Two *many* modifiers?

English NPs with Q-words like many can give rise to a weak/cardinal or a strong/proportional reading (Partee, 1989). For example, (1) conveys that the number of faculty children who came to the party corresponds to whatever counts as a large proportion of faculty children (proportional reading, PR), or as a large number in a given context (cardinal reading, CR).

(1)   Many faculty children came to the party.

A long-standing debate revolves around whether this behavior is due to lexical ambiguity (Milsark, 1974; Partee, 1989), pragmatic underdetermination (Löbner, 1978), or differences in scale structure (Solt, 2009). We bring a new perspective into this debate by using Russian, where the PR and CR unambiguously correspond to two different realisations of *many* – an attributive and an adverbial one.

(2) a. Mnogie   deti   prishli   na   prazdnik.
        many.pl.Nom   child.pl.Nom   came   to   party.   ✓PR, *CR
     b. Na   prazdnik   prishlo   mnogo   detej.
        to   party   came   many   child.pl.Gen.   *PR, ✓CR

Babko-Malaya, 1998 applies the tests from Milsark, 1974 to show that *mnogie* behaves like a strong quantifier and *mnogo* like a weak one, as expected. Starting from this fact, we account for the difference between Russian *mnogie/mnogo* and English *many*. We furthermore derive the difference in meaning between *mnogie* and *mnogo* from their syntactic differences.

The meaning of *many* can be described in general terms as "large in number with respect to a comparison class." In (1), if this class is given by faculty children, the resulting reading is PR; otherwise, it is CR. Based on this view, we link *many* with gradability. Put in these terms, the task is to explain why *mnogie* and *mnogo* restrict their comparison classes (CC) but *many* does not.

Mnogie. We derive the fact that *mnogie* is unambiguously proportional from its status as an attributive gradable adjective (cf. also Hackl, 2009 for a similar analysis of *most* in terms of a gradable predicate). Syntactically, *mnogie* is an adjective because it agrees with the nominal it modifies in (2)a. In Russian as in English, if a gradable adjective is used attributively, then its CC is determined exclusively by the nominal it modifies, and cannot be given by context. E.g., (3)a is just as bad as its English counterpart (3)b:

(3) a. #Bil vysokij basketbolist, no on ne vysokij dlja basketbolista.
     b. #Bill is a tall basketball player, but he's not tall for a basketball player.

Just as *tall* in these examples must take *basketball player* as its CC, *mnogie* in (2)a must take *students* as its CC. We model this fact by the following entries.

(4) a. $[\![tall]\!] = \lambda P\, \lambda d\, \lambda x: \exists y[P(y) \wedge \text{height}(y) = d].\ P(x) \wedge \text{height}(x) \geq d$
     b. $[\![mnogie]\!] = \lambda P\, \lambda d\, \lambda x: \exists y[P(y) \wedge \text{card}(y) = d].\ P(x) \wedge \text{card}(x) \geq d$

Line (4)a combines a standard entry for gradable adjectives (e.g. von Stechow, 1984) with the restriction on CCs. Line (4)b extends this to *mnogie*. We assume that in both cases, the positive is formed by binding d by a silent operator POS. The entries then restrict d to the range determined by the nominal. Applying (4)b to the analysis of (2)a, we derive that this example is only defined if the relevant CC includes degrees from the set defined in (5), that is, we decide on what counts as many by looking at the cardinalities of the groups in the extension of the nominal. The sentence is therefore predicted true iff the number of children who came to the party is greater than some norm fixed relative to the number of entities in the extension of *children*. This yields a PR.

(5) $\{d: \exists y[*\text{children}(y) \wedge \text{card}(y) = d]\}$

English *many*. We assume that the restriction on CCs applies only to attributive gradable adjectives. To explain why *many* is not subject to this restriction, we note that it differs in distribution from attributive gradable adjectives (Solt, 2009; Kayne, 2005):

(6) a. Many linguists like phonology, but many don't.

    b. *Good linguists like phonology, but bad don't. (Kayne, 2005)

(7)   many/*good of the students (Solt, 2009)

We follow Solt in explaining this difference by assuming that English *many* (unlike *mnogie*) is not a gradable predicate of individuals but one of degrees. We take the difference to show that *many* is not a gradable adjective, and therefore not subject to the CC restriction on attributive adjectives. Specifically, we analyse *many* as a two-place relation between numbers, see (8), where the first argument is quantified over by POS and the second one is mapped to the cardinality of the extension of the modified nominal by an abstract measure function, which is assumed to be provided by a special functional projection.

(8) $[\![many]\!] = \lambda d \, \lambda d' \, d' \geq d$

Under this analysis, (1) is evaluated with respect to a CC that may but need not be constrained to the extension of *faculty children*. It could be set to the groups of those who came to the party, in case the predicate determines the salient group by virtue of being the topic. In other cases, the focus may facilitate the choice by restricting the discourse topic. If it falls on *party*, the CC is set to the groups of faculty children who have the property of having come to x, where x is an alternative to *party*. In that case, (1) is predicted to be true iff the cardinality of faculty children who came to the party is large, relative to the cardinalities of faculty children who came to this or that event.

Mnogo. We suggest an explanation why unlike *mnogie* and just like *many*, *mnogo* has a CR. We do not expect the restriction against CRs to carry over from *mnogie* because *mnogo* is not an attributive adjective, as shown by its lack of agreement (2)b. We capture its parallel with *many* by extending Solt's analysis of *many* as a gradable predicate of degrees to *mnogo*. This predicts that *mnogo*, just like *many*, should be acceptable in differential comparatives, which is borne out:

(9)   Studentov   namnogo   bolshe pjati.
        student.pl.Gen   by_many   more   five.Gen
        There are many more than 5 students.

To explain why *mnogo* lacks a PR, we note that a PR is not available if the CC, or generally the topic of the utterance, is specified by means of prosodic prominence. Instead, a focus-affected reading obtains in such cases, which is incompatible with a PR, Herburger, 1997. On the other hand, Russian is known to have a rigid word order, which determines the topic/focus structure of a sentence. We argue that these two factors conspire to prevent the CC from being assigned to the meaning of the modified nominal with *mnogo*. Concretely, since topics take the sentence initial position in Russian, we could potentially make *mnogo detej* in (2)b proportional by moving it to the beginning of the sentence. However, *mnogo detej* is not a good topic in general, and even less so for obtaining a PR, hence the markedness of (10)a; and fronting the modified nominal *detej*, as done in (10)b, requires a focus marking and therefore also fails to produce a topic compatible with a PR.

(10) a. ??Mnogo   detej   prishlo   na   prazdnik.
        many   child.pl.Gen.   came   to   party

    b. [Detej]$_F$ mnogo   prishlo na   prazdnik.
        many child.pl.Gen.   came   to   party

Outlook. We have found that the restriction on *mnogie* can be explained in terms of a restriction on CCs of attributive adjectives. We take this as an indication that it is promising to link the problem of cardinal/proportional resolution with the resolution of CCs of gradable predicates. This link can be developed further. As the discussion of *mnogo* suggests, information structure may be a relevant factor in the latter case. As for the former case, note that Milsark's strong and weak contexts also lay certain requirements on the information structure.

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