ connecting the alternatives as in (42a), the sentence is also grammatical with *ka* ‘or’ behind both of the alternatives as in (42b).<sup>10</sup> We can use *dottika* ‘either’ as in (42c).

<sup>9</sup> Note that the connective used in the example is *ka* ‘or.’ Although both *to* ‘and’ and *ka* ‘or’ are acceptable when *uti-no* ‘out of’ is not used, the use of the disjunctive *ka* ‘or’ is degraded for some speakers when *uti-no* ‘out of’ is used. (This point is described in detail in Section 3.2.) The conjunctive *to* ‘and’ was used in the previous examples because *uti-no* ‘out of’ had to be used in order to make clear that the sentences are indeed partitives.

<sup>10</sup> The fact that both *ka* ‘or’ and *to* ‘and’ (see (i)) can appear either between the alternatives or after each alternative is interesting in light of the problem of the syntactic structure of coordinates in Japanese.

Recall that the *either...or...* construction in English is ambiguous when *either* is not used or is in its base position as in (31). The noteworthy fact is that the possible readings for each of the forms in (42) are different. This point is shown in (43).

- (43) a. Taro-wa [jyotyuu **ka** ryoorinin]-o sagasite iru.  
 1. Taro is looking for ((a maid) or (a cook)).  
 2. ?for some x, a maid or a cook, Taro is looking for x. (*de re* reading)  
 3. ??Taro is looking for (a maid) or Taro is looking for (a cook).  
 b. Taro-wa [jyotyuu **ka** ryoorinin **ka**]-o sagasite iru.  
 1. Taro is looking for ((a maid) or (a cook)).  
 2. ??for some x, a maid or a cook, Taro is looking for x. (*de re* reading)  
 3. ??Taro is looking for (a maid) or Taro is looking for (a cook).  
 c. Taro-wa [jyotyuu **ka** ryoorinin (?**ka**)]-no **dotti-ka**-o sagasite iru.  
 1. Taro is looking for ((a maid) or (a cook)).  
 2. ??for some x, a maid or a cook, Taro is looking for x. (*de re* reading)  
 3. ??Taro is looking for (a maid) or Taro is looking for (a cook).

The ‘sentence-connective’ reading (the 3. reading) is difficult to obtain for all three forms. This may be attributed to the fact that *ka* ‘or’ can connect two sentences like (44) and thus we do not need to derive the ‘sentence-connective’ reading from the form connecting two nouns as in(45).

- (44) a. [John-ga hasi-tta ka] [Mary-ga koron-da ka] da.  
 J-Nom run-Past or M-Nom fall.down-Past or Copula  
 ‘John ran or Mary fell down.’  
 b. [John-ga hasir-i ka] [Mary-ga korob-i ka] si-ta.  
 J-Nom run-Nonfin or M-Nom fall.down-Nonfin or do-Past (Kishimoto (2013: 16))

- (i) a. Taro-wa [jyotyuu **to** ryoorinin]-o sagasite iru.  
 T-Top maid and cook-Acc look.for is  
 ‘Taro is looking for (both) a maid and a cook.’  
 b. Taro-wa [jyotyuu **to** ryoorinin **to**]-o sagasite iru.  
 T-Top maid and cook and-Acc look.for is

The structure of English coordinates ‘A and/or B’ is generally claimed to be something like (ii).

- (ii)
- ```

  &/DisjP
  /  \
  A    &/Disj
       /  \
  &/Disj B
  
```

However, this structure cannot be directly mapped to Japanese coordinates like those in (42a) and (ia), since Japanese is a head-final language and the structure does not fit into the word order in (42a) and (ia). If *ka* ‘or’ and *to* ‘and’ are to be analyzed as heads, the fact that there is a form in which *ka* ‘or’ and *to* ‘and’ appear after each alternative as in (42b) and (ib) is important for specifying the structure of Japanese coordinates. One possible way would be to assume a covert functional projection which has a &/DisjP in both its specifier and complement positions and think of a structure in (iii).

- (iii)
- ```

  F
  /  \
  &/DisjP  F
  /  \    /  \
  A    &/Disj &/DisjP F
              /  \
             B    &/Disj
  
```

I leave for further investigation this problem and the structure of the form using *dotti-ka* ‘either’ as in (42c).

More important is the difference in the acceptability of the 1. and the 2. readings between the three forms in (43). Although the *de dicto* reading (the 1. reading) is acceptable for all three forms, the *de re* reading is easier to get for (43a) compared to (43b) and (43c). The speculation is that the second *ka* ‘or’ in (43b) and the *dotti-ka* ‘either’ in (43c) work to determine the scope of the DisjP and thus the *de re* reading is hard to obtain in the two sentences.<sup>11</sup> This line of thought leads to the question of whether the two *ka*’s in (43b) have a different status and the problem of what position the second *ka* ‘or’ in (43b) and the *dotti-ka* ‘either’ in (43c) occupy (cf. note 10), but I leave for future research a close investigation of the intervention effect in Japanese constructions involving disjunction.

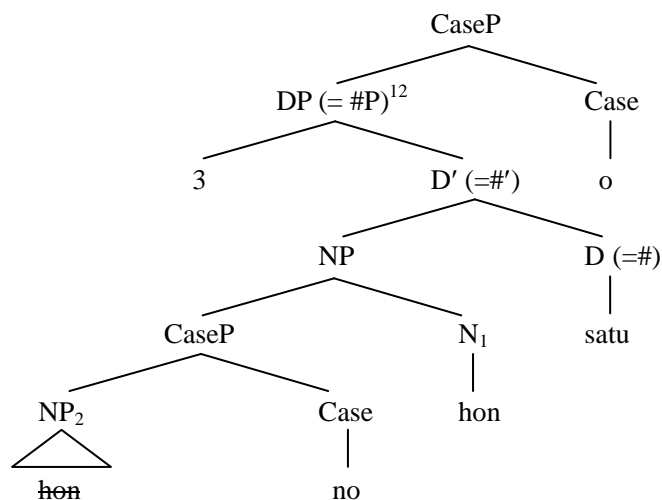
### 3. Choice Function-Related Partitives and Their Structure

In this section, first I briefly review previous studies on partitives. I argue that partitives which are related to choice functions do not have the structure proposed for partitives in previous studies. In Section 3.2, the item *uti-no* ‘out of’ is taken up and its problematic nature is described.

#### 3.1. Partitives Which Involve Choice Functions and Partitives Which Do Not

Building on the argument made by Jackendoff (1977) for English partitives, Sauerland & Yatsushiro (2003) claim that Japanese partitives also contain an unpronounced noun. For example, the occurrence of *hon* ‘book’ in ~~strikethrough~~ is unpronounced in (45). The part-whole relation is implemented by *no* (in English, the word *of*).

- (45) San-satu-no hon-o yonda.  
 Three-Cl-Gen book-Acc read  
 ‘I read three books.’



<sup>11</sup> The idea, however, seems not to go well with the well-known fact that in Japanese, disjunction scopes over a c-commanding negation in contrast to English. See the contrast between (i) and (ii).

- (i) John doesn't speak French *or* Spanish. (English)  
 (=John does not speak French AND does not speak Spanish)  
 (ii) John-wa furansugo ka supeingo-o hanasa-nai. (Japanese)  
 John-Top French or Spanish-Acc speak-Neg  
 ‘John does not speak French OR does not speak Spanish’

(Goro (2007: 3))

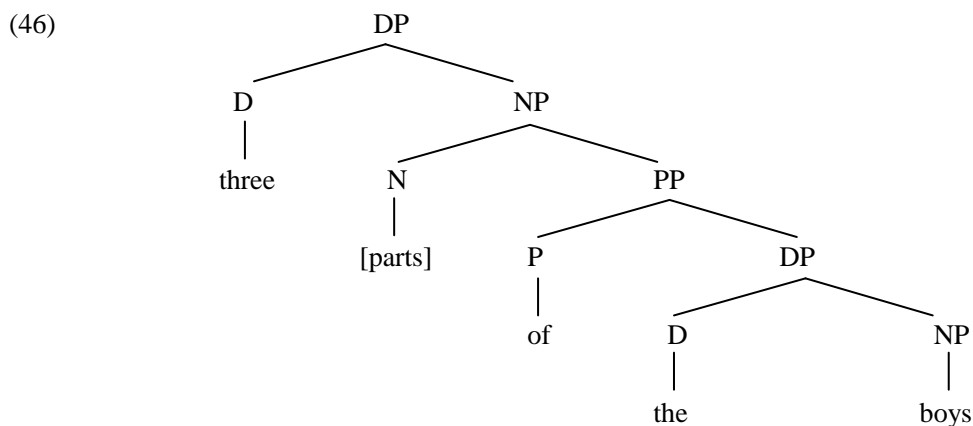
The meaning of the sentence is the same in the forms in (iii) and (iv).

- (iii) John-wa furansugo ka supeingo **ka-o** hanasa-nai. (Japanese)  
 John-Top French or Spanish or-Acc speak-Neg  
 (iv) John-wa furansugo ka supeingo (?ka)-no **dotti-ka-o** hanasa-nai. (Japanese)  
 John-Top French or Spanish or-Gen which-ka-Acc speak-Neg

<sup>12</sup> As Sauerland & Yatsushiro (2003) note, their DP layer between NP and CaseP corresponds to NumberP (#P) proposed for one of the layers of the structure of DP by Watanabe (cf. Watanabe (2006)).

Sauerland & Yatsushiro (2003) propose that the sentence in (45) is derived from the structure via (i) NP movement to a higher Spec CaseP, (ii) adjunction of the DP remnant to the higher CaseP, and (iii) deletion of NP<sub>2</sub> (the lower occurrence of the noun).

Chierchia (1997) studies English and Italian partitives and argues for the structure in (46). He proposes that there exists a plural relational noun [parts] which is interpreted as ‘part’ or ‘component.’ The preposition *of* is claimed to be there for a case theoretic reason.



In the previous works reviewed above, the meaning of the part and the whole is contributed by the adposition *no/of* or the unpronounced noun [parts]. However, the constructions which have been newly proposed as a type of partitive are related to choice functions. Since a choice function takes a set as its argument and gives back a member of the set, the role of the choice function itself can denote the part-whole relation. If this is on the right track, partitives involving a choice function do not need elements which correspond to *of* or [parts] and they should have a structure different from those proposed in previous studies.

In contrast, partitives which clearly do not involve a choice function are assumed to have the structure proposed in previous studies. Partitives which take *dotti-mo* ‘both’ and *both* as NP<sub>1</sub> are examples of this type of partitive.

Although the problem remains of what precisely the structure of the choice function-related partitives is, in the next section I discuss the property of *uti-no* ‘out of.’ The property of *uti-no* ‘out of,’ if clarified, would give us a clue to the structure of the partitives involving a choice function.

### 3.2. The Item *Uti-no* ‘Out of’

I first point out the possibility that *uti-no* ‘out of’ is a postposition. There are two pieces of supporting evidence for this.

First, in languages such as English and Italian, the “part” and the “whole” are linked by an adposition-like element in partitives:

- (47) a. Some of the bottles are broken.  
 b. Alcune delle bottiglie sono rotte.  
 Some of-the bottles are broken (Chierchia (1997: 73))

Second, Japanese postpositions contain elements which seem to be nouns as in (48) (cf. Okutsu (1974)).<sup>13</sup>

<sup>13</sup> However, Watanabe (2009) claims that these “noun-like” elements are not nouns but are functional heads which take a referential object (like *tukue* ‘desk’ in (48)) and map it to a locational notion.

- (48) Tukue-no {mae / usiro / ue / sita}-ni...  
desk-Gen front / back / above / under-at

The noun *tukue* ‘desk’ is marked genitive before the elements *mae / usiro / ue / sita* ‘front / back / above / under’ and this fact would be support for treating the latter as nouns. As we can observe from the examples such as (2) and (3) where noun phrases [*sara-ni notte-iru kukkii*]-no ‘dish-on put-is cookie-Gen’ and [*koohii to otya*]-no ‘coffee and tea-Gen’ occur before *uti-no* ‘out of,’ the noun before *uti-no* ‘out of’ is also marked genitive.<sup>14</sup> The above facts show that Japanese postpositions and *uti-no* ‘out of’ share the characteristic that they behave like nouns and I thus claim that *uti-no* ‘out of’ is a postposition.

Although the precise syntactic position and nature of *uti-no* ‘out of’ are to be examined in future research, in the remainder of this subsection I give two pieces of interesting data which suggest that *uti-no* ‘out of’ induces a change in syntactic structure and has semantic import. From the facts I conclude that *uti-no* ‘out of’ projects some kind of functional projection. The first piece of data is that in AltQs and constructions with disjunction, we can use the disjunctive *ka* ‘or’ when *uti-no* ‘out of’ is not used as in (49), while the use of *ka* ‘or’ becomes worse when *uti-no* ‘out of’ is used as in (50), although there are differences in judgment between speakers.

- (49) a. ?Taro-wa [koohii ka otya-no dotti]-o nonda no?  
Taro-Top coffee or tea-Gen which-Acc drank Q  
‘Did Taro drink [coffee or tea]?’  
b. ?Taro-wa [koohii ka otya-no dotti-ka]-o nonda.  
Taro-Top coffee or tea-Gen which-ka-Acc drank  
‘Taro drank either [coffee or tea].’  
(50) a. ?? Taro-wa [koohii ka otya-no **uti-no** dotti]-o nonda no?  
Taro-Top coffee or tea-Gen out-of which-Acc drank Q  
‘Did Taro drink [coffee or tea]?’  
b. ?? Taro-wa [koohii ka otya-no **uti-no** dotti-ka]-o nonda.  
Taro-Top coffee or tea-Gen out-of which-ka-Acc drank  
‘Taro drank either [coffee or tea].’

When *uti-no* ‘out of’ is used, somehow *to* ‘and’ is preferred.<sup>15</sup> Since *to* ‘and’ and *ka* ‘or’ are almost freely interchangeable in sentences without *uti-no* ‘out of’ ((3) and (4) vs. (49)), the speculation would be that the change in structure caused by the existence of *uti-no* ‘out of’ makes *ka* ‘or’ unable to appear in the sentence.

*Uti-no* ‘out of’ also gives rise to a curious change in interpretation. The point is sketched in (51).

- (51) a. Taro-wa [ringo hak-ko-no hanbun]-o tabeta.  
Taro-Topic apple eight-Cl-Gen half-Acc ate  
‘Taro ate four apples.’  
‘Taro ate eight half-cut apples.’  
b. Taro-wa [ringo hak-ko-no **uti-no** hanbun]-o tabeta.  
‘Taro ate four apples.’  
\*‘Taro ate eight half-cut apples.’

The sentence without *uti-no* ‘out of’ in (51a) literally means ‘Taro ate half of the eight apples’ and it has two readings: ‘Taro ate four apples’ and ‘Taro ate eight half-cut apples.’ In contrast, the example in (51b) with *uti-no*

<sup>14</sup> *Uti* actually has uses as a noun, meaning ‘inside’ and ‘house,’ and *uti* in *uti-no* ‘out of’ is analyzed as a formal noun in traditional grammar.

<sup>15</sup> The fact that in Japanese the alternatives can be connected with *to* ‘and’ is quite interesting in the first place, since in English only *or* is allowed in AltQs and *either...or...* constructions.

‘out of’ is unambiguous; it can only mean ‘Taro ate four apples.’ The difference between the two readings available for (51a) seems to come from the argument that *hanbun* ‘half’ takes. If it takes the whole set of eight apples as its argument, the reading ‘Taro ate four apples’ arises, while if it takes each member of the set as its argument, we obtain the reading ‘Taro ate eight half-cut apples.’ Since the example with *uti-no* ‘out of’ in (51b) does not have the latter reading, it appears that *uti-no* ‘out of’ has some property that blocks *hanbun* ‘half’ to take each member of the set of apples as its argument.

Regarding the semantics of the type of partitive taken up in this paper, if *dotti* ‘which’ and *dotti-ka* ‘either’ are the items which introduce the semantics of a choice function, what does *uti-no* ‘out of’ do? What we know so far is that it has a semantic import, as seen from example (51) and the fact that in the example (2) repeated below, there is a semantic restriction that the number of the “whole,” namely the cookies on the dish and my family members, have to be larger than three.

- (2) a. Taro-wa sara-ni notte-iru kukkii-no #(uti-no) san-mai-o tabeta.  
 T-Top dish-on put-is cookie-Gen out-of three-Cl-Acc ate  
 ‘Taro ate three of the cookies on the dish.’  
 b. Watasi-no kazoku-no ??(uti-no) san-nin-ga isya da.  
 I-Gen family-Gen out-of three-Cl-Nom doctor is  
 ‘Three of my family members are doctors.’

We also know that the use of *uti-no* ‘out of’ induces a change in the syntactic structure, as shown in (49) and (50). It thus seems that *uti-no* ‘out of’ projects some kind of functional projection. I would like to take these points into consideration and seek to clarify the nature of *uti-no* ‘out of’ in the future.

#### 4. Concluding Remarks

In this paper, I have proposed that AltQs and constructions involving disjunctions are a new type of partitive, namely partitives related to choice functions. This new type of partitive is claimed to have a structure different from that of other types of partitives. It is also claimed that *uti-no* ‘out of’ is a postposition.

However, many problems are left for future research. The biggest task is to specify the structure of the partitives related to choice functions. The task becomes all the harder since the NP<sub>1</sub> (the “part”) in this type of partitive, namely *dotti* ‘which’ and *dotti-ka* ‘either,’ are clearly decomposable and seem to be some kind of a phrase. What position do these elements occupy, and what are their functions? Our proposal also has to cover examples such as (52), in which both *dotti-ka* ‘either’ and a numeral are present.

- (52) Taro-wa [kukkii to keeki-no (uti-no) dotti-ka hito-tu]-o tabeta.  
 Taro-Top cookie and cake-Gen out-of which-ka one-Cl-Acc ate  
 ‘Taro ate either [a cookie or cake].’

Another issue that we need to confront is what kind of element has the semantics of a choice function. There is currently no consensus on the matter. Reinhart (1997) and Winter (1997) claim that only some indefinite pronouns have the semantics of a choice function. If the proposal in this paper is on the right track, the question becomes unavoidable of what property of NP<sub>1</sub> (the “part”) differentiate the partitives which are related to choice functions and the partitives which are not, and the issue stated above is related to this. It seems that we have to take a semantic approach to the problem, and I leave it for future research.

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