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A semantic reanalysis of the partitive constraint☆

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Abstract

In this article a semantic reanalysis of the Partitive Constraint is given that is based on a distinction between determiners that quantify over entities and determiners that quantify over sets of entities. This leads to a straightforward analysis of problems that arose within earlier analyses of the Partitive Constraint. The reformulated Partitive Constraint simply states that NPs that are allowed in partitives must be entity-denoting if the upstairs determiner quantifies over entities, and set-denoting if the upstairs determiner quantifies over sets. NPs that denote restricted sets of entities satisfy the Partitive Constraint. That explains the presence of a modifying phrase in certain cases where the embedded NP is headed by a weak determiner. All in all, I will argue that the Partitive Constraint can and must be maintained as a semantic condition, and cannot be reduced to some kind of pragmatic principle.

1. Semantic analyses of the Partitive Constraint

One of the main observations that has been made with regard to partitive constructions is that the embedded NP must be definite, i.e., it must contain a definite article, a demonstrative, or a possessive (cf. Jackendoff, 1977; Selkirk, 1977). Other strong NPs as well as weak NPs are generally taken to be excluded from that position. Some examples are given in (1):

(1) a. one of these/the/my cats
    b. *one of all/most cats
    c. *one of some/three/no cats

This observation is known as the *Partitive Constraint*, defined by Jackendoff (1977: 113) as follows:

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(2) PARTITIVE CONSTRAINT
In an *of-N'''* construction interpreted as a partitive, the *N'''* must have a demonstrative or a genitive specifier

Jackendoff takes this constraint to be part of the semantic component, although (2) is given in purely observational terms and no motivation is provided. In this section I will briefly review some semantic analyses of the Partitive Constraint as provided in the literature (cf. Barwise and Cooper, 1981; Ladusaw, 1982; Hoeksema, 1984) and point out some remaining problems.

Since the article of Barwise and Cooper (1981), which can be considered a landmark in the field of model-theoretic semantics, the theory of generalized quantifiers has become a very fruitful trend in studying the semantics of natural language. Barwise and Cooper claim that all NPs denote generalized quantifiers, which are, in terms of set theory, families of sets. For example, an NP like *most linguists* denotes a family of sets of individuals, such that each set represents a property that holds for most linguists. If it is true that most linguists drink a lot, that most linguists have a cat, and that most linguists work at night, then the family of sets denoted by *most linguists* contains the set of individuals that drink a lot, the set of cat-owners, and the set of night-workers. It goes without saying that the linguists that have these properties, are not necessarily the same linguists all the time. Suppose the set of linguists consists of 5 individuals: Ray, Elisabeth, Robin, Bill, and Jack. Hence, if it is true that Ray, Elisabeth, and Robin drink a lot, then it is true that most linguists drink a lot. Similarly, if it is true that Robin, Bill, and Jack have a cat, then it is true that most linguists have a cat, and if it is true that Ray, Elisabeth, and Jack work at night, then it is true that most linguists work at night. In other words, the family of sets denoted by *most linguists* contains the set of drinkers, cat-owners, and night-workers, although in this specific model there is no linguist who is a member of all three sets. In other words, there is no specific set of linguists that is a subset of all the sets contained by the family of sets denoted by *most linguists*. In that sense the NP *most linguists* differs from NPs like *all linguists* or *these two linguists* and also NPs like *Jacky* as in these latter cases there is such a specific set shared by the sets of individuals in the denotation of the NP. If *Jacky* is understood as a collection of properties, like all other NPs, then the individual Jacky will be a member of all the sets of individuals that represent these properties. If it is true that Jacky drinks a lot, has a cat, and works at night, then the sets of drinkers, cat-owners, and night-workers in the denotation of *Jacky* all contain Jacky. Similarly, if all linguists drink, have a cat, and work at night, then the whole set of linguists will be a subset of all the sets in the denotation of *all linguists*. The set that can be defined as a subset of all the sets in the denotation of an NP is called the *generator set* of the NP. So, the singleton set containing Jacky is the generator of the NP *Jacky*, a set of two contextually determined linguists is the generator set of *these two linguists* and the set of linguists is the generator set of *all linguists*. NPs like *most linguists*, *three linguists*, and *no linguists* have no generator set, as can be verified by the reader.

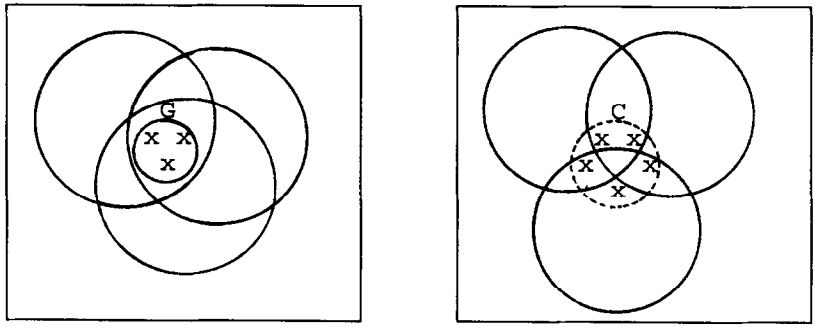
Barwise and Cooper use this concept of generator set in their analysis of the Partitive Constraint. They give a formal semantic definition of *definite* determiners

based on the concept of generator sets and argue that exactly those are allowed in partitives:

(3) A determiner D is *definite* if for every model $M = \langle E, \| \| \rangle$ and every A for which $\|D\|(A)$ is defined, there is a non-empty set B, so that $\|D\|(A)$ is the sieve $\{X \subseteq E \mid B \subseteq X\}$. (Hence, $\|D\|(A)$ is what is usually called the principal filter generated by B.)

An NP denotes a principal filter if there is some set B which is a subset of all sets contained in the family of sets the NP denotes. This set B is what has been called the generator of the NP. In a picture we can show the difference between the NP *these three cats* with a generator and the NP *three cats* without a generator as follows:

(4) *these three cats* *three cats*



G is the set of three contextually given cats
C is the set of cats

Having a generator set is not enough to be definite, however. Barwise and Cooper need the extra constraint that the generator must be non-empty for a determiner to be definite, which means that the principal filter generated by B is a sieve. This suffices to exclude an NP like *all cats* from the set of definite NPs. The NP *all cats* does not presuppose the existence of cats, which means that it could represent the family of sets that have the *empty* set as a generator, which is of course the power set of E, that is, the family of all subsets of E, the domain of individuals. Sieves, however, denote principal filters which are *proper* subsets of the power set of E. Therefore, NPs like *all cats* are not definite according to the definition in (3) and hence are not allowed in the embedded position of a partitive construction, as was illustrated in (1b). Barwise and Cooper interpret the *of NP*-phrase as the generator set of the NP denotation if and only if this NP has a definite determiner. Thus, the *of NP*-part of the partitive construction gets a common noun denotation (i.e., it denotes a set of individuals), and the upstairs determiner combines with this phrase to form a partitive construction. In this way, they account for the fact that NPs that do not have a generator, as well as universal determiners are not allowed in the embedded position of partitives.

Barwise and Cooper note that they do not have an explanation for the contrast between *the two N* and *both N* in partitives. Both have a non-empty generator, and therefore, both should be acceptable in the embedded determiner position of a partitive. But in fact, only *the two N* actually is:

(5) a. one of the two cats
b. *one of both cats

In order to account for this difference, Ladusaw (1982) and Hoeksema (1984) give an extension of Barwise and Cooper's analysis of the Partitive Constraint. They both recognize that the embedded NP must have a group reading. *Both cats*, however, can only get a distributive reading and therefore is not able to denote a group. In the literature it has become quite common to assume that NPs that have a distributional reading should be interpreted as generalized quantifiers, whereas NPs that get a collective reading are interpreted as complex entities. This view implies that a distinction can be made between several semantic types of NPs or uses of NPs. As Partee (1987) puts it, an NP corresponds to a family of types, rather than just one single type (the generalized quantifier type in Barwise and Cooper's account). Ladusaw (1982) points out that the fact that *both cats* can only have a distributive reading can be verified when such an NP is combined with a collective, group level predicate. Unlike *the two cats*, *both cats* gives rise to ill-formedness:

(6) a. *Both cats lick each other
b. The two cats lick each other
(7) a. *Both linguists are a happy couple
b. The two linguists are a happy couple

Ladusaw takes a constituent such as *the two cats* or *the cats* to denote a group level individual, analogous to *the cat* denoting an entity level individual. Individuals are NPs of which the generator is a singleton set. A group level individual is generated by the singleton set of the group. For instance, *Jane and Jacky* on the group reading denotes such an individual, generated by the singleton set of the group. Such a group level individual denotes the set of all properties that this group has. That means that *Jane and Jacky love each other* will be true if and only if the property *love each other* is a member of the set denoted by the group level individual *Jane and Jacky*. According to Ladusaw, *both cats* cannot denote a group level individual, whereas *the two cats* can. Ladusaw's interpretation rule for partitive constructions involves a *consists-of* function that maps the atoms which generate individuals into their components. Thus, in *one of the two cats* the argument of the determiner *one* is the set of entities which serves as the generator for the group level individual denoted by *the two cats*. A similar story can be told for partitives containing mass nouns or singular count nouns. For example, in *some of the book* the upstairs determiner *some* takes as its argument the stuff the count entity *the book* consists of.

The Partitive Constraint can be restated such that the embedded NP within a partitive construction must always denote an individual, either entity level or group

level. That is, *of NP* yields the components of the generator set if the NP denotes an individual, and is undefined otherwise.

Hoeksema (1984) also recognizes that the embedded NP in a set partitive must have a collective group reading. He shows that unlike its English counterpart *both*, the Dutch determiner *beide* 'both' can get a collective reading. That is, the latter determiner can have a collective reading if it is in an embedded position in a sentence:

(8) Het verschil tussen beide voorstellen is groot
The difference between both proposals is large

Accordingly, *beide* can occur in the embedded position of a partitive:

(9) een van beide taalkundigen
one of both linguists

So far, the generalization seems to hold that only NPs with a non-empty generator and an entity or a collective group reading can occur in the embedded position of partitives. We can follow Ladusaw (1982) in assuming that these NPs denote group level or entity level individuals, and that the function of partitive *of* is to make the components of the individual available to the upstairs determiner in the partitive construction.

In the next section, however, I will point out some remaining problems for the Partitive Constraint that have been noted in the literature. I will account for these problems in the subsequent sections of the paper.

2. Problems for the Partitive Constraint

De Jong and Verkuyl (1985) point out that universal quantifiers are sometimes allowed in partitive constructions such as (10a), yet not in all, witness (10b):

(10) a. de helft van alle katten
the half of all cats
b. *een van alle katten
one of all cats

Hoeksema (1984) assumes that (10a) is a different type of partitive construction and that the acceptability of a universal quantifier in this type might be due to the definiteness of the upstairs determiner. This cannot be maintained, however, in view of examples such as *een kwart van alle kinderen* 'a quarter of all children' which is just as well-formed as (10a). Yet, I will argue in the next section that this kind of partitive construction is different indeed, and that the explanation has to be sought in the nature of the upstairs determiner. My analysis will also account for the difference between (11a) and (11b), similarly for the difference between (12a) and (12b), and also for the grammaticality of (13):

(11) a. half of Jane and Jacky
b. *one of Jane and Jacky
(12) a. half of the water
b. *one of the water
(13) half of a cookie

We have seen that according to Ladusaw (1982), *Jane and Jacky* can denote a group level individual and therefore, this NP should be allowed in the embedded determiner position of a partitive. But it is only allowed in the type of partitive construction that also allows for the determiner *all* (compare (11) to (10)), which is, moreover, the one that can also have an indefinite NP like *a cookie* in its embedded position. The well-formedness of (13) is problematic because *a cookie* does not have a generator at all. Hoeksema (1984) and Ladusaw (1982) cannot explain the data in (10)–(13).

Another problem for the Partitive Constraint is constituted by partitives that contain a weak determiner in their embedded position. Weak NPs do not have a generator, hence should not be allowed. Consider Ladusaw's (1982) examples in (14)–(16):

(14) That book could belong to one of three people
(15) This is one of a number of counterexamples to the Partitive Constraint
(16) John was one of several students who arrived late

The problem that sentences like (14)–(16) pose for the Partitive Constraint is that the embedded NPs are weak and weak NPs do not have a generator set (see the figure in (4) above). As Ladusaw points out, however, in the above examples the speaker does have a particular group of individuals in mind. For instance, (14) invites a continuation like *namely, Jane, Jacky or Robert*, or it might be that the particular group the speaker of (14) has in mind consists of three people who have been looking at the book just before the time of utterance (Teun Hoekstra, p.c.). Either way, it is not the case that the book in (14) could belong to just any three people for the sentence to be true. Therefore, although the embedded NP in sentences like (14) is not syntactically definite, it might be characterized as semantically referential or specific. Then, the particular group of individuals the speaker has in mind functions as the generator set in the denotation of the weak NP.

Abbott (1996) rejects this approach on the basis of examples like *Every year only one of many applicants is admitted to the program* where there is not one particular group of individuals that the weak NP refers to. Abbott argues that since the embedded weak NP has narrow scope rather than wide scope relative to the universal quantifier, it cannot be semantically referential or specific after all. Thus, partitives containing weak NPs are still problematic for Ladusaw's (1982) semantic analysis of the Partitive Constraint. This led several people to argue in favour of a pragmatic rather than a semantic account of the Partitive Constraint (cf. Reed, 1991; Abbott, 1996).

In the next section I will propose an analysis of partitive constructions that can

solve the problems in (10)–(13). I will reformulate the Partitive Constraint as a semantic restriction on the type of NPs that can occur in partitives. Subsequently, I will develop a semantic analysis for the problem that sentences like (14)–(16) pose for the Partitive Constraint in Section 5, after arguing in Section 4 that a pragmatic approach cannot handle the problems satisfactorily.

3. Entity partitives and set partitives

Ladusaw's (1982) approach of partitive constructions as all involving NPs denoting entities – either group level or individual level – is in accordance with the proposals of Link (1983) and Lønning (1987a,b) that collective plurals (plural NPs on their group reading) and mass terms denote entities of type *e*. Note, however, that in Ladusaw's model, individuals denote families of sets, that is generalized quantifiers, and not entities of type *e*. I will use the terms *entity* and *individual* for one and the same thing, namely for elements of type *e*.

So, I will maintain the insight that NPs that denote entities can occur in the embedded position of a partitive construction. I will call this type of partitives *entity partitives*. The function of partitive *of* is to make the parts of such an entity available to the higher determiner. My main claim in this section is that entity partitives should be distinguished from another type of partitive construction that I will call *set partitives*, and that the crucial difference between entity partitives and set partitives lies in the nature of the upstairs determiner.

It is well-known that upstairs determiners of partitive constructions are also subject to a restriction since not all determiners can occur in this upstairs position. I will simply follow Hoeksema (1984) in this respect, who observes that upstairs determiners are never *transitive* or *indexical*. This is a syntactic characterization that distinguishes *transitive* determiners that obligatorily combine with a noun (like *the*, *every*, *a*, *no*, and *my*) from the intransitive ones that cannot combine with a noun (such as *everything*, *he*, *him*) and the pseudotransitives (e.g., *all*, *some*, *few*, *these*). Transitive determiners are excluded from the upstairs determiner position, but not all intransitive or pseudotransitives are allowed. In fact, the indexical determiners (basically, demonstratives and personal pronouns) must be excluded as well. In this article, I will not be concerned with an explanation for this restriction on the upstairs determiner of partitives, which I assume to be a syntactic restriction. In the rest of this section I will only consider determiner expressions that can indeed occur in the upstairs position and argue that among them two semantic classes should be distinguished, two classes of determiners that as a consequence head two types of partitive constructions.

It is commonly assumed that quantificational determiners quantify over sets of individuals, such as the ones denoted by nouns. Of course, this only holds for determiners that combine with count nouns and not for determiners that go with mass nouns. I will follow Lønning (1987a) in his analysis of quantificational mass determiners. He proposes a semantic model for mass nouns that is based on the concept of a Boolean algebra, in which mass determiners denote relations between elements

of the algebra. Not only mass nouns such as *cheese*, but also definite mass terms such as *the cheese* denote elements of type e.[1]

Following Lønning, it can be argued that the determiner *all* takes an element (we might also call it an entity, again) as its first argument both in (17) and (18). In (17) the first argument is the element denoted by *water*, whereas in (18) it is the element denoted by *the water*.

(17) All water disappeared
(18) All the water disappeared

All is a determiner that also combines with count nouns, in which case it takes as its argument a *set* of entities, rather than an entity. The interesting point to make here is that if *all* is used with count nouns, we can get a similar pair of sentences as in (17)–(18):

(19) All cats were purring
(20) All the cats were purring

I claim that both in (19) and (20), *all* denotes a binary relation between sets of individuals; in (19) the first argument is provided by the set denoted by the common noun *cats*, i.e. the set of cats. This is the standard model-theoretic analysis for sentences such as (19). The NP *all cats* denotes a family of sets of individuals and (19) will be true in case the set of individuals that were purring is a member of this family of sets. I will suppose that in (20) too, the first argument of *all* is a set of individuals, in this case the set of individuals denoted by *the cats*, that is, a set of contextually given cats. Note that I do not take *the cats* in (20) to be entity-denoting, which would make *all* in (20) of the same determiner type as *all* in (17) and (18). Nor do I take *the cats* in (20) to be an NP of the generalized quantifier type, denoting a family of sets, which would turn the type of the determiner *all* into yet a different one that takes a family of sets as its argument. Rather, I take *the cats* to denote a set of individuals, just like *cats*, albeit one that is contextually restricted by *the*. As a consequence, the type of the determiner *all* in (20) is the same as in (19), and differs from the type of *all* in (17)–(18). Before I will provide further arguments for this particular analysis, let us consider some more examples of these two types of determiners in the upstairs position of partitives: the type that select entities (such as *all*

[1] According to Lønning, elements in the algebra are denoted by homogeneous predicates such as *boiled*, mass nouns such as *water*, and definite mass noun descriptions such as *the cheese that disappeared*. Mass noun phrases and inhomogeneous predicates are expressions which are one level upstairs, they denote subsets of the algebra. The sentence *Some water boiled* will be true if the element denoted by *boiled* is a member of the set denoted by *some water*, or, equivalently, thinking of the elements of the algebra as the quantities (or portions of matter) in the world, such that *water* refers to the totality of the world's water and *boiled* to the totality of what boiled at the time interval involved, *some water boiled* is true if and only if the quantity which is the product of these quantities is different from the empty quantity (thus, the interpretation of *some* is $||\text{some}||(\alpha)=\{\beta|\alpha\times\beta\neq 0\}$ within Lønning's model, which resembles its interpretation within a generalized quantifier approach to count terms).

in (17)–(18)) and the type that select sets of entities to quantify over (such as *all* in (19)–(20)).

Most determiners do not behave like *all*, as can be concluded from the behaviour of the mass determiner *much* and the count determiner *many*:

(21) Much water disappeared
(22) *Much the water disappeared
(23) Many cats were purring
(24) *Many the cats were purring

Although *the water* is potentially element-denoting and *the cats* set-denoting, as I take to follow from their occurrences in (18) and (20), they cannot directly occur in construction with determiners like *much* and *many*. Notably, in these cases, insertion of partitive *of* is needed in order to render well-formed sentences again:

(25) Much of the water disappeared
(26) Many of the cats were purring

The elements or sets denoted by bare nouns (such as *water* in (21) and *cats* in (23)) are directly accessible to most determiners, but elements or sets denoted by definite descriptions are not. I will assume that in these cases, the function of partitive *of* is to make such an entity or set accessible to the upstairs determiner.[2] I will follow Ladusaw (1982: 240–241) who has put it as follows:

"Of the vast array of sets of entities that might serve as the basis of a quantifier NP, a language will lexicalize as CNs relatively few. The resources of modification by adjectives and relative clauses increase the expressive power of NPs though they do not guarantee that any arbitrary set can serve as the argument of a determiner to express a QNP economically.

Deictic pronouns and articles and discourse sensitive articles like *the* do guarantee that an arbitrary individual may be denoted, but syntactically they by-pass the determiner category that builds quantifier NPs. The partitive construction of a language provides a means of bypassing this syntactic bind, by allowing any arbitrary set to serve as the basis of a QNP."

Note that in Ladusaw's view, the function of partitive *of* is in fact not just to make any arbitrary set to be accessible to the upstairs determiner; in fact, only individual denoting NPs (although these might be group level individuals) can be mapped onto their components by partitive *of*. This is different in my analysis. NPs that denote entities can be made available by partitive *of* to an upstairs determiner that selects an entity as its argument, whereas NPs that denote sets of entities can be made available by partitive *of* to determiners that choose sets of entities as their arguments. It will be clear that the Partitive Constraint can thus no longer be formulated in terms of

[2] One can argue that expressions such as *a number* (that combines with count nouns) and *a quarter* (that combines with definite mass noun descriptions as well as with other entity-denoting expressions) do not have direct access to sets or elements that are denoted by bare nouns; they need partitive *of* in any case, compare **a number cats* with *a number of cats/a number of the cats* and **a quarter cheese* with *a quarter of the cheese/a quarter of the population.*

individual denoting NPs alone. I will reconsider the Partitive Constraint below. Yet, before that, and before exploring the idea that an NP like *the cats* can indeed denote a set of entities, I will go into the question which determiners can be characterized as entity selecting, and which ones as set selecting.

I claimed that within the class of quantificational determiners a distinction should be made between determiners that take entities as their first argument and those that take sets of entities as their first argument. In English, determiner expressions like *half (of)*, *20% of*, *one third of*, and *much (of)* are of the former class, determiners such as *three (of)* and *many (of)* of the second, whereas determiners like *some (of)*, *all (of)*, and *most (of)* are ambiguous in this respect, as they can take arguments of both types. Let me emphasize that whether determiner expressions belong to either one or the other or to both classes seems to be a lexical, language specific matter. In Dutch, as opposed to English, *enkele (van)* 'some (of)' selects only sets of entities, whereas *veel (van)* 'many/much (of)' takes either entities or sets of entities:

(27 a. *Enkele water is verdwenen
some water has disappeared
b. Enkele katten spinnen
some cats purr
(28) a. Veel water is verdwenen
many/much water has disappeared
b. Veel katten spinnen
many/much cats purr

In this way, we distinguish two types of partitive constructions, which I call *entity partitives* and *set partitives*, the type crucially depending on the class the upstairs determiner expression belongs to. Entity partitives are headed by determiner expressions that select entities as their first arguments, set partitives by determiners that select sets of entities as their arguments. At this point reconsider (10)–(13), examples that were presented as problems for the Partitive Constraint:

(10) a. de helft van alle katten
the half of all cats
b. *een van alle katten
one of all cats
(11) a. half of Jane and Jacky
b. *one of Jane and Jacky
(12) a. half of the water
b. *one of the water
(13) half of a cookie

Now we can account for the fact that *half of the water* in (12a) is well-formed, but **one of the water* in (12b) is not. The reason is that the determiner *one* is looking for a set of entities to function as its first argument, but such a set is not available, since

the water denotes an element of type *e*. This also explains the well-formedness of *half of a cookie* in (13) and constructions with definite singular count nouns such as *half of the population*, compared to the ungrammaticality of **one of the population* and **one of a cookie*. Definite and indefinite singular count nouns denote entities, and these entities can be made available to the upstairs determiner in an entity partitive, irrespective of their having a generator set or not.

Notoriously, the determiner *all* can have not only a distributive reading, but also a collective reading. It is well-known that *all* differs in this respect from its truly quantificational or distributive counterpart *every*. This would follow from the fact that *alle katten* 'all cats' can be entity-denoting, hence it is allowed in an entity partitive such as (10a). I will get back to the ungrammaticality of (10b) below.

With respect to an NP such as *Jane and Jacky*, recall that according to Ladusaw, the embedded NP within a partitive construction must always denote an individual (an NP of which the generator is a singleton set), either entity-level or group-level. Therefore, Ladusaw cannot account for the ungrammaticality of **one of Jane and Jacky*. In fact, he explicitly claims that an NP such as *Jane and Jacky* can denote a group level individual, hence the partitive construction should be well-formed. In accordance with Link (1983) and Lønning (1987b) I assume that *Jane and Jacky* can denote a complex entity, which explains the grammaticality of *half of Jane and Jacky* in (11a). At the same time, I conclude that *Jane and Jacky* cannot denote a set of entities and this accounts for the ungrammaticality of **one of Jane and Jacky* in (11b).[3] Note that *half of Jane and Jacky* does not refer to *Jane* or *Jacky*. If we consider *Jane and Jacky* to denote a composed entity, then half of it can be any half. This becomes clear in Hoeksema's (1996) example: *Only about half of Jane and Jacky was visible for the sniper*. The fact that *Jane and Jacky* can denote a complex entity gets further evidence from contexts in which 'once-only' predicates pose a unicity restriction on their arguments, as pointed out by Szabolcsi and Zwarts (1993) in the following paradigm:

(29) Question: Who burned that letter?
(30) Answer: a. Jane did
b. Jane and Jacky did
c. *Jane did and Jacky did

The claim that *Jane and Jacky* can denote an entity is therefore rather uncontroversial. The further claim that it cannot denote a set of entities, might be less evident. The main argument is of course the ungrammaticality of (11b). But the question is whether we can decide in any other way which NPs can denote sets of entities and which cannot.

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[3] In my judgement, *one of Jane and Jacky* is ill-formed (this also holds for its Dutch counterpart *een van Jane and Jacky*). People who judge this construction grammatical probably get the reading given by *one out of Jane and Jacky* (in Dutch *een uit Jane and Jacky*); this construction has different properties, however, hence should be distinguished from real partitives (in Hungarian, these two types of readings are syntactically separate, as was pointed out to me by Anna Szabolcsi).

At this point, one must realize that unlike NPs such as *all cats* and *Jane and Jacky*, an NP like *the linguists* must be able to denote a set of entities in view of partitive constructions such as *one of the linguists*. That is, if my analysis is on the right track, then we have to conclude that an NP like *the linguists* can denote a (complex) entity as well as a set of entities, since *half of the linguists* and *one of the linguists* are both well-formed.

The difference in well-formedness between *one of the linguists* and **one of Jane and Jacky* seems to be a problem for almost all accounts of partitives, both for the ones in which the embedded NP must denote a non-empty generator set and for those in which the embedded NP must denote an individual (either group level or entity level) or entity.

I will partly follow Westerståhl (1985a) in his analysis of definites. Westerståhl defines determiners as syntactic functions which give NPs when applied to Ns. However, he claims that the definite article *the* is *not* a determiner but a context indicator which signals the presence of a context set X, in such a way that *the A* denotes $X \cap A$, a subset of A. In other words, an NP introduced by *the* denotes a set of entities, according to Westerståhl, and this is exactly what we need, at least in the embedded position of set partitives. Westerståhl furthermore points out that it would be possible to let *the* actually denote X. This special status is not only reserved for *the*. In fact, Westerståhl observes that possessives and demonstratives must be analyzed in the same way. Of course, these are exactly the NPs that are the most felicitous ones in the embedded position of set partitives, as was observed a long time ago and formulated in the Partitive Constraint.

So, I follow Westerståhl in his claim that in partitive constructions the embedded NP actually *denotes* a contextually determined set of entities, instead of adopting an analysis such as Barwise and Cooper's (1981) or Ladusaw's (1982) in which this contextually determined set has to be recovered as the generator set from the generalized quantifier denotation of the embedded NP. Obviously, NPs like *Jane and Jacky* and *all linguists* cannot denote a context set in this way. These NPs do have a generator set, just like NPs such as *the linguists*, but they cannot actually denote a set of entities. In an analysis based on the concept of generator set, it is very hard to explain the difference between **one of Jane and Jacky* and *one of the linguists*, but in an analysis based on context-indicators, this becomes very easy. In these constructions *the linguists* denotes a contextually determined set of entities, whereas *Jane and Jacky* does not: the denotation of proper names is assumed to be constant, and never dependent on the context. Thus, *Jane and Jacky* can either denote a generalized quantifier (I assume all NPs can) or an entity (as was argued before), but not a contextually determined set of entities. The same holds for *all linguists*. This accounts for the difference between *Jane and Jacky* and *all linguists* on the one hand, and *the linguists* on the other. The first two NPs can occur in entity partitives but not in set partitives, the latter one can occur in both types of partitives.

One more context that distinguishes between *the linguists* on the one hand and *Jane and Jacky* and *all linguists* on the other, is the context of a predicate such as *many*. This is in accordance with an analysis that treats *many* as a cardinality predicate on sets of entities here:

(31) a. The linguists are many
b. *Jane and Jacky are many
c. *All linguists are many

Westerståhl (1985a) also notes that an NP like *both linguists* might be considered a problem again, as this NP also seems to involve a contextually determined set. The fact that it has a generator set was pointed out as a problem for a generalized quantifier approach of NPs in partitives by Barwise and Cooper; the problem for the approach developed here is that this generator set is contextually determined.

The question is why the NP *both linguists* cannot directly denote this contextually determined set of entities, in the same way as *the two linguists* can denote a set of entities (which must be the case in view of the grammaticality of *one of the two linguists*). I will maintain the basic insight of Ladusaw (1982) and Hoeksema (1984) that *both linguists* can only get a distributive reading, which indicates that this NP can only be of the generalized quantifier type. As was mentioned before, this is in fact a language particular matter, as the Dutch counterpart of *both linguists*, viz. *beide taalkundigen* can occur in a set partitive, as was shown in (9), repeated below:

(9) een van beide taalkundigen
one of both linguists

In other words, the non-quantificational, collective reading of *beide taalkundigen* indicates that this NP in Dutch can denote a contextually determined set of entities, just like *de twee taalkundigen* 'the two linguists', and unlike the quantificational *both linguists* in English.

There is one construction that needs some discussion at this point. Take an entity partitive like (32):

(32) a quarter of all children

Apart from the preferred reading (on which *all children* denotes an entity, of which a quarter is taken), there is another reading in which *all* is interpreted distributively (as in *of all children a quarter*). Even a purely distributive determiner such as *every* is allowed in this type of construction, witness (33), discussed by Abbott (1996):

(33) One third of every book Chomsky writes is footnotes

Note that in this type of construction the embedded quantificational determiner takes scope over the upstairs quantifier (*one third of*) in contrast with the preferred reading of (32). I claim that this kind of construction is crucially different from other partitive constructions and should be interpreted as paraphrased in (33'):

(33') for every book Chomsky writes it holds that one third of it is footnotes

Thus, *every* is interpreted as a relational determiner taking as its first argument the set of books Chomsky writes and as its second the set of entities one third of which

is footnotes. This means that the noun (plus any modifiers) provides the first argument, whereas the higher determiner expression goes into the second argument together with the predicate. Monotonicity tests show that this analysis is on the right track. Let us consider the determiner *all*, since this determiner allows both readings. In (34) only the collective reading is possible (*all linguists* denotes an entity), whereas in (35) we intend to have the distributive reading (comparable to the interpretation of *every*):

(34) a. A quarter of all linguists is lazy ↮
b. A quarter of all drinking linguists is lazy
(35) a. A quarter of all/every pie(s) is filled with cream →
b. A quarter of all/every pie(s) baked by Paul is filled with cream

The quantificational determiner *all* is known to be monotone decreasing in its first argument; hence the valid inference in (35) where the embedded determiner is quantificational, taking the noun (plus modifying phrase) as its domain of quantification. In (34), on the other hand, the embedded NP denotes an entity, and the inferences do not hold either way. I take these facts to be sufficient explanation for the different semantic status and well-formedness of constructions such as *one third of every book* and *one page of every book*, and in a similar way for phrases such as *one of each kind of cookie*, also discussed in Abbott (1996). Because the upstairs determiner does not quantify over the embedded NP in these cases, the Partitive Constraint does not apply.

So far, I have solved the problems for the Partitive Constraint posed by the constructions in (10)–(13) by making a distinction between entity partitives, headed by determiners that select entity-denoting expressions as their first argument, and set partitives, headed by determiners that select set-denoting expressions as their first argument. The function of partitive *of* in both types of partitives is to make expressions that are not directly accessible to the upstairs determiner (which basically means, expressions other than bare nouns) accessible. The Partitive Constraint can be restated very simply at this point:

(36) PARTITIVE CONSTRAINT
Only NPs that can denote entities are allowed in entity partitives; only NPs that can denote sets of entities are allowed in set partitives.

In this section I have tried to provide further arguments in favour of the claims that NPs that occur in entity partitives can indeed denote entities, and that NPs that occur in set partitives can indeed denote sets of entities.

There is one remaining problem and that is the problem constituted by sentences such as (16), repeated below. Here it is at least at first sight not immediately clear that the NP that shows up in the embedded position of a set partitive actually denotes a set of entities:

(16) John was one of several students who arrived late

The problem that sentences such as (16) constitutes for the Partitive Constraint as defined above and the solution to this problem will be the topics of the next two sections.

4. Semantics or pragmatics?

So far, we have discussed several semantic analyses of the Partitive Constraint. Ladusaw (1982) for instance, reformulated the Partitive Constraint in terms of an individual denoting versus quantifier denoting distinction. As for weak NPs, some problems immediately arise. It is well-known that indefinites and other weak NPs can have collective readings. Weak determiners, such as cardinals, *some*, and *many*, are often taken to be ambiguous between a quantificational, distributive, and a non-quantificational, collectional use. This explains the well-formedness of indefinite NPs in entity partitives, and it can also account for the well-formedness of weak NPs in set partitives to a certain degree. If a weak NP gets a non-quantificational, group reading, then we can assume that it denotes a contextually determined set of entities in a set partitive. Yet, the problem is that weak NPs are not always allowed in the embedded position of set partitives. To put it differently, if weak NPs can denote sets of entities, then the question is how to account for the ill-formed partitive constructions in (1c), repeated here:

(1) c. *one of some/three/no cats

Reed (1991) and Abbott (1996) argue for this reason that the Partitive Constraint cannot be maintained as a semantic restriction, but that instead pragmatic principles determine the well-formedness of partitives. I will discuss these approaches below, and return to a semantic analysis of the problematic example in (16) in Section 5.

Reed (1991) considers only partitives in which the embedded NP is plural and argues that the function of partitives is to evoke subgroups of previously evoked discourse groups. She claims that there is no formal restriction on determiners in partitives, but that the interpretation for partitives demands that the embedded NP access a discourse group. Therefore, indefinites may occur in partitives if explicit modification or the discourse context makes the discourse entity evoked by the indefinite more accessible. She discusses the following examples in this respect:

(37) The dog was stoned by two of some boys playing in that field
(38) Only one of many people who saw the accident would testify

Note that the examples in (37) and (38) are reminiscent of (16).

Abbott (1996) takes a view similar to Reed's, yet argues against Reed's claim that partitives have a particular discourse function, namely the function of evoking subgroups of discourse groups. Abbott considers the analysis of embedded indefinite NPs in terms of accessing discourse groups inadequate, partly because of examples

such as in (39), where obviously the students referred to by the embedded NP need not already exist in the discourse:

(39) John was apparently one of several students who arrived late – I have no idea how many, or who the others were

Another problem that Abbott notes with respect to Reed's analysis, is that the basis of her analysis must be stipulated. That is, why should partitives be confined to introducing subgroups of existing discourse groups and why should they be unable to introduce subgroups of new groups?

However, I think Abbott's own analysis is not very different from Reed's. Abbott, like Reed, claims that there is no formal (syntactic or semantic) restriction on the embedded NPs in partitives, and that the examples that have been cited as ungrammatical are only pragmatically odd. The pragmatic principle that Abbott claims is involved here, is a very general principle that *prohibits mentioning entities unless there is some reason for mentioning them.* So, Reed's idea that the embedded NP should be an already existing discourse group is replaced by the idea that the embedded NP should be worth mentioning somehow. Two examples Abbott discusses in developing her analysis are given in (40) and (41):[4]

(40) Ants had gotten into most of some jars of jam Bill had stored in the basement
(41) All of three people (out of the 50 I wrote to) had the politeness to respond to my invitation

Again, (40) and (41) are reminiscent of (16) and of Reed's examples (37)–(38). All in all, I agree that there are some examples of set partitives for which it holds that the embedded weak NP does not seem to denote a contextually determined set of entities. These examples led Reed (1991) and Abbott (1996) to the conclusion that a Partitive Constraint cannot be maintained and that the seeming ill-formedness of partitives containing a non-definite NP is only due to their discourse function or to a pragmatic principle.

In the following I will argue that the analyses of Reed and Abbott are not sufficient, however. Reconsider the examples that support their analyses, Ladusaw's example (16), Reed's examples (37) and (38), and Abbott's examples (40) and (41). Note that all embedded determiners in the relevant examples are weak, which means they share a certain semantic property, namely the property of symmetry. Symmetry can be defined as follows:

(42) SYMMETRY: $D_E AB \leftrightarrow D_E BA$

[4] Other examples involve what I have called entity partitives, or they involve set partitives in which the weak NP does get a collective reading, as in Ladusaw's examples (14)–(15), in which case they seem to denote a contextually determined set of entities. These are not problematic for my approach, so I will not take them into consideration here.

That is, if we take determiners to denote relations between sets of entities, then the following equivalencies show that the determiners *several/some*, *many*, *three* (the determiners that are used in the crucial examples) are symmetric (or have symmetric uses; *many*, for instance, is known for its ambiguity in this respect, cf. Westerståhl, 1985b):

(43) Several/some linguists are lazy ↔
Several/some lazy individuals are linguists
(44) There are many cats in the garden ↔
There are many individuals in the garden which are cats
(45) Three paleontologists visited this museum ↔
Three individuals that visited this museum are paleontologists

Now, one might wonder whether it is just a coincidence that the partitive constructions that seem to violate some version of the Partitive Constraint contain weak determiners. I am convinced that this is not a coincidence. Before I explain why and when weak NPs are allowed in set partitives, I will argue that the pragmatic accounts proposed by Reed and Abbott cannot explain why in fact only weak determiners can violate the Partitive Constraint.

Reed (1991) provides the ungrammatical example in (46) and concludes that somehow determiners like *both* "are more restricted in their discourse use than indefinites" (Reed, 1991: 220, note 10).

(46) *One of both boys who were here left

Yet, she does not explain why this is the case. In fact, if Reed would be right in that there is no semantic restriction on the embedded NP in partitives, then she would have to argue in one way or another that *both linguists* cannot refer to a existing discourse group, which is at best counterintuitive.

Abbott (1996) also wishes to maintain that there is no semantic restriction on the class of determiners that can occupy the embedded position in a set partitive.[5] She argues that examples that are cited in the literature as ill-formed are only unusual for general pragmatic reasons, and that adding a suitable context will make them sound more natural. Yet, the examples she discusses all contain weak determiners, except for one case (two examples), where the embedded NP contains *all* as a determiner:

(47) a. many of all women
b. some of all books

Abbott recognizes that it is not so easy here to provide a context which makes the examples in (47) sound more natural, yet she comes up with the sentence in (48) as an argument in favour of her hypothesis:

[5] Abbott (1996) makes an exception for bare plurals and bare mass nouns, which are the only ones that give rise to true ill-formedness in partitive constructions, according to her.

(48) 90% of all dentists who chew gum prefer Trident

I agree with Abbott that (48) sounds quite possible as an advertising slogan, but the well-formedness of (48) is due to the fact that we are dealing with an entity partitive here, and not with a set partitive like in (47). In the previous section it has become clear that a determiner expression such as *90% of* takes an entity-denoting NP as its argument, and that NPs introduced by *all* can indeed denote entities. I assume that Abbott would not be able to explain why (44) is still ill-formed as an advertising slogan:[6]

(49) ?*Many of all dentists who chew gum prefer Trident

I do not see how one could account for the difference in well-formedness between (48) and (49) on the ground of a pragmatic principle that prohibits mentioning entities unless there is some specific reason to mention them (and of course, I have similar doubts about the explanatory power of a pragmatic principle that states that the embedded NP must access a discourse group).

In conclusion, both Reed and Abbott claim that if there is a restriction on embedded NPs in set partitives, then this restriction is pragmatic rather than semantic in nature. In general, contextualization should turn examples that are judged ill-formed into well-formed constructions. I claim that it is not a coincidence, however, that all their crucial examples contain weak embedded determiners.

To clarify this, in my opinion *one of some linguists* is ill-formed, but *one of some linguists who...* is well-formed, independent of the exact content of the modifying phrase. I take this to indicate that the relative clause *syntactically* and not pragmatically turns the expression into a grammatical one. Consider (50):

(50) a. ?one of some linguists
b. one of some linguists that have a cat
c. one of some visiting linguists
d. one of some linguists who are drinking whiskey

What is important is that the grammaticality judgements in (50) are independent of further context. Likewise, this holds for ungrammatical partitives that involve a quantificational determiner such as *most*: *one of most linguists* is bad and *one of most linguists who ...* is just as bad, even if one wishes to use such a construction pragmatically. Consider for instance a situation in which most linguists drink whiskey. One of them wants to take the car. Hence, this should be sufficient contextualization for the construction in (51):

(51) *One of most linguists who are drinking whiskey wants to take the car

[6] A reviewer pointed out that *Most of all dentists who chew gum prefer Trident* is much better again. This is predicted in my analysis as *most* can quantify over entities (as in *most cheese* or *most of the cheese*), while *all* can introduce an entity-denoting NP.

Yet, the construction is ill-formed. The explanation lies in the fact that *most* is not a weak determiner.

The most obvious explanation for the fact that weak determiners are allowed in set partitives is that they can get a non-quantificational, collective reading. In those cases, one can indeed maintain that the weak NPs denote contextually determined sets of entities in the embedded position of set partitives, and there is no problem for the Partitive Constraint as formulated in (36).

Yet, I do acknowledge in accordance with Abbott that there are examples for which one can hardly claim that the embedded NP denotes a contextually determined set of entities. Therefore, I propose that not only weak NPs that denote a contextually determined set of entities can be of type <e,t> and therefore occupy the embedded position in set partitives. In fact, *all* weak NPs can denote sets of entities, but in order to make them acceptable in set partitives they need to be 'restricted' in a way similar to definites. In the next section I will show that this requirement can be fulfilled by either the context or by the syntax. The Partitive Constraint as formulated in (36) can then be maintained without further adaptations.

5. Weak determiners in set partitives

If we want to account for the well-formedness of weak determiners within set partitives without rejecting the Partitive Constraint, then we must assume that embedded weak NPs can be predicative, i.e., they can denote sets of entities rather than generalized quantifiers. We need this assumption in order to be able to maintain the Partitive Constraint in its present form. Otherwise we would have to explain why not all generalized quantifier denoting NPs are allowed in set partitives.

In the literature arguments can be found in favour of the idea that weak NPs have predicative interpretations of type <e,t> (cf. a.o., Partee, 1987; Van Geenhoven, 1996; De Swart, 1997). Partee (1987) considers the occurrence of weak NPs in predicative contexts evidence for the fact that weak NPs can have an <e,t>-type interpretation (note the difference with the strong, quantificational NP *most N*):

(52) Mary considers that two islands/many islands/*most islands

In accordance with Partee, I claim that all weak NPs can be of type <e,t>, which includes NPs such as *several students who arrived late* in (16) even in cases where the speaker might not be able to specify the students in that set. The claim that weak NPs together with their modifying phrases can be predicative is further motivated by data from West Greenlandic, studied by Van Geenhoven (1996). She argues that certain verbs in West Greenlandic semantically incorporate ('absorb') weak NPs of a predicative type together with their external modifiers, such as numerals and relative clauses.

The fact that weak NPs can have an <e,t>-type interpretation is not sufficient, however, to make weak NPs acceptable in partitive constructions. This is clearly shown by the examples in (53)–(57) that follow the repeated examples from Ladusaw ((16)), Reed ((37)–(38)) and Abbott ((40)–(41)).

(16) John was one of several students who arrived late
(37) The dog was stoned by two of some boys playing in that field
(38) Only one of many people who saw the accident would testify
(40) Ants had gotten into most of some jars of jam Bill had stored in the basement
(41) All of three people (out of the 50 I wrote to) had the politeness to respond to my invitation

Note that all these examples become bad if the modifying clause is omitted:[7]

(53) ?John was one of several students
(54) ?The dog was stoned by two of some boys
(55) ?Only one of many people would testify
(57) ?Ants had gotten into most of some jars of jam
(57) ?All of three people had the politeness to respond to my invitation

Reed would say that omitting the modifying phrase deprives one of an accessible discourse group, and Abbott would say that these cases are ruled out by the pragmatic principle that prohibits mentioning entities unless there is a reason for doing so. Omitting the modifying phrase is omitting the proper context that permits one to use these determiners in partitive constructions.

In the previous section I pointed out that such an approach cannot satisfactorily deal with the clear differences in well-formedness between weak determiners embedded in set partitives and other quantificational determiners in that position. Therefore, I argued that only NPs that can be of type <e,t> can occur in the embedded position of set partitives. We have seen that this requirement is not sufficient to explain the ill-formedness of sentences such as in (53)–(57), however.

As a consequence, we might want to maintain Abbott's pragmatic explanation for the differences between (16), (37)–(38), and (40)–(41) on the one hand and (53)–(57) on the other, in addition to the semantic Partitive Constraint as formulated in (36) above. I would like to pursue a different explanation, though, but one that is related to Abbott's and Reed's insights. The explanation is based on the observation that NPs inside ordinary set partitives are always restricted sets of entities. Van der Does (1996) points out that for different NP types (type *e*, type <*e*,*t*> and type <<*e*,*t*>,*t*>) definites can be considered a kind of 'restricted' indefinites. Also, it is well-known that the information that uniquely identifies the denotation of a definite may be given by the context (either the linguistic or the extra-linguistic context), the definite description itself, or for instance by a modifying phrase:

(58) a. I see the buses
b. I sail the seas
c. I see the buses that stop at the station

[7] The reason I do not judge them as fully ungrammatical is that, as was pointed out before, weak determiners can also have a collective reading. In these examples, the contexts may not automatically evoke this type of reading, but the lack of modifying phrases may nevertheless force such a reading.

Similarly, when a definite is embedded within a partitive construction, the reference to a unique set of entities can again be determined by either the context, the definite description itself, or by a modifying phrase.

(59) a. I will take one of the buses
b. I will sail one of the seas
c. I will take one of the buses that stop at the station

Thus, the semantic characteristics of definites guarantee a restricted, unique interpretation, such that when this restriction is not supplied by the predicate itself (*seas*) or by a modifying phrase (*that stop at the station*), the hearer/reader can safely assume that the necessary restriction is provided by the context, either by a linguistic antecedent, or by some other information available to the speaker (cf. (58a), (59a)). Weak, indefinite NPs are not inherently restricted. They can be restricted lexically or syntactically in a way similar to definites (see (60b,c)), but they lack the inherent restriction of definites in examples such as (58a) and (59a) (witness (60a)):

(60) a. There are (some) buses
b. There are some applicants
c. There are some buses that stop at the station

Unlike definites, indefinites do not require unique reference determined by either the context or the syntax, simply because most of the time weak NPs do not uniquely refer (cf. Kadmon, 1987). Nevertheless, they *can* uniquely refer, for instance when they get a referential or specific reading (cf. a.o., Fodor and Sag, 1982; De Hoop, 1992), as in (60b). Therefore, referential set-denoting indefinites or weak NPs are allowed in set partitives, just like definites (see (61b)). Moreover, weak NPs that contain a modifying clause can also denote a restricted set of entities that may function as the domain of quantification in an ordinary set partitive (see (60c)). In these cases they refer to a restricted set of entities, just like definites again:

(61) a. ??I will take one of some buses
b. John was one of several latecomers (Abbott, 1996: 40)
c. I will take one of some buses that stop at the station

The difference between indefinites and definites lies in their behaviour whenever neither the context nor the lexical semantics or syntax of the embedded NP provide a way to determine the reference set, compare once again:

(61) a. ??I will take one of some buses
(59) a. I will take one of the buses

To sum up, all NPs that are felicitous in the embedded position of set partitives are set-denoting, in accordance with the Partitive Constraint. Apart from the set-denoting NPs we have discussed before (NPs that denote contextually determined sets,

that is, NPs introduced by context indicators, such as the definite article, demonstratives, and possessives), NPs that have weak determiners can also denote restricted sets.[8] In these cases, the set they denote is not necessarily contextually determined but it can also be restricted NP-internally by modifying phrases.

Now the obvious question is why the sets denoted by embedded NPs in set partitives must be restricted. Why does a bare, unrestricted weak NP leads to an ill-formed result in the embedded position of partitives, and why does that hold for bare plurals in particular (the only truly ill-formed partitives are the ones with embedded bare plurals, according to Abbott, 1996)? In my opinion, this question is related to the semantic function of partitive *of*, as mentioned before. That is, the ill-formedness of (62) is related to the ill-formedness of (63):

(62) *one of students
(63) *one the students

A restricted set of entities denoted by an NP such as the one in (63) cannot be directly quantified over by the upstairs determiner. The function of *of* is to make such a set accessible for quantification by an upstairs determiner. In that sense, the use of *of* in general is not optional. Either a determiner quantifies over a set of entities directly or it has to make use of partitive *of*. There is hardly any optionality (some exceptions were discussed in Section 3) and superfluous *of* gives rise to ill-formedness. This would also explain the examples in (64) that have been noted by Hoeksema (1996) as counterexamples to the Partitive Constraint:

(64) a. the most eloquent of men
b. the best of friends

Compare (64a,b) to their counterparts in (65) that receive a totally different meaning:

(65) a. the most eloquent men
b. the best friends

Partitive *of* in (64) is not superfluous, and therefore the examples are well-formed.[9]

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[8] Preposing a weak NP seems to evoke a contextually determined set denotation as well. This is not so surprising, since preposed constituents often function as topics in the discourse (the examples are borrowed from Quirk et al. 1972, and discussed by Abbott 1996):

(i) Of ten reviewers, only a few praised his play
(ii) ?*Only a few of ten reviewers praised his play

[9] I noted in Section 3 that languages can differ with respect to the semantic properties of semantically related determiners. In Dutch the examples in (64) would be ill-formed. Only entity-denoting expressions could be used, suggesting that singular superlatives only quantify over entities in Dutch:

(i) de welsprekendste van alle vrouwen
the most eloquent of all women
(ii) de welsprekendste van Jane en Jacky
the most eloquent of Jane and Jacky

6. Conclusion

I distinguish two types of quantificational determiners, the ones that take entities and the ones that take sets of entities as arguments. Not all potentially entity-denoting or set-denoting NPs are directly accessible to these determiners, however. If not, then the function of partitive *of* is to make these entities or sets accessible. In this way we obtain two types of partitives, to wit *entity partitives* and *set partitives*. Hence, the Partitive Constraint can be stated as a restriction on the semantic type of embedded NPs in partitives: NPs that can denote entities are allowed in entity partitives, whereas NPs that can denote sets of entities are allowed in set partitives. NPs that can only denote generalized quantifiers are not allowed in ordinary partitives. In the embedded position of set partitives we find NPs that denote restricted sets of entities, such as NPs introduced by definite determiners, but also weak determiners restricted by a modifier. Bare weak NPs such as bare plurals denote unrestricted sets of entities which makes the use of partitive *of* in these cases usually superfluous, hence ungrammatical.

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