

More than one solution

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1 Introduction

It is well-known that the English *more* is ambiguous: on the one hand, it is the synthetic comparative of *much*, as in (1a); on the other hand, *more* has been analyzed as the freestanding form of the comparative affix *-er*, as in (1b), a case of ‘*mo*-support’ akin to *do*-support (Bresnan (1973), Corver (1997)). In addition to having the two kinds of *more*, English has been analyzed as having two types of comparatives (Hankamer (1973), Napoli (1983), Heim (1985), etc.): the clausal comparative, as in (2a), where *than* combines with a full or partially elided finite CP; and the phrasal comparative, (2b), where *than* combines with a constituent smaller than a CP.

- (1) a. Much is good, more is better. [synthetic comparative of much]
b. mo-re intelligent : smart-er [mo-support]
- (2) a. Mary is taller than John is. [clausal comparative]
b. Mary is taller than John / than 5 feet. [phrasal comparative]

We propose that cardinal-containing comparatives like *more than five children* (Barwise and Cooper (1981), Krifka (1999), Hackl (2000), Geurts and Nouwen (2007)) can encode any of the four resulting options. We argue that this four-way difference is not about bracketing: we analyze all four options as having the bracketing in (3b) (where the cardinal combines with the lexical NP), not (3a) (where the cardinal combines with the comparative first).

- (3) a. [[more than five] sandwiches]
b. [more than [five sandwiches]]

Empirical evidence for having four different options for comparatives comes from Russian, where *more than five children* can be translated in four different ways. First, Russian has both phrasal comparatives (*more*+Genitive-marked NP, as in (4a,c)) and clausal comparatives (*more*+wh-expression, as in (4b,d)). Second, Russian has two *more*’s: *bol’she* (4a-b) and *bolee* (4c-d). We analyze *bol’she* as the suppletive comparative of *mnogo* ‘much/many’, and *bolee* as *mo*-support.

- (4) a. *bol’she pjati detej* [suppletive comparative of *mnogo*; phrasal]
more five-GEN child-GEN.PL

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- b. *bol'she čem pjat' detej* [suppletive comparative
more than five-NOM=ACC child-GEN.PL of *mnogo*; clausal]
- c. *bolee pjati detej* [*mo*-support; phrasal]
more five-GEN child-GEN.PL
- d. *bolee čem pjat' detej* [*mo*-support; clausal]
more than five-NOM=ACC child-GEN.PL

Evidence that *bolee* is *mo*-support comes from the fact that *bolee*, but not *bol'she*, is used in analytic comparatives, as in (5); (6) shows that *bol'she* is the suppletive comparative of *mnogo* 'much/many'.¹ Further evidence that *bol'she* contains *much* is that *bol'she*, like *mnogo*, and unlike *bolee*, can function as a direct object or adverbial modifier in the absence of a head noun, as in (7).²

(5) *bolee/*bol'she umnyj : umn-ee*
more smart smart-er

(6) a. *mnogo xleba/ljudej*
much bread/people-GEN
'a lot of bread/people'

b. *bol'she/*bolee xleba/ljudej*
more bread/people-GEN
'more bread/people'

(7) *Lisa rabotaet mnogo. / bol'she/*bolee čem Vera.*
Lisa works much / more than Vera
'Lisa works a lot.' / 'Lisa works more than Vera.'

Our goal is to provide an analysis of cardinal-containing comparatives that captures the four options in (4), and the differences among them.

2 Differences among the comparative options

2.1 Many vs. *much* readings

Cardinal-containing comparatives in English are ambiguous between *many* and *much* readings, spelled out in (8). These readings can be brought out by the continuations in (9a-b), respectively. The same effect is observed with measure nouns, as shown in (10).³

¹ The same pattern is observed with the Russian equivalent of *fewer than five children*. Russian has two forms of *fewer*: *men'she*, the suppletive comparative of *malo* 'a little'; and *menee* 'less' (as in *menee krasivyj*, 'less beautiful').

² However, *bol'she* has a wider distribution than *mnogo*: e.g., *bol'she* is also used as the comparative form of *očen'* 'very'. Similar facts hold for English, with *more* having a wider distribution than *much*: *I love Mary a lot/*much*, vs. *I love Mary more than Peter*. We have no explanation for this effect at present.

³ There are in principle two different *much* readings: the 'additive' *much* (*five sandwiches + something else*, as in (9b)); and the 'replacement' *much* (*something more substantial than five sandwiches*, as in "I ate more than five sandwiches – I ate a whole dinner instead!"). Preliminary results from a survey of native speakers (see section 4) indicate that in English, replacement readings are not accepted as readily as additive readings (for Russian clausal *bol'she* comparatives, both readings are accepted). We leave this issue aside for now.

- (8) more than five sandwiches
 a. ‘*many* reading’: *≈ six or more sandwiches*
 b. ‘*much* reading’: *≈ five sandwiches plus something else*
- (9) I ate more than five sandwiches...
 a. ‘*many* reading’: ...I ate six!
 b. ‘*much* reading’: ...I ate five sandwiches plus a bowl of soup!
- (10) I bought more than a pound of apples...
 a. ‘*many* reading’: ...I bought a pound and a half.
 b. ‘*much* reading’: ...I also bought some bananas.

In Russian, the *many* reading is available to all four comparative types, but the *much* reading is available only to clausal *bol’she* comparatives, as in (11).⁴

- (11) a. *Ja s’jela bol’she čem pjat’ buterbrodov.*
 I ate more than five-ACC sandwiches.
 ‘*many* reading’: *≈ six or more sandwiches*
 ‘*much* reading’: *≈ five sandwiches plus something else*
- b. *Ja s’jela bolee čem pjat’ buterbrodov.*
 I ate more than five-ACC sandwiches
 ‘*many* reading’: *≈ six or more sandwiches*
 #‘*much* reading’: *≈ five sandwiches plus something else*
- c. *Ja s’jela bol’she/bolee pjati buterbrodov.*
 I ate more five-GEN sandwiches
 ‘*many* reading’: *≈ six or more sandwiches*
 #‘*much* reading’: *≈ five sandwiches plus something else*

2.2 Referentiality

The examples in the previous section show that comparatives in English and Russian are compatible with cardinal-containing NPs, which we analyze as having the semantic type of predicates $\langle\langle e, t \rangle\rangle$ (see Landman (2003); Ionin and Matushansky (2006); Geurts and Nouwen (2007)). However, comparatives are also compatible with referential (type *e*) expressions, as shown in (12).^{5,6}

⁴ A similar distinction between phrasal and clausal comparatives is observed in French, with *plus de* ‘more of’ (phrasal) allowing only the *many* reading, and *plus que* ‘more than’ (clausal) allowing both the *many* and the *much* readings.

⁵ It is not clear whether comparatives over referential expressions (12) have only *much* readings, or *many* readings also. E.g., “*I invited more than Peter and Mary – in fact, I invited ten people!*” might be considered a *many* reading (ten people are counted, including Peter and Mary), or a *much* reading (ten people is more substantial than just Peter and Mary). The fact that Peter and Mary have to be included in the ten people suggests that we are not dealing with a regular *many* reading (as in *I invited more than two people – I invited ten people*, which does not require any specific two people to be among the ten). We leave this issue open.

⁶ Cardinal-containing comparatives seem incompatible with true quantified NPs (type $\langle\langle e, t \rangle, t \rangle\rangle$): **I invited less than everyone*; **More than anyone came*, which shows that the cardinal-containing NP inside a comparative cannot be existentially quantified. Further evidence comes from the fact that *I read fewer than 5 books* does not entail the existence of 5 books. The entire comparative NP (*fewer than 5 books*) is not referential, so this prohibition cannot be attributed to the specificity constraint (Fiengo and Higginbotham (1981)).

- (12) a. I invited more than (just) Peter and Mary. (I also invited Tom).
 b. I read more than these five books. (I read six other books, also).

In Russian, only the comparative type that is compatible with the *much* reading (the clausal comparative with *bol'she*, see (11)) is compatible with referential expressions, as in (13).

- (13) a. *Ja prigasila bol'she/*bolee čem Petju i Mašu.*
 I invited more than Peter-ACC and Mary-ACC
 'I invited more than Peter and Mary.'
 b. *Ja pročitala bol'she/*bolee čem èti pjat' knig.*
 I read more than these five-ACC book-GEN.PL
 'I read more than these five books.'
 c. **Ja prigasila bol'she/bolee Peti i Maši.*
 I invited more Peter-GEN and Mary-GEN
 d. **Ja pročitala bol'she/bolee ètix pjati knig.*
 I read more these five-GEN book-GEN.PL

2.3 Different bracketing?

A priori, a cardinal-containing comparative is compatible with two distinct structures (cf. Kadmon (1992)): where the comparative combines directly with the cardinal, as in (3a) above (Barwise and Cooper (1981), Keenan and Stavi (1986)); vs. where the cardinal first combines with the lexical NP, as in (3b) (Geurts and Nouwen (2007), Arregi (2010)).

The distribution of *many* and *much* readings, in (11), may potentially be captured by assigning (3a) to comparatives with the *many* reading (as in (14a)), and (3b) to comparatives with the *much* reading, as in (14b).

- (14) a. [[more than five] sandwiches] \approx 6 or more sandwiches
 b. [more than [five sandwiches]] \approx 5 sandwiches & something else

To derive the Russian facts, this analysis would have to ensure that those comparatives which lack the *much* readings – namely, phrasal comparatives, and comparatives with *bolee* (see (11)) – have only the bracketing in (3a) available to them, and not the bracketing in (3b). Such an analysis also seems able to explain why phrasal comparatives and comparatives with *bolee* cannot combine with referential expressions (see (13)): the structure in (3a) allows for combination with a cardinal only, not a full NP/DP. However, a major problem for this account is that *bolee*, which lacks the *much* reading and cannot combine with a referential expression, nevertheless can combine with an NP, not just a cardinal, as shown in (15).

- (15) *On bol'she/bolee čem genij.*
 he more than genius
 'He is more than a genius.'

Furthermore, the bracketing account makes an incorrect cross-linguistic prediction. On this account, all comparatives cross-linguistically that have only the *many* reading, and lack the *much* reading, necessarily have the bracketing in (3a). However, there is independent cross-linguistic evidence

against (3a), from the word order facts with comparatives in Hebrew, discussed in Arregi (2010) (see Arregi (2010) on similar facts in Basque).

In Hebrew, *exad* ‘one’ must follow the lexical NP, while other cardinals precede it (Borer (2005)), as shown in (16a-b). Importantly, this paradigm is preserved in comparative cardinals, as shown in (16c-d) (from Arregi (2010)).

- (16) a. *Dani kana sefer exad.*
 Dani bought book one
 ‘Dani bought one book.’
- b. *Dani kana shney sfarim.*
 Dani bought two books
 ‘Dani bought two books.’
- c. *Dani kana yoter mi-sefer exad.*
 Dani bought more from-book one
 ‘Dani bought more than one book.’
- d. *Dani kana yoter mi-shney sfarim.*
 Dani bought more from-two books
 ‘Dani bought more than two books.’

The Hebrew comparatives in (16c-d) have only the *many* reading, not the *much* reading (Nora Boneh, p.c.). On the bracketing analysis, the lack of a *much* reading means that (16c-d) must have the structure in (3a); however, as discussed by Arregi (2010), this structure cannot explain why *more than one* in (16c) is discontinuous.

2.4 Focus

A different account of *many* and *much* readings is proposed by Geurts and Nouwen (2007), who attribute the difference to the placement of focus rather than bracketing (cf. Krifka (1999)). For them, both readings involve scalar alternatives: the *many* reading is due to focus on the cardinal only, as in (17a), while the *much* reading is achieved by focus on the entire NP, as in (17b).

- (17) Mary drank more than three highballs.
 a. Mary drank more than [three]_F highballs – she drank five!
 b. Mary drank more than [three highballs]_F – she drank six martinis!

A problem for this treatment, however, is that in Russian, comparison unambiguously involving scalar alternatives is only possible with *bolee* (which with cardinals has only the *many* reading, see (11b)), as shown in (18). For more discussion of *bolee* and focus, see section 3.4.

- (18) a. *Ètot čelovek boleel/*bol'se čem iskupil svoju vinu*
 this man more than expiated his guilt
pered obščestvom.
 before society
 ‘This man has more than expiated his debt to society.’
- b. *Ja znakom s ètim boleel/*bol'se čem ljubeznym junošej.*
 I familiar with this more than affable youth
 ‘I'm familiar with this more than affable young man.’

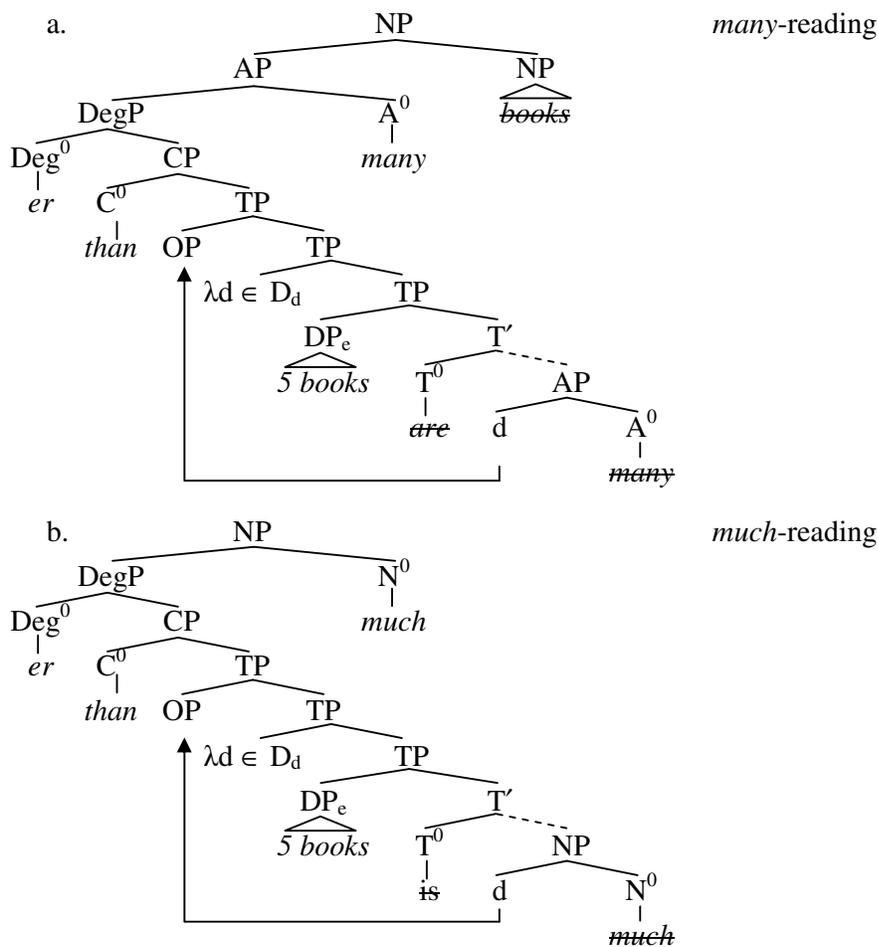
3 Proposal: the structure of comparatives

We analyze clausal comparatives ((4b,d)) as full CP structures, and phrasal comparatives ((4a,c)) in terms of either degrees or small clauses, depending on the language (cf. Pancheva (2006, to appear)).

3.1 Structure of clausal comparatives with *bol'she*

We start with clausal *bol'she* comparatives, which have both *many* and *much* readings ((11a)). Our proposal is that clausal *bol'she* comparatives may be built either on an underlying *many*, as in (19a), or an underlying *much*, as in (19b). Both options are also available to English clausal comparatives (see (9)).

(19) clausal *bol'she* comparatives:



The fact that *five books* in (19a,b) is a regular subject and therefore can have type *e* or type $\langle\langle e, t \rangle, t\rangle$ accounts for the availability of referential expressions in clausal *bol'she* comparatives ((13a,b)).⁷

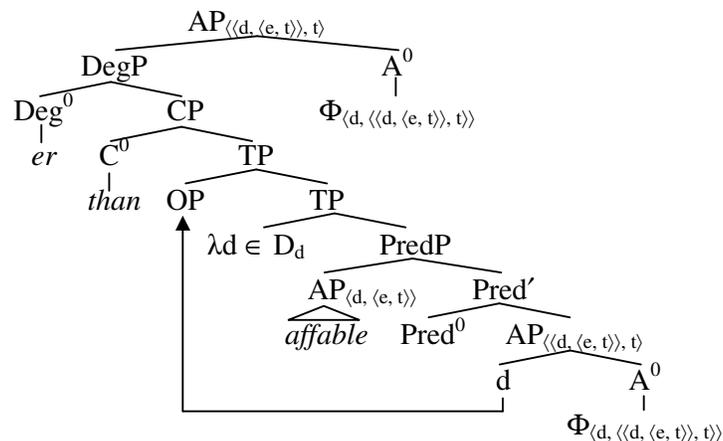
⁷ Russian normally disallows NP-internal synthetic comparatives (used in the trees in (19)), but *more* is an exception. This is illustrated in (i) below.

3.2 Structure of clausal comparatives with *bolee*

We next move on to clausal comparatives with *bolee*, which cannot contain a referential expression ((13a-b)). Our solution to why referential expressions cannot be used with *bolee* is that in this comparative type, the NP must be a property rather than an entity. Supporting evidence for this is the fact that *bolee*, not *bol'she*, is used for comparison of properties, as shown in (18) above.

We propose the structure in (20) for the *bolee* comparative in (18b). Φ in (20) is a scalar predicate whose subjects have the type $\langle d, \langle e, t \rangle \rangle$ (e.g., *affable*) -- i.e., Φ ranks scalar properties; its degree argument slot is saturated by the DegP, resulting in type $\langle \langle d, \langle e, t \rangle \rangle, t \rangle$ for the AP. To return to type $\langle d, \langle e, t \rangle \rangle$, we treat the structure in (20) as a free relative, or add an existential quantifier.

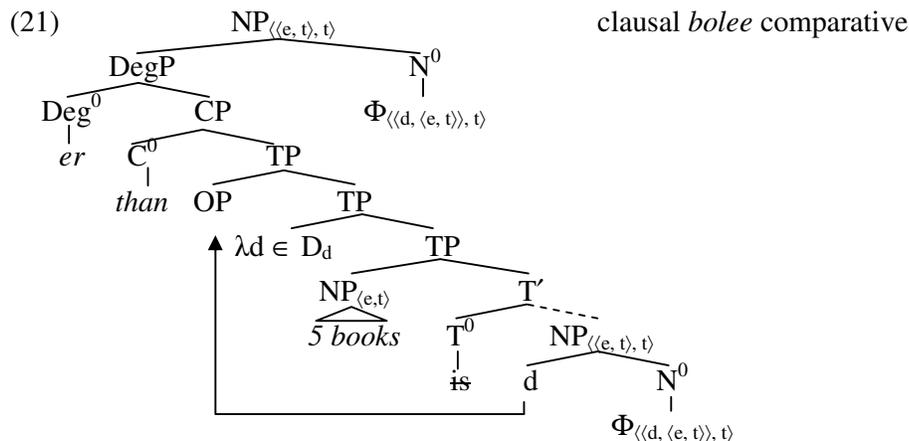
(20) structure for the *bolee* comparative in (18b):



Assuming (with Landman (2003), Ionin and Matushansky (2006)) that cardinal-containing NPs start out as properties rather than generalized quantifiers, we can extend the treatment in (20) to cardinal-containing clausal comparatives with *bolee*, as shown in (21). In (21), the entire NP is a predicate whose subjects are semantic predicates of type $\langle e, t \rangle$ (such as *five books*); its degree argument slot is saturated by the DegP, resulting in generalized quantifier type $\langle \langle e, t \rangle, t \rangle$ for the entire NP.^{8,9}

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- (i) a. *Petja bolee vysokij/*vyše mal'čik čem Saša.*
 Peter more tall/taller boy than Sasha.
 'Peter is a taller boy than Sasha.'
- b. *Bol'she studentov čem professorov prišlo na vstreču.*
 more student-GEN.PL than professor-GEN.PL came-NEUT to meeting
 'More students than professors came to the meeting.'

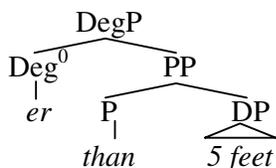
⁸ Like existential quantifiers, cardinal-containing comparatives can scope over negation, in both English and Russian (*We didn't invite more than 20 people* can mean *There are more than 20 people that we didn't invite*). The analysis of cardinal-containing *bolee* comparatives as generalized quantifiers is compatible with the fact that, like other quantifiers – and unlike regular cardinal-containing indefinites – cardinal-containing comparatives lack long-distance scope readings (Reinhart (1997), among many others), and cannot be referential (cf. Lerner and Pinkal (1992, 1995)). However, in the case of *bol'she* clausal comparatives, nothing in our



3.3 The degree analysis of phrasal comparatives

We turn next to phrasal comparatives. Pancheva (2006) analyzes comparatives like *taller than 5 feet* as involving a pure degree standard of comparison (22).

(22) degree analysis (Pancheva (2006))



analysis precludes the NP containing the comparative (which has type $\langle e, t \rangle$) from being converted to a type e expression, and hence allowing long-distance scope, contrary to fact.

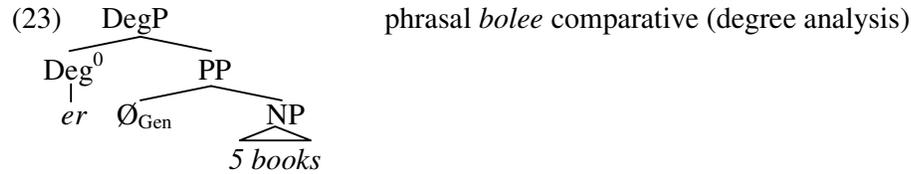
⁹ A potential problem for our analysis of clausal comparatives (with both *bol'she* and *bolee*) is that the clausal comparative appears to be transparent for case assignment, as shown in (i): in oblique case environments, the case on the lexical NP depends on the (elided) case-assigner, regardless of whether the comparative form is present.

- (i) a. *My prišli s (bol'she/bolee čem) pjat'ju studentami.*
 we came with more than five-INSTR student-INSTR.PL
 'We came with (more than) five students.'
- b. *My podarili podarki (bol'she/bolee čem) pjati druž'jam.*
 we gave gifts more than five-DAT friend-DAT.PL
 'We gave gifts to (more than) five friends.'

The facts in (i) are not a problem for the analysis of cardinal-containing comparatives proposed by Hackl (2000). On Hackl's analysis, (ia) would be treated as, roughly, "We came with more students than there are students in us coming with five students". The instrumental case on the cardinal-containing NP in (ia) is then straightforwardly assigned by the matrix verb. However, a disadvantage of Hackl's analysis in comparison to ours is that it has to posit a null *many* which accompanies cardinals; this raises the question of why this *many* does not appear to be overt in any language.

Clearly related is the fact that *bolee* can combine with a verb, as in (18a). Despite the fact that the verb is contained in what looks like a maximal projection, it behaves like a head for the purposes of inflection. Just as (i) suggests that clausal comparatives are transparent to case assignment, so (18a) suggests that they are transparent for the purposes of inflection. We leave these questions open for further research.

Extending this analysis to cardinal-containing phrasal comparatives with *boleē*, we obtain (23).

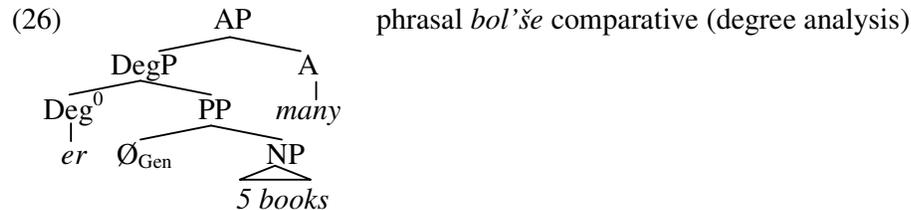


Although *five books* does not appear to be a degree, we hypothesize that an NP that denotes in the count domain can be coerced into one, as in (24). (This is similar to what happens with degree relatives, on which see Carlson (1977), Heim (1987), Grosu and Landman (1988)).

$$(24) P_{\langle e,t \rangle} \rightarrow \text{id s.t. } \forall x [P(x) \rightarrow d = \max \{d' : Q(d', x)\} \text{ where } Q \text{ is contextually provided}$$

In other words, for an NP like *five books*, we obtain the degree such that it is the projection of any five-book individual onto the contextually provided scale. Supporting evidence comes from the fact that any cardinal-containing NP can be used as a measure phrase, as in (25). Turning to *bol'she*, we assume the same structure as for (25), but with *many* in place of *long/wide*, as in (26). This explains why phrasal comparatives are incompatible with referential expressions ((13c-d)): a referential expression cannot become a degree.¹⁰

- (25) a. The series is five books long.
b. The wall is five windows wide.



The description in (24) requires that the contextually provided predicate Q map every individual which is P to the same interval on the scale provided by Q. So, if P is *five books*, then Q has to map every five-book individual to the same interval on the scale. Importantly, although Q is a free variable supplied by the context, the degree denoted by the entire DegP has to be a degree on the same scale as the adjective it is an argument of: thus in (26), DegP combines with the adjective *many* and therefore has to be a degree on the scale of cardinality, which means that Q is *many*. The requirement in (24) is satisfied, since every five-book individual has the same cardinality. On the other hand, if (26) contained *much* instead of *many*, then Q would be *much*, and the requirement in (24) would not be satisfied, since different five-book individuals do not necessarily have the same degree of '*much*-ness' (e.g., one

¹⁰ The question arises of which objects can become degrees and which cannot; it is obvious that we do not assume that referential expressions can become degrees. Conversely, not all predicates can do so either; we leave this topic for future research.

five-book individual can consist of more difficult books than another). This explains why *bol'she* phrasal comparatives lack *much* readings (see (11c)).

3.4 *Bolee* comparatives and information structure

The structure in (19) captures the *many* vs. *much* readings of clausal *bol'she* comparatives, and we have just explained why phrasal *bol'she* comparatives lack *much* readings. We now consider the unavailability of *much* readings for *bolee* comparatives ((11b-c)), and propose that it is related to the information-structural properties of *bolee*. Below we illustrate these properties with phrasal *bolee* comparatives, but the same facts hold for clausal *bolee* comparatives.

Descriptively, we discover that *bolee* comparatives must be part of new information focus, as in (27): while *bolee* is fine in (27a), where the entire comparative is new information, it is odd in (27b); *bol'she* is fine in both cases. We further note that NP-ellipsis after *bolee* is impossible, as shown in (28): the impossibility of NP-ellipsis after *bolee* is probably explained by the fact that ellipsis requires old-information status of the elided material. On the other hand, focus on the cardinal, as in (29), is fine with *bolee*. Finally, a *bolee* comparative cannot be followed by a more precise description, as in (30).

- (27) a. - *Skol'ko u Ferdinanda košek i sobak?*
 how-many at Ferdinand cat-GEN.PL and dog-GEN.PL
 'How many cats and dogs does Ferdinand have?'
 - *U nego pjat' sobak i bol'she/bolee šesti košek.*
 at him five dogs and more six-GEN cats
 'He has five dogs and more than six cats.'
- b. - *Èto pravda, što u Ferdinanda šest' koški pjat' sobak?*
 this truth that at Ferdinand-GEN six cats and five dogs
 'Is it true that Ferdinand has six cats and five dogs?'
 - *Net, u nego bol'she/#bolee šesti košek.*
 no to him more six cats
U nego ix sem' kak minimum.
 at him them seven as minimum
 'No, he has more than six cats. He has at least seven of them.'
- (28) - *U Ferdinanda šest' košek?*
 at Ferdinand-GEN six cat-GEN.PL?
 'Does Ferdinand have six cats?'
 - *Net, bol'she/#bolee.*
 no more
 'No, more.'
- (29) - *Èto pravda, što u Ferdinanda bol'she/bolee dvadcati košek?*
 this truth that at Ferdinand-GEN more twenty cats
 'Is it true that Ferdinand has more than twenty cats?'
 - *Net, u nego ix bol'she/bolee sta!*
 no at him them more hundred-GEN
 'No, he has more than a hundred of them!'

- (30) *U Ferdinandu bol'she/#bolee šesti košek.*
 at Ferdinand-GEN more six cats
U nego ix sem' kak minimum.
 at him them seven as minimum
 'Ferdinand has more than six cats. He has at least seven of them.'

We hypothesize that the new-information requirement on *bolee* is directly related to the lack of *much* readings with *bolee* comparatives, because the *much* reading requires the standard of comparison to be old information. It is generally true (in English as well as in Russian) that when the comparative is new information, the *much* reading is unavailable, as shown in (31a). The context in (31a) is precisely the type of context where *bolee* is fine (cf. (27a)). For the *much* reading to be available, the standard of comparison has to be old information, as shown in (31b); (31b) is precisely the type of context where *bolee* is bad, with either the *many* or the *much* reading (cf. (27b)). We note that for the *much* reading to become available, it is necessary to have a continuation after the comparative (as in (31b)). As shown in (30), providing such a continuation (even on the *many* reading) makes *bolee* infelicitous.

- (31) a. - How many pets does Ferdinand have?
 - I don't know for sure, but I think he has more than six cats.
 'many reading': \approx seven or more cats
 #'much reading': \approx six cats plus a dog
- b. - Is it true that Ferdinand has six cats?
 'many reading': - No, he has more than six cats! He has seven.
 'much reading' - No, he has more than six cats! He has six cats and also five dogs.

There is thus evidence that the lack of a *much* reading is not a separate fact, but is rather due to the information-structural properties of *bolee* comparatives. However, we do not at present have a theoretical account of these information-structural properties. It is an open question whether the new-information requirement on *bolee* is an independent fact, or one derivable from the syntactic structure of *bolee* comparatives.

3.5 The small clause analysis of phrasal comparatives

As becomes clear from section 3.3, if cross-linguistically phrasal comparatives are analyzed in terms of degree coercion, they should always lack *much* readings and be incompatible with referential expressions, since a referential expression cannot be converted into a degree. However, this prediction is not supported cross-linguistically: unlike Russian, Bulgarian allows cardinal-containing phrasal comparatives to have *much* as well as *many* readings (Roumyana Pancheva, p.c. and Roumyana Slabakova, p.c.), as shown in (32). Additionally, Bulgarian cardinal-containing phrasal comparatives, unlike those in Russian, are compatible with referential expressions, as shown in (33).

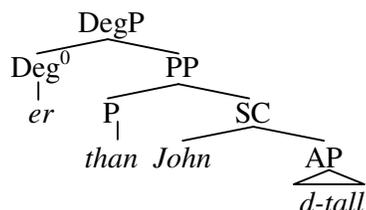
- (32) *Pročetox poveče ot pet knigi.*
 read-1sg more from five book-PL
 'I read more than five books.'

'many reading': \approx six or more books
 'much reading': \approx five books plus something else

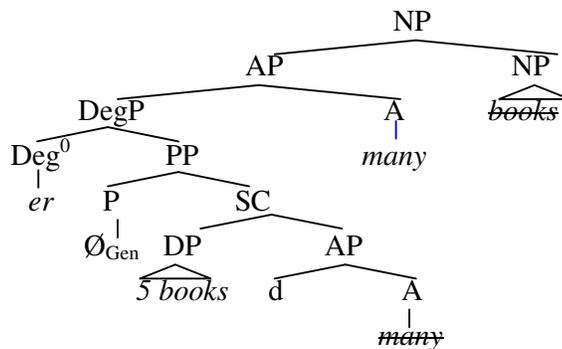
- (33) *Pročetox poveče ot tezi pet knigi.*
 read-1sg more from these five book-PL
 'I read more than these five books.'

The behavior of Bulgarian phrasal comparatives suggests that they should be analyzed in terms of an underlying clause rather than degree coercion. Pancheva (2006, to appear) proposes the small clause analysis for comparative expressions like *taller than John* (as in (34)). If the small clause structure is applied to cardinal-containing comparatives, it should in principle be compatible with both *many* and *much* readings, as well as with referential expressions, just like the full-clause structure for a clausal comparative in (19). The proposed small clause structure of phrasal comparatives is given in (35a-b) for the *many* and *much* readings, respectively.

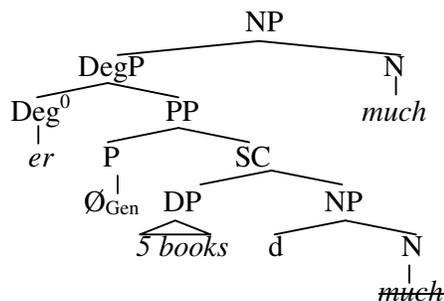
- (34) small clause analysis (Pancheva (2006))



- (35) a. phrasal comparative, SC analysis, *many*-reading:



- b. phrasal comparative, SC analysis, *much*-reading:



In the case of Russian, the lack of *much* readings, and the incompatibility with referential expressions, indicate that the small clause structure is

unavailable (see section 3.3). In Bulgarian, the availability of *much* readings, and the compatibility with referential expressions, indicate that the small clause structure *is* available. Furthermore, in Bulgarian, both singular and plural marking on the lexical NP is possible with *more than one book*. But while both *many* and *much* readings are available with singular marking (as in (36a)), only the *many* reading is available with plural marking, as in (36b) (Roumyana Pancheva, p.c.).

- (36) a. *poveče ot edno dete*
 more from one-NSG child.NSG
 ‘*many* reading’: two or more children
 ‘*much* reading’: one child plus somebody else
- b. *poveče ot edno deca*
 more from one-NSG child-PL
 ‘*many* reading’: two or more children
 #‘*much* reading’: one child plus somebody else

Our analysis is that in Bulgarian, either the lower or the higher instance of the lexical NP in (35) can be overt with the *many* reading, allowing for both singular and plural agreement (37a-b). In the case of the *much* reading, there is only one option, and no source for plural agreement, as shown in (37c).

- (37) a. ‘*many* reading’, singular agreement:
 [NP [AP [DegPer [ppthan [SCone child.SG [APd *many*]]]]] *many*] ~~*child-PL*~~
- b. ‘*many* reading’, plural agreement:
 [NP [AP [DegPer [ppthan [SCone ~~*child*~~.SG [APd *many*]]]]] *many*] *child-PL*
- c. ‘*much* reading’:
 [NP [DegPer [ppthan [SCone child.SG [APd *much*]]]]] *much*

The same facts are attested in Greek. Greek allows both *many* and *much* readings for cardinal-containing comparatives with the adverbial *parapano* (Anastasia Giannakidou, p.c. and Marina Terkourafi, p.c.). Greek allows both singular and plural marking on the lexical NP appearing with *more than one* (Giannakidou (to appear); cf. Arregi (2010)), and the *much* reading is available only with the singular (Marina Terkourafi, p.c.), as shown in (38), exactly as in Bulgarian.

An open question is why the SC analysis (which allows for both *many* and *much* readings) is available for Bulgarian and Greek, but not for Russian.¹¹

- (38) a. *Aghorasa parapáno apó éna vivlío.*
 bought.1sg more than one book.SG
 ‘*many* reading’: two or more books
 ‘*much* reading’: one book plus something else

¹¹ We note that the differences among languages in the availability of the *much* reading are potentially problematic for the proposal of Geurts and Nouwen (2007), on which *much* readings are due to focus on the entire NP (see section 2.4): focus on the entire NP (as well as focus on the cardinal) is expected to be available in all languages.

- b. *Aghorasa parapáno apó éna vivlíá.*
 bought.1sg more than one book-PL
 ‘many reading’: two or more books
 #‘much reading’: one book plus something else

4 Conclusion

We have shown that Russian has four different options for cardinal-containing comparatives, and argued that these options can be accounted for by assuming the following distinctions: (1) clausal comparatives vs. phrasal comparatives; and (2) two different *more*’s: *mo*-support vs. overt *much/many*. As discussed above, open questions remain about the source(s) of *much* readings, as well as cross-linguistic differences in the (un)availability of *much* readings.

In order to examine the cross-linguistic distribution of *many* and *much* readings, we are currently conducting a web-based survey study, in which speakers of different languages are asked to rate the relative (un)acceptability of comparatives that combine with cardinal-containing NPs (*more than five books*), with demonstrative descriptions (*more than these five books*), and with proper names. Each comparative type is presented in a context that supports the *many*-reading as well as in a context that supports the *much*-reading. Preliminary results largely support the judgments reported above. English comparatives, Bulgarian phrasal comparatives, and Russian clausal *bol’she* comparatives are all rated high with both *many* and *much* readings, and are allowed with referential expressions. In contrast, Russian phrasal *bol’she* comparatives are rated much higher with *many* than with *much* readings, and rated low with referential descriptions. The survey is also being extended to Polish and to Czech.

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