



Volume 13 2007

Issue 1 *Proceedings of the 30th Annual Penn
Linguistics Colloquium*

Article 19

1-1-2007

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1 Introduction

The split topicalisation construction occurs in a number of languages, including Warlpiri, Latin, Japanese, and German, and can typically be exemplified by sentences such as (1a), where the noun is split apart from its quantifier and occurs in the *Vorfeld* topic position alone, whilst the quantifier remains somewhere lower down in the sentence. Naturally, this stands in contrast to cases of full topicalisation (1b), where the entire DP occurs in the *Vorfeld*:¹

- (1) a. Bücher hat er viele gekauft
 books has he many bought
 b. Viele Bücher hat er gekauft
 many books has he bought

The phenomenon has attracted a lot of attention from linguists in recent years, owing, in large part, to its paradoxical properties which, on the one hand, indicate that the noun and quantifier are base generated independently in their surface structure positions, and, on the other hand, seem to exhibit evidence of a movement relation. Such works, looking at the syntax of the construction, include (Fanselow 1988, van Riemsdijk 1989, Tappe 1989, Haider 1990, Fanselow and Čavar 2002). The problem with these accounts, however, is that they tend to overlook the question of motivation – i.e. the semantic properties lying behind the syntactic derivation. Other works have looked at the phenomenon principally from this angle, including Krifka (1990, 1998) and Nakanishi (2004, 2005). These papers do not, however, fully consider the possibility of a syntactic movement account. In McNay (2005b), I bring the

*This paper was born out of comments and feedback I received after presenting a version of the earlier paper, McNay (2005b), at the PLC30 on 02/25/06. My thanks go especially to Tony Kroch, Dorian Roehrs and Maribel Romero. I would also like to thank Maribel for further discussion and advice the following week. Finally, thanks also go to my supervisor, David Adger, for his helpful input. All errors remain, of course, my own.

¹I ignore here the possibility that in some languages we might find the quantifier fronted and the noun left alone lower down in the sentence, and assume that, where this is the case, it is simply due to parametric variation as to whether it is the D or the N which is marked as [+Link] – cf. the discussion of Japanese data in §2.2.

syntax and semantics of the construction together. Looking at German data, as in (1a) above, I adopt a movement account, similar to that of van Riemsdijk (1989), whereby I assume that the whole DP is base generated low down, and that the noun moves up out of it, leaving the quantifier behind. I propose that the motivating factor behind this movement is the fact that the NP, but not the whole DP, is marked as [+Link] (McNay 2004, 2005a, 2006). The [+Link] feature, adapted from Vallduví (1993) and Choi (1996), and valued as positive when an element is selected from a set of alternatives (a *poset* in the terminology of Ward and Birner (2001)), was initially motivated at the CP level to mark topicality, but, in McNay (2006), I show how it can also be applied at the *v*P and DP levels. At the DP level, it can be used to mark partitivity (McNay 2005b). In this paper, I extend this idea further and argue that, in the split construction to be discussed here, it is, in fact, *pseudo-partitivity* which plays a part. I leave aside the detailed analysis of the [+Link] feature itself, and concentrate, instead, on the role of pseudo-partitivity in the licensing and interpretation of the split construction. To begin with, in §2, I look at the semantic distinction between partitivity and pseudo-partitivity (§2.1) and how this might be captured syntactically by the [+Link] feature, thus motivating splitting (§2.2). I then look at how (pseudo-)partitivity relates to the mass-count distinction (§3), considering Borer's (2005) claim that all unmarked nominals are mass (§3.1), before relating this typologically to quantifiers (§3.2), considering which ones do and don't allow for splitting (§3.3). I introduce some data from German to support the arguments thus far. In §4, I turn to the strong-weak division of indefinites and further relate this notion to which quantifiers do and do not permit splitting (§4.1). Finally, §4.2 looks at proportionality as a side effect of partitivity, and concludes that this interpretation is accordingly not available with the split construction. §5 is a conclusion.

2 Pseudo-Partitivity vs. Partitivity

2.1 Drawing the Distinction

In the Indo-European tradition, the term 'partitive' has usually been associated with case semantics, primarily in relation to genitive case. The term 'pseudo-partitive', on the other hand, was first introduced by Selkirk (1977). The difference between partitives and pseudo-partitives is observable in many natural languages and can be reflected syntactically in various ways (Koptjevskaja-Tamm 2001, Stickney 2004, Rutkowski 2006). At its most basic, the distinction can be said to rest on the presence/absence (respectively) of a definite

determiner:

- (2) a piece of the cake → partitive
- (3) a piece of cake → pseudo-partitive

The key semantic difference, however, is that whilst partitives involve a *presupposed set* of items referred to by one of the nominals, with the measure indicating a *subset* which is selected from it, in a pseudo-partitive construction, the same measure merely quantifies over *the kind of entity* indicated by the other nominal – that is, the two constructions differ primarily with respect to referentiality, and, in particular, as to whether or not there is quantification over individuals, or rather simply predication of a kind. One way that we might consider representing this is as follows:²

- (4) $\exists y \exists x. \text{piece}(y) \& \text{of}(y, x) \& \text{cake}(x) \rightarrow$ partitive
- (5) $\exists y. \text{piece}(y) \& \text{holds}(y, \text{cake}) \rightarrow$ pseudo-partitive
i.e. 'there's a y, such that y is a piece, and the property of cakeness holds of y'

2.2 (Pseudo-)Partitivity and Linkhood

In McNay (2005b) I showed how one might use the [+Link] feature to mark an element selected from a poset (Ward and Birner 2001), and how, at the DP level, this can be used to mark partitivity, i.e. the selection of an element from a specific wider reference set. A poset may, however, be constituted either by specific tokens or by kinds.³ In the latter instance, no particular tokens need to be contextually available: in fact, they may not even exist. This leads to a pseudo-partitive reading, rather than a partitive one, since we are imposing a measure onto something not actually measurable, rather than taking individual tokens and counting them. This explains why it is possible to use a partitive-like construction with both the negative determiner and a fictional entity – neither of which provide sets of extant, countable individuals – in the following Dutch example (inspired by Landman (2004), and further informed by Erik Schoorlemmer, p.c.):

²I thank my supervisor, David Adger, for these semantic representations (cf. also Adger and Ramchand 2003).

³I thank Maribel Romero for pointing this out to me (cf. also Carlson and Pelletier 1995:64).

- (6) Griffioenen zoekt Dafna geen een van
 Griffins seeks Dafna none one of
 'As for griffins, Dafna is not looking for any of them'

Stickney (2004) further discusses the fact that the *of DP* can extrapose out of the partitive whilst the *of NP* cannot extrapose out of the pseudo-partitive. She claims that this is because, in the latter instance, *of* is not a preposition (but rather a functional head) and therefore there is no PP constituent to move. Consider the contrast between the following examples:

- (7) a. How many pieces of that cake did you buy?
 b. How many pieces did you buy of that cake?
- (8) a. How many pieces of cake did you buy?
 b. *How many pieces did you buy of cake?

My assumption here would be that in the partitive (7), both *how many pieces* and *of that cake* (usually analysed as a DP and a PP respectively) are marked as [+Link]. As a result, either or both elements may move up to the *Vorfeld*, depending on the other discourse features of the sentence. In the pseudo-partitive (8), however, only the DP as a whole can be marked, or, arguably, only the N. Consequently, (8b) is bad because we have a [-Link] element higher up than a [+Link] one, something which is not allowed for by the functional sequence of projections (McNay 2006). It should be noted that it is not always the noun which is marked as [+Link] in the pseudo-partitive, split constructions. Consider, for example, the following Japanese data (Sauerland and Yatsushiro 2004:21):

- (9) a. Taroo-wa hon-no san-satu-o yomi-oeta
 Taro-TOP book-GEN san-CL-ACC read-finished
 'Taro has finished reading three of the books'
- b. Taroo-wa san-satu-no hon-o yomi-oeta
 Taro-TOP san-CL-GEN book-ACC read-finished
 'Taro has finished reading three books'

In (9a), where the noun precedes the quantifier and is marked for genitive case, we seem to get the specific, partitive reading, whilst in (9b), where the determiner precedes the noun and is marked for genitive case, we instead get the non-specific, pseudo-partitive reading.⁴

⁴This, of course, requires further research. Thanks, however, go to Hatsuki Aishima, Yuki Kim, Lars Larm, Kelly Moran, and Kikuko Setojima for their explanations and judgments (cf. also Nakanishi 2004).

The crucial point, then, is that whilst, for partitives, both the measure and substance DPs/PPs are marked as [+Link], for pseudo-partitives, only the entire measured DP as a whole, or the measure DP or substance DP/NP, but not both, may be marked as [+Link]. Employing such an analysis has advantages over previous approaches, since we are now able to use just one feature, arguably already necessary at other levels of the syntax, to explain and motivate both the movement behind the splitting, as well as the resulting semantic interpretation. For the rest of this paper, I shall turn to look at this semantic interpretation – namely pseudo-partitivity – and show how it is even more inherent to the syntax of quantifiers than one might assume at first blush.

3 The Mass-Count Distinction

As already discussed, there is a correlation between readily measurable, or count nouns, and partitivity, and unmeasurable substance, or mass nouns, and pseudo-partitivity. In this section, I turn to this mass-count distinction more closely and consider its application to nouns themselves, as well as to the drawing up of a potential typology for quantifiers.

3.1 All Nouns are Mass

T'sou (1976:1216) claims:

'The study of nominal classifier systems suggests an important hypothesis that the use of nominal classifiers and the use of [the] plural morpheme [is] in complementary distribution in natural language.'

Borer (2005, chapter 4) takes complementary distribution to be the hallmark of identity and thus extends Chierchia's (1998) claim that, in argumental-type languages, N-predicates are always mass, and argues that actually *all* noun denotations across *all* languages are mass. Her key point is that count is crucially a grammatically constructed notion, corresponding to a piece of functional structure. As such, all nouns are in need of being portioned out or divided before they can interact with the count system. In argumental languages, such as Chinese, this task is carried out by classifiers; in predicational languages, such as English, it is done either by plural inflection or the indefinite article. In the absence of such functional structure, the noun is, by default, interpreted as mass. Borer further concludes that mass nouns are not inher-

ently plural.⁵ As well as a Classifier Phrase (Cl^{max}), headed by an open value $\langle e \rangle_{DIV}$ responsible for the dividing of matter, Borer proposes a Quantity Phrase ($\#P$), responsible for the assignment of quantity. Just like Cl^{max} , $\#P$ may be missing from the structure. The absence of Cl^{max} leads to a mass interpretation; the absence of $\#P$ leads to a non-quantity interpretation. Her structure is as shown in (10):

$$(10) [DP[\#P \langle e \rangle \# [CL^{max} \langle e \rangle_{DIV} [NP]]]]$$

3.2 Counting and Dividing Quantifiers

Given that bare nouns in English default to mass in the absence of dividing structure, something must assign range to $\langle e \rangle_{DIV}$ in singular structures, given that they are count. Borer (2005) assumes that, for singulars, the dividing function and the counting function are one and the same – hence *a* acts as a head to the $\#P$ projection, in addition to being a head to the Cl^{max} projection: it assigns range simultaneously to $\langle e \rangle_{DIV}$ and to $\langle e \rangle_{\#}$. Cardinal *one* can act as both a divider and a counter too, but other cardinals in English cannot – the dividing function is restricted to plural marking which creates divisions of mass, subsequently counted by cardinals. Quantifiers such as *each* and *every*, which take a non-plural restriction but return an interpretation compatible with a non-singular, must also be capable of both division and quantification; other plural-selecting quantifiers, however, may assign range only to $\langle e \rangle_{\#}$. Borer's proposed structures are therefore as in (11):

- (11) a. The indefinite article, cardinal *one* (output: *a/one boy*):
 $[DP[\#P \text{ one/a } \langle e \rangle_{\#(DIV)} [CL^{max} \text{ one/a } \langle e \rangle_{DIV(\#)} [NP \text{ boy}]]]]]$
- b. Plural-taking quantifiers, cardinals other than *one* (including *zero*) (output: *three/several boys*):
 $[DP[\#P \text{ three/several } \langle e \rangle_{\#} [CL^{max} \text{ boy} \langle \text{div} \rangle \langle e \rangle_{DIV} [NP \text{ boy}]]]]]$
- c. Singular-taking quantifiers (output: *every/each boy*):
 $[DP[\#P \text{ every/each } \langle e \rangle_{\#(DIV)} [CL^{max} \text{ every/each } \langle e \rangle_{DIV(\#)} [NP \text{ boy}]]]]]$

Consider, finally, the behaviour of the negative article *no*:

- (12) a. no boy

⁵Carlson and Pelletier (1995:20) assume that morphological plurality does not necessarily enforce semantic plurality either.

- b. no boys
- c. no meat

It appears that *no* may, but need not, have a dividing function. This is especially relevant now if we turn back to the original problem of split topicalisation and its interpretation in German.

3.3 Quantifier Types and Splitting

Generalised quantifiers (GQs) are standardly taken to be of type $\langle\langle et \rangle t \rangle$ – that is, they are seen to relate two sets. When it comes to evaluation, we take the kind, denoted by the nominal, and break it down into individuals before counting to check if the predicate holds for each individual, and thus if the correct percentage holds for the predicate to be true of the quantifier at hand. In fact, for many GQs the individuation process is overtly instantiated since there is enforced syntactic singularity on the noun, e.g.: *every goose*, *each goose* and *no goose*. The interesting question, then, is whether or not a GQ such as *no* is still a GQ when it takes the plural form of its nominal argument. In what follows, I will argue that it is not. Instead it takes on the role of a pseudo-partitive, imposing a measure on the kind denoted by the noun, without dividing or counting. As such, the quantifier cannot be a GQ as there would be a type mismatch between its argument, which, as a kind, will be a particular sort of type $\langle e \rangle$ (something atomic, with no internal structure), and the required argument of a GQ, namely a set of type $\langle et \rangle$ (Carlson and Pelletier 1995).

If we relate this back to the possibility of split topicalisation in German and look at the quantifiers which can take either a plural or a singular nominal, or just a singular one, we find that whilst the constructions with the plurals allow for splitting, those with the singulars do not:⁶

- (13) a. Bücher hat er keine gekauft
 books has he none-PL bought
- b. *Buch hat er keins gekauft
 *book has he none-SG bought
- c. ? Ein Buch hat er keins gekauft
 ? a/one book has he none-SG bought

⁶Thanks to Nadine Aldinger, Susanne Becker, Monika Bednarek, Mario Brandhorst, Ina and Stefan Döttinger, Edith Ehmer, Kirsten Gengel, Jutta Hartmann, Sabine Mohr, Sabine Müller, Peter Öhl, Martin Salzmann, and Judith Schneider for their time and patience in providing me with native judgments.

- d. Geld hat er keins
money has he none-SG
- (14) a. *? Bücher hat er eins gekauft
*? books has he one bought
b. *?? Buch hat er eins gekauft
*?? book has he one bought
- (15) a. ?Bücher hat er manche gekauft
?books has he some-(of)-PL bought
b. *Buch hat er manches gekauft
*book has he some-(of)-SG bought
- (16) a. *?? Bücher hat er beide gekauft
*?? books has he both-PL bought
b. Die Bücher hat er beide gekauft
the books has he both-PL bought
c. *Buch hat er beides gekauft
*book has he both-SG bought
- (17) *Buch hat er jedes gekauft
*book has he each/every bought
- (18) Bücher hat er einige gekauft
books has he some bought
- (19) Bücher hat er viele gekauft
books has he many bought
- (20) Bücher hat er wenige gekauft
books has he few bought

(13c) shows that the ungrammaticality of (13b) can be rescued if the indefinite article is found in the topicalised position, along with the noun. This construction is still somewhat marginalised, however, and my informants would prefer it with the negative operator *nicht* 'not' lower down in place of *keins* 'none'. This would render the fronted element specific, and, in fact, no longer really be a case of splitting, but, simply of focusing/topicalising. (16b) further shows that with quite such a specific and referential quantifier as *beide* 'both', it is preferable to enforce this interpretation by the added presence of the definite article along with the fronted noun. The contrast between (15a) and (18) is interesting, since we see that *manche*, which is usually interpreted as being partitive, 'some of', as opposed to *einige* which is just 'some', is somehow

less able to split. I return to this and offer an explanation in terms of weak and strong readings in §4.1. (19) and (20) are given to show that the indefinite *einige* is not alone in its splitting behaviour. Finally, (13d) shows that the split construction is fine also with mass nouns being fronted. This lends support to the claim made by Borer (2005:188–189) that ‘plurality’, in and of itself, does not require quantity to be instantiated. That is, although we have plural marking in (13a) and (15a) (here I set aside (14) and (16) since these quantifiers inherently imply a certain cardinality), we do not get a counting of entities being referred to, since this is brought about by the version in the singular (which is, of course, fine, when not split). As a result, these split plural versions are to be interpreted as pseudo-partitives, with reference to a mass set, or a kind, rather than to specific tokens. As Borer (2005:188) concludes:

‘The so-called plural inflection [...] does not in fact mark quantity or a set of singulars, but rather, a division of mass, akin to classifiers.’

It would seem, then, that the ‘unmarked’ mass form of a noun in German is, actually, the ‘plural’ form, rather than the singular, since the former refers to the kind, whilst the latter involves counting. It is, then, questionable, whether Borer is right in concluding (as above in §3.2) that plural-selecting quantifiers assign range to $\langle e \rangle_{\#}$, since, as has just been demonstrated, no counting occurs with such quantifiers. They do not act as cardinals, but rather as pseudo-partitives (compare the fact that *manche* ‘some (of)’ behaves in the same way as *keine* ‘no’). In order to elucidate this final point further, I turn to the distinction between the strong and weak readings of indefinite quantifiers, and their apparent ambiguity between proportional and cardinal interpretations (Partee 1988, Doetjes 1997, Borer 2005).

4 Strong vs. Weak Quantifiers – to Split or not to Split?

4.1 Indefinites and the Strong-Weak Divide

Indefinites may give rise to both a variable (weak, intermediate) and a non-variable (strong, widest scope) reading (Kamp 1981, Heim 1982). A variable reading emerges when $\langle e \rangle_d$ – the open value in D^0 (Borer 2005) – is null and subject to existential closure. The assignment of range to $\langle e \rangle_d$ consists of binding it. Strong quantifiers differ from weak ones in disallowing existential interpretation – therefore, in such structures, $\langle e \rangle_d$ must not remain an open value or else range could be assigned by DP-external means, including existential closure. GQs, unlike indefinites, only give rise to a strong reading.

Accounts are divided as to whether the ability of indefinites to bring about either a strong or a weak reading is due to ambiguity, a double lexical entry for each form, type-shifting, or simply the syntax of the construction in which the quantifier occurs. Borer (2005) follows the latter route and suggests that strong quantifiers (both GQs and indefinites when being used to bring about a strong interpretation), unlike weak ones, prevent an open value by merging a copy in D^0 where they assign range to $\langle e \rangle_d$. The distinction between the weak and strong interpretation of indefinites can, therefore, be seen schematically as in (21):

- (21) a. $[DP \langle e \rangle_d [\#P \text{ ten } \langle e \rangle \# [CL^{max} \text{ boys } [NP \text{ boy}]]]] \rightarrow \text{weak}$
 b. $[DP \text{ ten } \langle e \rangle_d [\#P \text{ ten } \langle e \rangle \# [CL^{max} \text{ boys } [NP \text{ boy}]]]] \rightarrow \text{strong}$

When $\langle e \rangle_d$ remains open, as in (21a), it is assigned range by existential closure within the domain of its c-commanding verb, bringing about a weak reading. If $\langle e \rangle_d$ is bound within the DP by a D-determiner, however, there is no longer a variable in D, and thus we obtain a strong reading (21b). It thus becomes clear that #P and CL^{max} are not the relevant projections when it comes to the distinction between those quantifiers which allow for splitting and bring about a pseudo-partitive interpretation, and those which do not. Instead, it is a matter of whether or not D^0 is filled. In the framework of McNay (2005b), this would be translated not as D^0 , but rather as the highest phase edge projection, namely SpecLink_{DP} . Relating this back to the notions of pseudo-partitivity and splitting, we must conclude that, since splitting involves the movement of the noun (at least in the German cases at hand), but not the determiner/quantifier, to SpecLink_{DP} , it can only occur with weak quantifiers, where the determiner/quantifier does not move up to SpecLink_{DP} in order to bind the open value $\langle e \rangle_d$. Correspondingly, the correlation between pseudo-partitivity and splitting is reinforced, since, in such instances, we are forced to look for existential closure outside of the DP domain, and thus do not end up counting specific individuals, as we do for strong quantifiers where binding occurs within the DP itself. Recalling now the examples (13) through to (20), we can see why it is that the weak indefinite plurals *keine*, *einige*, *viele*, and *wenige* allow easily for splitting, whilst the strong plural quantifiers *manche* and *beide* are less able to do so.⁷

⁷This relates back to the idea put forward in McNay (2004) that some quantifiers are inherently marked as [+Link] and thus seem almost bound to take wide scope in a sentence containing two quantifiers.

4.2 Proportionality vs. Cardinality

As well as the strong-weak distinction, Partee (1988) claims that quantifiers such as *many* and *few* are ambiguous between a proportional and a cardinal reading. The difference between these interpretations can be illustrated on the basis of the following example:

(22) Many students study linguistics.

The proportional reading is obtained by taking all of the students in the world as our reference set. Accordingly, for (22) to be true, the set of linguistics students would have to be relatively large as a proportion of all of the students in the world, and, as such, the statement is most likely false. The cardinal reading, on the other hand, is obtained not by comparing the number of linguistics students to the total number of students, but by looking at the cardinality (sum total) of the set of linguistics students. Since adding up all of the linguistics students in the world will give a fairly large figure, (22) is true under this interpretation.

According to Partee (1988), the two interpretations of the sentence correspond to two different readings of an ambiguous quantifier. Doetjes (1997), however, argues that proportionality ought, actually, to be seen as a side effect of partitivity rather than resulting from ambiguity.⁸ Further support for this view comes from the fact that, contrary to cardinal numbers such as *three*, Qs that trigger a proportional interpretation never indicate absolute quantities, and have to be interpreted with respect to a contextually given norm. Since partitives are interpreted with respect to a reference set, they automatically provide such a context.

Taking Doetjes' conclusion to be true, one final deduction we might make is that the quantifiers in split constructions, owing to their pseudo-partitive interpretation, may never allow for a proportional reading, since this would require a partitive interpretation and a poset comprised of actual countable tokens, as opposed to one of kinds. If we consider the German counterpart of (22), given in (23a), and the split version, given in (23b), we can see this to be true. Whilst (23a) may, like (22), receive either a proportional or a cardinal reading, (23b), where the splitting enforces a pseudo-partitive interpretation, prohibits the proportional reading, since the only possible comparative interpretation is one whereby we are comparing the cardinality of the group of students studying linguistics with the cardinality of some other group of people studying the same discipline (and not comparing the number of students studying linguistics with the number of students studying some other subject):

⁸See Doetjes (1997, e.g. 47) for discussion.

- (23) a. Viele Studenten studieren Linguistik.
 b. Studenten studieren viele Linguistik.

5 Conclusion

In conclusion, I have argued principally that the following correlations hold:

- pseudo-partitivity – mass interpretation – weak quantifiers – no proportional reading – split constructions;
- partitivity – count interpretation – strong quantifiers – proportional reading – no split constructions.

Following Borer (2005), all nouns are inherently mass, and the unmarked form, at least in German, is the 'plural', which refers to kinds rather than to countable tokens. Quantifiers which can take either a plural or a singular nominal argument vary in type (or structural position) such that, with a singular noun, they act as GQs and involve counting, and thus do not allow for splitting since this brings about an uncounted pseudo-partitive interpretation, whilst, with a plural noun, they do not involve counting, but rather refer to kinds, and thus allow for splitting and the resultant pseudo-partitive interpretation. Whilst splitting occurs easily with weak indefinite plural quantifiers which do not move to SpecLink_{DP} to bind the open value $\langle e \rangle_d$ (seeking, instead, existential closure within the domain of the c-commanding verb), it is less easy/disallowed, except under coercion, for strong (GQ) quantifiers which involve counting of individuals due to the DP-internal binding of the open value $\langle e \rangle_d$. Since, following Doetjes (1997), proportionality is a side effect of partitivity, we can conclude that is not possible with a split (pseudo-partitive) construction. Finally, whilst, in the partitive, the whole DP (or both sub-parts) is marked as [+Link], in the pseudo-partitive, only one part of the DP (the D/Q or the NP) may be.

I have demonstrated that the above conclusions hold for German. However, in future research it will be important to extend this analysis to other languages, such as Japanese, and look at the differences brought about when it is the quantifier/measure which is marked as [+Link] and which moves higher up in the splitting procedure.

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