

Relative Clauses on Type-Representing Head Nouns*

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1. Introduction

The term CLASSIFIER may promptly remind one of the numeral classification phenomenon observed in Asian languages. In Japanese, for instance, numerals invariably require classifiers that agree with the type of entity being counted. Let us consider the following sentences:¹

- (1) Mary-ga sono hon-o 2-satu katta.
 M.-Nom the book-Acc 2-Cl bought
- (2) Mary bought two copies of the book.

The Japanese sentence in (1) is equivalent in meaning to the English sentence in (2). The classifier *satu* in (1), which occurs with the numeral, is used to count bound volumes such as books and magazines.

By comparing (1) with the following ill-formed sentences, we can demonstrate some important properties of Japanese classifiers:

- (3) a. * Mary-ga sono hon-o satu katta.
 M.-Nom the book-Acc Cl bought
- b. * Mary-ga sono hon-o 2-hon katta.
 M.-Nom the book-Acc 2-Cl bought

In (3a) the classifier *satu* lacks the numeral; in (3b) the classifier *hon*, which classifies long, thin, rigid objects such as sticks and pencils, is associated with the object *hon*. We can attribute the illicitness of (3) to the following properties of classifiers:

- (4) a. The classifier has the status of a bound morpheme.
 b. The classifier needs to be matched with the type of entity being counted.

With these properties of Japanese classifiers in hand, let us now compare (1) with its English counterpart in (2). The Japanese classifier *satu* corresponds to the noun *copy* in English. The English noun *copy* is like *satu* in having the property in

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¹ The following abbreviations are used in glossing the Japanese data: Nom nominative, Acc accusative, Cl classifier.

(4b): these are both used to classify bound volumes. Unlike *sat*, however, the noun *copy* does not have the property in (4a). Namely, it does not qualify as a bound morpheme, and thus can occur alone as in *Mary bought a copy of the book*. Despite this morphological difference between *sat* and *copy*, we refer to nouns like *copy* as CLASSIFIERS throughout this paper simply for ease of reference.

Both *sat* and *copy* behave alike in relative noun phrases (NPs) derived from (1) and (2). Where relativization is applied to the objects *hon* and *the book*, the resulting phrases are (5) (the brackets in (5a) indicate a relative clause (RC)).

- (5) a. [Mary-ga 2-satu katta] hon
 b. the book that Mary bought two copies of

These relative NPs are parallel in meaning. It is expedient to use the terms TYPE and TOKEN or INSTANCE to capture the above parallelism. By token, I mean a unique physical entity, located at a particular place in space or time; by type, on the other hand, I mean a category whose members are tokens with certain extent of similarity.² The relationship between type and token will be referred to as one of *instantiation*: tokens instantiate their type (Lyons 1977).

Invoking the type/token distinction, we can say that in (5), the head nouns, *hon* and *the book*, both represent a type, while *2-satu* and *two copies* represent instances of that type. In other words, the RCs in (5) both take as their head nouns NPs that represent a type. For this property, we refer to RCs like the ones in (5) as RCS ON TYPE-REPRESENTING HEAD NOUNS, and whole relative NPs like (5) as TYPE-REPRESENTING RELATIVE NPS.

Despite their parallelism in meaning, however, it turns out on closer inspection that the relative NPs in (5) are crucially different from each other. That is, (5b) but not (5a) has an alternative form: the classifier *copies* can be omitted as in (6b), whereas its Japanese counterpart *sat* cannot, as in (6a).

- (6) a. * [Mary ga 2 katta] hon
 b. the book that Mary bought two of

It stands to sense that the classifier *sat* cannot be omitted, given the fact that numerals in Japanese invariably require classifiers. In this respect, English is different from Japanese, and allows numerals to occur without classifiers as in *two books*.³ What is surprising in the above contrast is the fact that in the English version of the relative NP, the classifier *copy* can be understood. This fact provides

² For the notions TYPE and TOKEN or INSTANCE, see Lyons (1977), Carlson (1980), Jackendoff (1983), among others.

³ We follow Jackendoff (1977) in referring to the words like *three* and *seven* as numerals.

a strong contrast to the inability of the classifier to be understood in main clauses, as illustrated in (7b).

- (7) a. Mary bought two copies of the book. (=2)
 b. * Mary bought two of the book.

The schematic form *[numeral]+of+NP* seems to require the NP following *of* to be plural, as in *two of the books*.⁴ Thus, the contrast in (7) indicates that when the NP after *of* is a singular type-representing NP, the numeral cannot occur without a classifier in main clauses. In other words, it is the classifier that enables singular NPs to occur in the post-*of* position in *[numeral]+of+NP*. Though I will postpone a detailed discussion of the *raison d'être* of classifiers until the next section, it suffices for now to point out that singular NPs are basically not allowed to occur in the post-*of* position unless numerals preceding *of* have classifiers.

The question that arises immediately from the mind-boggling contrast between (6b) and (7b) is:

- (8) Why can the classifier be omitted in RCs as in (6b), but not in main clauses as in (7b)?

Setting (8) as a central question of this paper, I will concentrate on type-representing relative NPs in English and demonstrate their properties.

The organization of this paper is as follows. Section 2 provides a descriptive characterization of type-representing relative NPs. I compare “partitive-like” expressions such as *two copies of the book* with ordinary partitive constructions. I also discuss the *raison d'être* of classifiers, and answer part of the question in (8). In section 3, I argue that two distinctive semantic conditions govern relative NPs with type-representing head nouns. Then, in section 4, I attempt to provide a complete answer to the question in (8). Section 5 provides some concluding remarks.

2. Partitive Constructions in Type-representing Relative NPs

This section is devoted to studying expressions like *two copies of the book*. As already pointed out, it is these expressions that cause type-representing relative NPs to assume an idiosyncratic character. The classifier in those expressions may be omitted. Compare (5b) with its “classifier-less” counterpart in (6b).

- (5) b. the book that Mary bought two copies of
 (6) b. the book that Mary bought two of

⁴ As will be seen in section 2, when an NP counts as a “group noun,” it can occur in the post-*of* position even if the NP is in a singular form.

The RC in (6b) includes *two of*, which is “stranded” by the relativization of *the book*.⁵ The numeral here is without the classifier and, in itself, functions as a noun, while its counterpart in (5b) is with the classifier and functions as a modifier. The underlying expression *two copies of the book* consists of two parts: the NP preceding *of* (a.k.a. the first NP) and the partitive *of*-phrase (including the second NP). The schematic form *NP+of+NP* of the expression in question is reminiscent of so-called “partitive constructions.” In what follows, thus, we will deal with the relationship between expressions like *two copies of the book* and partitive constructions, and will demonstrate their similarities and differences.

2.1 Previous Studies of Partitive Constructions

Let us start with reviewing some previous studies of partitive constructions to grasp their characteristics. Quirk et al. (1985) list the following phrases as examples of the partitive construction.

- (9) QUALITY PARTITION
- a. new kinds of computers
 - b. other types of research
- (10) QUANTITY PARTITION
- a. a pack of cigarettes
 - b. two pieces of cake
 - c. a page of a book
- (11) MEASURE PARTITIVES
- a. one kilo of apples
 - b. a liter of wine

According to Quirk et al., partitive constructions express both QUALITY PARTITION as in (9) and QUANTITY PARTITION as in (10). Although Quirk et al. also introduce the distinct term MEASURE PARTITIVES to name those partitives such as (11) which express “precise quantities denoting length, area, volume, weight, etc.,” they seem to be a variant of quantity partition, since they, after all, express quantities.

The (a)-examples in (9)-(11) are cases in which the second noun is a plural count noun, and the (b)-examples in (9)-(11) cases in which the second noun is a noncount noun. (10c) is a case in which the second noun is a singular count noun.

Let us now compare *two copies of the book* with these partitives. This phrase seems to be related, if any, to quantity partition (including measure partitives) rather than to quality partition because the classifier *copies* obviously designates quantity

⁵ Although I use the expression “*two of*, which is ‘stranded’ by the relativization of *the book*,” I will remain neutral as to whether relativization is a movement rule or not.

but not quality. From the syntactic point of view, however, *two copies of the book* needs to be separated even from what Quirk et al. call quantity partition. This is because the second NP in ordinary partitives can be either definite or indefinite, while the second NP in *two copies of the book* is basically definite (cf. *two copies of book(s)).⁶

With respect to this point, it is worth noting Jackendoff's (1977) work. Citing several arguments of Selkirk (1977), he concludes to separate partitives whose second NPs contain a null determiner as in (9)-(11) as PSEUDOPARTITIVES from TRUE PARTITIVES such as *groups of the men* and *a gallon of the wine*.⁷ Let us summarize two of the arguments. First, *true* partitive constructions are subject to the PARTITIVE CONSTRAINT, according to which the second noun, or what he often calls "(partitive) *of*-phrase," must include a demonstrative or genitive specifier. This constraint rules out **many of men*. Since partitives such as (9)-(11) evade this constraint, he assigns a different structure to them from that of true partitives.

Secondly, to distinguish true partitives from pseudopartitives, he cites Selkirk's Extraposition test. As the following contrast indicates, true partitives behave differently from pseudopartitives with respect to the applicability of Extraposition.

- (12) a. A lot of the leftover turkey has been eaten.
 ⇒ A lot has been eaten of the leftover turkey.
 b. A lot of leftover turkey has been eaten.
 ⇒ *A lot has been eaten of leftover turkey.

Extraposition of the *of*-phrase is possible in a definite partitive but not in an indefinite partitive. Given the distinction between true partitives and pseudopartitives, expressions like *two copies of the book* are categorized as true partitives since sentences including such expression allow Extraposition to apply to the definite *of*-phrase, as in:

- (13) a. Two copies of the journal have been bought.
 ⇒ Two copies have been bought of the journal.
 b. Two bottles of the wine have been drunken.
 ⇒ Two bottles have been drunken of the wine.

⁶ Notice that the *of*-phrase may contain an indefinite article instead of a definite article, as in *two copies of a book*. Thus, the statement that the *of*-phrase in partitive-like expressions must be definite seems to be too strong. However, the indefinite article in this example parallels the definite article in *two copies of the book* in that both of the second NPs denote a specific entity. In this respect, *two copies of a book* is clearly different from its plural counterpart **two copies of books*.

⁷ Jackendoff (1977) does not deal with those partitives which Quirk et al. classify as quality partition. It is not clear, therefore, how examples like (9) are analyzed under his analysis.

- c. Two liters of the beer have been drunken.
 ⇒ Two liters have been drunken of the beer.

Under Jackendoff's analysis, then, the examples in (9)-(11), which Quirk et al. name partitives, are not *true* partitives. The second NP of true partitives should contain a demonstrative or genitive determiner. Consequently, as long as this respect is concerned, expressions such as *two copies of the book* fall into the same category as true partitives.

2.2 *The Type/Token Distinction and a Further Classification of Partitives*

As we have seen, Jackendoff's distinction of partitives does not distinguish expressions such as *two copies of the book* from what he calls true partitives. Those partitive-like expressions, however, have an idiosyncratic character: they allow singular *of*-phrases unlike ordinary partitives. I thus propose a further distinction of partitives that is based on the number of the *of*-phrase. Under this distinction, partitives are divided into two groups: (i) partitives that allow singular *of*-phrases, and (ii) partitives that do not.

Let us first consider the case in which singular *of*-phrases are permitted.

- (14) a. two copies of the book cf. two copies of the books
 b. two issues of the journal cf. two issues of the journals

Notice that although the second NP is singular, it semantically entails plural instances of the type it represents: *(two) copies* represents tokens of the type of book denoted by *the book*. More specifically, the classifier in *two copies* functions as representing tokens of the type of book, and the numeral simply quantifies tokens represented by the classifier. Thus, the classifier functions as a TOKEN-REPRESENTING NP. As a result, the first NP can be in a part-whole relation with the second NP that is singular in form. In other words, it is classifiers such as *copies* and *bottles* that enable the first NP to denote plural tokens of the type denoted by the singular second NP.⁸

Based on the property that singular *of*-phrases are allowed, let us dub this type of partitive the SINGULAR PARTITIVE CONSTRUCTION. It should be noted that I do not intend this term to imply that singular partitives can take only singular *of*-phrases. As the examples in (14) indicate, singular partitives can take not only singular *of*-phrases but also plural *of*-phrases.

⁸ Under our distinction, the example in (10c), *a page of a book*, is categorized as a singular partitive. However, this example seems to require a different treatment from ordinary singular partitives like *two copies of the book*. *A page* and *a book* are not in a token-type relation at least in the sense that *two copies* and *the book* are. The second NP in *a page of a book* seems to be classified as a "group noun" just like the one in *a member of the family*. Namely, *a book* is construed as designating a set of pages. I will not deal with this type of partitive in this paper.

When partitives include mass nouns as the second NP, they are automatically classified as singular partitives. This is because mass nouns are always singular.

- (15) a. two pieces of the cake
b. two gallons of the beer⁹

The second NP here is also singular, and thus, in itself, does not entail plural entities. Again, classifiers such as *pieces* and *gallons* enable the numeral in the first NP to denote members or amounts of the second NP.

Let us now move on to the other type of partitive construction: partitives that do not allow singular *of*-phrases. The second NP in the following examples, for instance, must be plural:

- (16) a. two of the men cf. *two of the man
b. groups of the men cf. *groups of the man

If the second NP is singular, the first NP cannot denote part of members of the set designated by the second NP, since the set consists of a single individual. In this respect, this type of partitive is different from the singular partitive construction. Thus, we can name such partitives the PLURAL PARTITIVE CONSTRUCTION.

So far, we have seen two distinct criteria to categorize partitive constructions. The first is Jackendoff's distinction, which is based on the presence/absence of a demonstrative or genitive specifier in the second NP. Adopting this distinction, expressions such as *two copies of the book* fall into the category of the true partitive because their second NP needs to contain a specifier. The distinction I proposed, on the other hand, is based on whether or not the first NP can be followed by a singular *of*-phrase. Under this singular/plural distinction, true partitives are divided further into two types: singular and plural partitives.^{10,11} Henceforth, let us refer to expressions such as *two copies of the book* as singular partitive constructions.

The rest of this section deals with a case which provides support for the distinction between singular and plural partitives. When the classifier is omitted and the head noun is plural, relative NPs may be interpreted as ambiguous between the plural partitive reading and the singular partitive reading. Consider:

⁹ Though the second NP *the beer* typically functions as a mass noun, it can be "reclassified" as a count noun. As a result, the second NP can be pluralized, as in *two gallons of the beers*.

¹⁰ Quirk et al. (1985) also use the terms "singular partitive" and "plural partitive." They apply the singular/plural distinction to the first NP; thus, *a piece of cake* is categorized as a singular partitive, and *two pieces of cake* is categorized as a plural partitive. By contrast, I apply the same distinction to the second NP. Because I do not have better terms at the moment, and also because I do not discuss the number of the first NP in this paper, I simply borrow the terms introduced by Quirk et al. and use them in my own sense.

¹¹ The same distinction can be made for pseudopartitives, which we do not go into here.

(17) the books that Mary bought two of

Notice that the head noun of this relative NP is plural. The plurality of the head noun causes the partitive in (17) to have both the plural partitive reading and the singular partitive reading. The interpretations are listed in (18) each.

- (18) a. *Singular Partitive Reading*: the set of the books such that Mary bought two copies of each of them.
 b. *Plural Partitive Reading*: the set of the books such that Mary bought two members of them.

(18a) is the interpretation on which the numeral *two* is interpreted as denoting instances of the types represented by the head noun *the books*. Under this interpretation, there are several types of book that Mary bought, and as for each type, she bought two copies. (18b) is, on the other hand, the interpretation on which the numeral *two* is interpreted as an ordinary (or plural) partitive construction. Under this interpretation, a set of books is presupposed in a previous context, and Mary bought two members of that set.¹²

The ambiguity of relative NPs with plural head nouns becomes even clearer when we consider a case in which predicates follow type-representing relative NPs.

- (19) a. The beers that Mary drank two of were Kirin and Asahi.
 b. The beers that Mary drank two of were Kirin, Asahi, and Sapporo.

The predicate (*be*) *Kirin and Asahi* requires a subject that represents a type.¹³ If the phrase *two of* is construed as *two bottles of* or *two glasses of*, then the sentence in (19a) has the singular partitive reading that Mary drank two bottles or glasses of *Kirin* and *Asahi*, thus four bottles or glasses in total. (19a), however, does not allow the plural partitive reading. As the predicate indicates, the total number of the kinds of beer is two, namely, *Kirin* and *Asahi*. Thus, the numeral *two* cannot denote part of the total number. Consequently, (19a) has only the singular partitive reading on which the first NP in *two of the beer* represents instances, and the second NP a type.

Let us now consider (19b). This sentence allows the plural partitive reading as well as the singular partitive reading. It should be noted that the predicate in (19b) represents three kinds of beer: *Kirin*, *Asahi*, and *Sapporo*. As a result, the partitive *two of the beers* can be interpreted either as a plural partitive or as a singular partitive. In the former interpretation, (19b) conveys that Mary drank two kinds of

¹² As a variation of the interpretation of (18b), it seems to be possible for some informants to interpret the head noun *the books* as a series of books such that Mary bought two volumes of it. The relative NP which manifests this interpretation is *the book series that Mary bought two of*.

¹³ I follow Kaga (1991) in interpreting an entity representing a brand as a type.

beer out of the three. In the latter interpretation, on the other hand, Mary drank two bottles or glasses of each of the three kinds of beer. Hence, she drank six bottles or glasses of beer in total. The difference in possible reading between (19a) and (19b) strongly indicates that there is a clear distinction between singular and plural partitives.

In this subsection, we have compared expressions such as *two copies of the book* with the ordinary partitive construction. We have reached the conclusion that such expressions are categorized as singular partitive constructions. What we have observed leads us to the *raison d'être* of classifiers. I have claimed that the classifier enables the singular second NP in partitives to entail plural token-entities out of which certain individuals (or a certain subset) denoted by the first NP are selected. Given this, we can answer part of the question in (8):

- (8) Why can the classifier be omitted in RCs as in (6b), but not in main clauses as in (7b)?

The reason why removing the classifier from *two copies of the book* in main clauses produces a grammatical degradation is that without classifiers, the second NP cannot entail plural entities. Thus, the second half of the above question has been answered. The first part of the question remains to be answered: why can *two copies of the book* be amenable to removing the classifier in RCs on type-representing head nouns? We will leave this question hanging until section 4. Before addressing this question, we will focus on some further semantic properties of type-representing relative NPs.

3. Semantic Conditions on Type-Representing Relative NPs

Let us consider the example in (20).

- (20) the journal that Mary bought two of

The classifier is understood here. As potential underlying forms for (20), one could consider the following two distinctive relative NPs:

- (21) a. the journal that Mary bought two *copies* of
 b. the journal that Mary bought two *issues* of

These are different only in the type of classifier included in the RC: (21a) has *copies*, and (21b) *issues*. Interestingly, the correct base form of (20) is not (21b) but rather (21a). It follows that the underlying form of (20) is decided with no hint whatever as to the kind of classifier.

Why does the numeral *two* in (20) correspond to “two copies” but not to “two issues”? There is one crucial difference between *two copies of the journal* and *two issues of the journal*: the former denotes two journals that are exactly the same in

content, while the other denotes two journals that have the same title but are different in content. This factual observation therefore seems to indicate that the following condition applies to relative NPs with “classifier-less” singular partitives:

(22) *Homogeneity Condition:*

The classifier-less numeral in type-representing relative NPs should denote entities that are recognized as “homogeneous.”

By HOMOGENEOUS entities, I mean entities that are the same or made of the same substance. The distinction between *issue* and *copy* is a clear case. Two copies of a journal not only have the same title but also have the same content. In this sense, the numeral (which functions as a noun) appropriately denotes entities that are homogeneous, thus satisfying the condition in (22). On the other hand, two issues of a journal surely have the same title; however, they are obviously different in content, and this is the very reason why they are called “issues” rather than “copies.” They are therefore not homogeneous, so that the numeral violates (22). The reason why the homogeneity requires more than having the same title seems to be related to our cognition, which is beyond the scope of the present work.

There is another piece of evidence which supports the existence of the Homogeneity Condition. It is concerned with the fact that I have observed elsewhere (Tanaka 1998). I have pointed out that contrasts like the following hold for relative NPs with singular partitives:

- (23) a. the journal that Mary bought two of
b. * the journal that Mary read two of

The only difference between these relative NPs is the type of verb. The verb *buy* fits in with the relative NP with a classifier-less singular partitive, whereas the verb *read* does not.

I have also observed that this contrast carries over to the following pair with the classifier:

- (24) a. Mary bought two copies of the journal.
b. * Mary read two copies of the journal.

In both cases, *the journal* represents a type. The numeral with a classifier *two copies*, as we have seen, denotes two journals that are the same in content. Then, it is easy for us to imagine a situation in which Mary bought two copies of a particular type of journal. By contrast, however, it is impossible to imagine a situation in which Mary read two copies of a particular type of journal. This is because once she has read a copy of a particular type of journal, it is impossible to “read” another copy of that particular type. Even if she “physically” read another copy of that type, we describe such a situation not by *Mary read two copies of that journal*, but rather

by *Mary read that journal twice*. In other words, even though she “physically” read two copies of a particular type of journal, the number of the type of journal that she has read is only one, not two.

Where *issue* is substituted for *copy*, the contrast in (23) does not carry over to their sentential counterparts, as in:

- (25) a. Mary bought two issues of the journal.
 b. Mary read two issues of the journal.

This fact is explained in parallel fashion. Unlike *two copies*, *two issues* denotes two journals that are different in content. In this sense, they each represent a different type. Consequently, what she has done to the journals is buying or reading two tokens each of which belongs to a different type. Notice that a situation in which Mary read the two different types of journal can be as easily imagined as a situation in which Mary bought the two different types of journal. In other words, we do not describe a situation in which Mary read two issues of a particular type of journal by *Mary read that journal twice* under the reading that *that journal* represents a token of a journal. Thus, a parallel contrast to (24) does not arise.

Based on this intuition, I have pinned this contrast on the properties of the verbs in the RC. The verb *buy* belongs to a verb class which takes either token-representing or type-representing entities as the object. By contrast, the verb *read* belongs to a verb class which takes only type-representing entities as the object.¹⁴

With this verb classification in mind, let us go back to the contrast in (23) again. First of all, recall that in *two copies of the book*, the second NP represents a type, and the first NP, which is the head of the whole NP, instances of that type. In

¹⁴ Katsuo Ichinohe (personal communication) pointed out to me that it is more accurate to state that not only *buy* but also *read* takes token-representing entities as the object. He suggested that the contrast in (24) be attributed to the difference in the event-type that these verbs (together with their objects) represent. According to him, *read a book* represents an event in which its action on a particular token “extends to” all other tokens of the same type, thus reading a token-book entails reading all tokens of the same type. By contrast, *buy a book* represents an event in which its action on a particular token does not “extend to” other tokens of the same type; consequently, buying a token-book does not entail buying other tokens of the same type. This crucial difference in event-type, he supposes, is derived from the “composite” properties of verbs and their objects and also our world knowledge about the objects. This way of thinking may be one option. However, I would like to take a different option. In my opinion, the action expressed by *read* is taken not on a token but rather on a type. In this respect, my idea is crucially distinct from his idea that the action expressed by *read* is taken on a token. I claim that reading a book means that though the reader holds a token-book in his or her hands, what he or she looks at and understands is a type-book, i.e. written words abstracted from a token-book. For this reason, I maintain to express that *buy* and *read* are different in selecting the object: the former takes token-representing entities as the object, whereas the latter takes type-representing entities as the object. See Tanaka (1998) for a more detailed discussion.

(23b), *read* is not consonant with *two of*. Given that this verb is incapable of taking token-representing elements as the object, this illicitness indicates that the numeral *two* denotes two instances of the same type of book, i.e., the instances are “homogeneous” in the sense that they share the same content. In (23a), on the other hand, the verb *buy* is consonant with the phrase because the verb is capable of taking token-representing elements as the object.

We have so far seen that what is denoted by the classifier-less numeral in type-representing relative NPs needs to be “homogeneous.” There is another condition that applies to type-representing relative NPs. Let us consider:

- (26) a. the milk that Mary drank two liters of
b. the milk that Mary drank two of

The only difference between these examples is that (26a) includes the liquid measure *liter* that occurs with the numeral *two*, while (26b) does not. This pair is reminiscent of the following pair that we have already seen:

- (27) a. the book that Mary bought two copies of (=4b)
b. the book that Mary bought two of (=5b)

The classifier *copies* manifests in (27a), while it is understood in (27b). In spite of the surface similarity, (26) is not parallel to (27) in that the examples in the latter are identical in meaning, but those in the former are not. (26b) has as its potential base form the following relative NP, but not (26a):

- (28) the milk that Mary drank two cartons of

From these observations, I argue that relative NPs with classifier-less singular partitives are constrained by the following condition:

- (29) *Unitness Condition*:

The classifier-less numeral in type-representing relative NPs should denote entities that are recognized as “units.”

The definition of a UNIT needs to be provided. An entity is recognized as a unit when it is a single, complete thing. Hence, what we think of as a “product” is a typical example of units. The classifier *copy*, for instance, is used to refer to bound volumes such as books and magazines of which there are many of the same. Since each one of the books or magazines is treated as a product, we recognize a copy of them as a unit. Similarly, the classifier *carton* is used to refer to a container including goods, food, or drink. We can treat each container (with its containee) as a product. Thus, a carton too deserves to be recognized as a unit. By contrast, measures such as *liter* cannot count as units in our sense. When we say two liters of the milk, we normally recognize them as a certain amount of the milk, rather than two complete things. This fact seems to be attributed to our cognition just like the case

of the Homogeneity Condition. I am not prepared to pursue this issue here, but given the fact that we normally recognize two liters of the milk not as two complete things but as a certain amount of milk, we can safely conclude that when used to refer to *two liters*, the numeral *two* violates the Unitness Condition.

Given this condition, the relative NP with a classifier-less partitive in (27b) is permitted under the interpretation on which the partitive is interpreted as *two copies of the book*. This is because the first NP of the partitive, *two copies*, is recognized as two units. On the other hand, the classifier-less form of the singular partitive *two liters of the milk* does not fit in with relative NPs with classifier-less singular partitives, since the first NP of the partitive *two liters* does not count as two units, but rather as a certain amount of the milk.

It should be noted, however, that measures are not always excluded from the category of unit. In our daily life, we often use a measure to refer to a complete thing. Let us take for instance the liquid measure *pint*, which is used in Britain and is equal to 0.47 liters.¹⁵ *A pint of the milk* is like *two liters of the milk* in denoting a certain amount of the milk. The noun *pint*, however, can also denote a container which has a capacity of one pint. Under this use, one may say “Two pints of the beer, please.” to order two glasses of a particular beer each of which contains one pint of the beer. In this context, *two pints* does not merely denote a certain amount of the beer, but rather it denotes two glasses of the beer as two complete things, or two units in our sense. The partitive *two pints of the beer* can therefore occur in RCs on type-representing head nouns even if its classifier is omitted.

4. Relative NPs with Classifier-less Singular Partitives

In the previous section, I have proposed two semantic conditions on relative NPs with classifier-less partitives: the Homogeneity Condition and the Unitness Condition. Classifiers in type-representing relative NPs are omissible only when the numeral in the RC satisfies both of these conditions. It should be recalled that these conditions apply not to main clauses but to type-representing relative NPs. Hence, the classifier is allowed to be removed in (30a), but not in (30b):

- (30) a. the book that Mary bought two (copies) of
 b. Mary bought two *(copies) of the book.

Section 2 has addressed the question of why the classifier cannot be omitted in main clauses as in (30b). I have attributed this fact to the requirement of singular

¹⁵ I thank Roger Martin for bringing this example to my attention.

partitive constructions: singular *of*-phrases require the classifier to occur with them, so that they can entail plural tokens with which the numeral preceding *of* is in a part-whole relation.

The remaining question is why the classifier can be omitted in type-representing relative NPs as in (30a). As pointed out in section 2.2, *two copies of the book* is schematically similar to the ordinary (or plural) partitive construction such as *two of the books*. However, unlike the classifier-less singular partitive *two of the book*, the plural partitive *two of the books* perfectly fits in with the sentence in (30b), as in:

(31) Mary bought two of the books.

The inability of the classifier *copies* to be omitted in (30b) indicates that the default interpretation of *[numeral]+of+NP* is the plural partitive construction rather than the singular partitive construction. This is also strongly indicated by the observations that classifier-less singular partitives are permitted only in limited environments, i.e. RCs that satisfy the two semantic conditions proposed in the previous section.

Given that the default interpretation of the form *[numeral]+of+NP* is the plural partitive reading, the question that naturally arises is why the numeral *two (of)* in relative NPs can have not only the plural partitive reading but also the singular partitive reading? This never happens in main clauses, as indicated by the difference in interpretation between (30a) and (31). I claim that the answer to the above question resides in the properties of RCs including quantifiers that are associated with the head noun (Q-INCLUDING RCs).

If we regard the numeral as a sort of quantifier, then a RC with a singular partitive like (32a) and a RC with a plural partitive like (32b) are both categorized as a subclass of Q-including RCs.

- (32) a. the book that Mary bought two of
 b. the boys that Mary met two of

It should be noted that in both cases, the numeral is somehow associated with the head noun: *two* in (32a) represents tokens of the type represented by the head noun, and *two* in (32b) members of the set (or group) represented by the head noun. I have claimed elsewhere (1998) that the quantifier that occurs in Q-including RCs cannot quantify over entities that are on the same semantic level as the entity denoted by the head noun. Specifically, the head noun in (32a), as repeatedly pointed out, represents a type, while the numeral represents instances of that type. In this sense, the numeral appropriately quantifies over entities that are on a different semantic level from entities denoted by the head noun. Similarly, the head noun in (32b)

represents a group of boys, while the numeral represents members of that group.¹⁶ Again, the numeral denotes entities on a different semantic level from the entities denoted by the head noun.

Given the above property of Q-including RCs, RCs with classifier-less singular partitives (and also RCs with plural partitives) are crucially distinct from main clause sentences in that the former require the numeral to denote entities on a lower level than entities denoted by the head noun. I claim that it is this property that enables the numeral in singular partitives to occur without classifiers under a certain condition. In other words, the property of Q-including RCs guarantees that the numeral without a classifier represents entities in a lower level than the head noun that represents a type. Similarly, in the case of plural partitives, the property in question requires the numeral to denote entities that are on a lower level than entities denoted by the head noun. The plural partitive in itself can satisfy this requirement since whether or not the classifier is included, the first NP of the partitive represents the “member-level” and the second NP a higher level, namely the “group-level.”

To sum up, my claim is that the property of Q-including RCs enables the classifier in relative NPs with singular partitives to be omitted. This is the answer to the first half of the question in (8):

- (8) Why can the classifier be omitted in RCs as in (6b), but not in main clauses as in (7b)?

In this section, we have addressed the first half of the central question in (8). I have attributed the deletability of the classifier to the property of Q-including RCs that the numeral is required to denote entities in a lower semantic level than the entities denoted by the head noun.

5. Concluding Remarks

This paper has dealt mainly with NP relatives whose head nouns represent a type. In section 2, we have paid attention to partitive-like phrases like *two copies of the book*, and have demonstrated the similarities and differences between such phrases and ordinary partitive constructions. We have concluded to treat such phrases as a variant of the partitive construction, and to separate them as singular

¹⁶ It is worth noting that (32b) does not have the singular partitive reading. As we have already discussed in section 2.2, when the head noun of relative NPs is plural as in *the beers that Mary drank two of*, they are ambiguous between the singular partitive reading and the plural partitive reading. Notice, however, that the head noun of (32b) is [+human]. As Kaga (1991) claims, when the head noun has the feature [+human], it can hardly represent a type. Thus, (32b) has the plural partitive reading but not the singular partitive reading. See Kaga (1991) for extensive discussion.

partitive constructions from ordinary (or plural) partitives. I have also discussed the function of classifiers, and have answered the question of why the classifier cannot be omitted in main clauses. In section 3, observing the deletability of classifiers, I have proposed two semantic conditions on relative NPs with classifier-less singular partitives. Section 4 has provided the answer to the question of why the classifier in the singular partitive can be omitted in RCs with type-representing head nouns. I have claimed that this surprising fact comes up only with support of the properties of Q-including RCs.

The task of answering the question in (8) has been completed. In the course of carrying on our study, however, a relevant question has arisen: what is the origin of the Homogeneity Condition and the Unitness Condition? I have hinted that whether given entities are “homogeneous” or “units” is closely related to our cognition. Our next task, thus, is to explain the *raison d'être* of the two semantic conditions. I would like to leave this task for future research.

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