

MORE THAN ONE SOLUTION

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1. INTRODUCTION

Ambiguity of the English *more*:

- *more* as the synthetic comparative of *much*
- *more* as the freestanding form of the comparative affix *-er*, ‘*mo-support*’ (Bresnan 1973; Corver 1997)

- (1) a. Much is good, more is better. [synthetic comparative of *much*]
b. *mo-re* intelligent : smart-er [mo-support]

Two types of comparatives (Hankamer 1973, Napoli 1983, Heim 1985, Lechner 1998, 2001, Pancheva 2006)

- clausal: *than* combines with a full or partially elided finite CP
- phrasal: *than* combines with a constituent smaller than a CP

- (2) a. Mary is taller than John is. [clausal comparative]
b. Mary is taller than John / than 5 feet. [phrasal comparative]

Proposal: cardinal-containing comparatives like *more/fewer than five children* (Barwise and Cooper 1981, Krifka 1999, Hackl 2000, Geurts and Nouwen 2007) can encode any of the four resulting options, but this difference is not about bracketing: we analyze all four options as having the bracketing in (3b), not (3a):

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

Empirical evidence for having four different options: in Russian, *more than five children* can be translated in four different ways:

- phrasal comparative (*more*+Genitive-marked NP) vs. clausal comparative (*more*+wh-expression) (cf. Heim 1985, Lechner 1998, 2001, Pancheva 2006)
- two *more*’s: *bol’she* (suppletive comparative of *mnogo*, ‘much/many’) vs. *bole* (*mo-support*)

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

NB: The same pattern is observed with *fewer than five children*: *men’she* is the suppletive comparative of *malo* ‘a little’, while *menee* is *less*.

Evidence that *bol’she* is the suppletive comparative of *mnogo* ‘much/many’:

- (5) a. mnogo xleba/ljudej b. bol’she/*bole xleba/ljudej
much bread/people-GEN more bread/people-GEN
‘a lot of bread/people’ ‘more bread/people’

NB: However, *bol’she* has a wider distribution than *mnogo*; see the Appendix, section 5.1.

Evidence that *bole* is *mo-support*:

- (5) c. bole/*bol’she umnyj : umn-ee
more smart smart-er

Goal: to provide an analysis of cardinal-containing comparatives that captures the four-way distinction in (4), as well as the behavior of *bol'se* and *bole* in other syntactic configurations.

2. DIFFERENCES AMONG THE COMPARATIVE OPTIONS

The four types of comparatives exemplified in (4) differ on:

1. The availability of *many* vs. *much* readings
2. The ability to combine with a referential expression

These two properties correlate.

2.1. *Many* vs. *much* readings

Cardinal-containing comparatives in English are ambiguous between *many* and *much* readings:

- (6) more than five sandwiches
a. 'many reading': *≈ six or more sandwiches*
b. 'much reading': *≈ something more substantial than five sandwiches*
- (7) I ate more than five sandwiches...
a. 'many reading': ...I ate six!
b. 'much reading': ...I ate five sandwiches plus a bowl of soup!
c. 'much reading': ...I ate a whole bowl of soup!

The same effect is seen with measure nouns:

- (8) 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.
c. 'much reading': ...I bought two containers of strawberries.

The *much* vs. *many* reading correlates with the degree adjective of equative constructions:

- (9) a. I ate as much as five sandwiches – in fact, I ate six pastries.
b. I ate as many as five sandwiches – #in fact, I ate six pastries.

In Russian, the *many* reading is available to all four comparative types, but the *much* reading is available only to clausal *bol'se* comparatives:

- (10) a. Ja s'jela bol'se čem pjat' buterbrodov.
I ate more than five-ACC sandwiches.
'many reading': *≈ six or more sandwiches*
'much reading': *≈ something more substantial than five sandwiches*
- b. Ja s'jela bole čem pjat' buterbrodov.
I ate more than five-ACC sandwiches
'many reading': *≈ six or more sandwiches*
'much reading': *≈ something more substantial than five sandwiches*
- c. Ja s'jela bol'se/bole pjati buterbrodov.
I ate more five-GEN sandwiches
'many reading': *≈ six or more sandwiches*
'much reading': *≈ something more substantial than five sandwiches*

2.2. Referentiality

The above examples show that comparatives in English and Russian are compatible with cardinal-containing NPs, which we analyze as having the semantic type of predicates ($\langle e, t \rangle$)

(Landman 2003; Ionin and Matushansky 2006; Geurts and Nouwen 2007; see the Appendix, section 5.2).

However, comparatives are also compatible with referential (type *e*) expressions:

- (11) a. I invited more than (just) Peter and Mary.
b. I read more than these five books.

Note that comparatives over referential expressions have only the *much* reading:

- (12) ‘*much* reading’:
a. I invited more than Peter and Mary – I also invited their mother.
b. I read more than these five books – I also read an encyclopedia.
(13) ‘*many* reading’:
a. I invited more than Peter and Mary – #I invited three people.
b. I read more than these five books – #I read six books.

NB: Comparatives do not appear to be compatible with true quantified expressions (type $\langle\langle e, t \rangle, t \rangle$): **I invited less than everyone*; **More than anyone came*; etc. Evidence that the cardinal-containing NP inside a comparative is not existentially quantified comes from the fact that *I read fewer than five books* does not entail the existence of five books.

In Russian, only the comparative type that is compatible with the *much* reading (the clausal comparative with *bol'she*) is compatible with referential expressions:

- (14) 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 èti pjati knig.
I read more these five-GEN book-GEN.PL

NB: 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.

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 (Barwise and Cooper 1981, Keenan and Stavi 1986) vs. where the cardinal first combines with the lexical NP (Geurts and Nouwen 2007, Arregi 2010):

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

The distribution of *many* and *much* readings (10) may potentially be captured by assigning the structure in (3a) to comparatives with the *many* reading and the structure in (3b) to comparatives with the *much* reading:

- (15) a. ‘*many* reading’: [[more than five] sandwiches] \approx six or more sandwiches
b. ‘*much* reading’ [more than [five sandwiches]] \approx five sandwiches plus something else

This would also account for the lack of a *many* reading for referential expressions: the *many* reading is derived via the comparative expression combining with a cardinal, not a full NP or DP.

To derive the Russian facts, this analysis would have to ensure that the bracketing in (3b) is available only to clausal comparatives, and only to those with *bol'she*.

A major problem for this account is that *bole*, which lacks a *much* reading, nevertheless can combine with an NP, not just a cardinal:

- (16) On bol'she/bole 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 the *many* reading have the bracketing in (3a).

However, there is independent cross-linguistic evidence against the bracketing in (3a), from the word order facts with comparatives in Hebrew and Basque (Arregi 2010) (the comparatives below all have the *many* reading):

In Hebrew, *exad* 'one' follows the lexical NP, while other cardinals precede it (Borer 2005):

- (17) 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.'

This paradigm is preserved in comparative cardinals:

- (17) 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.'

Basque is a head-final language, and comparatives are head-final:

- (18) Jonex Patxik baino liburu gehiago irakurri du.
John-ERG Patxi-ERG than book more-ABS read has
'John has read more books than Patxi.'

With unmodified cardinals, *bat* 'one' follows the lexical NP, while other cardinals precede it:

- (19) a. Liburu bat erosi dut.
book one-ABS bought I.have
'I have bought one book.'
b. Hiru liburu erosi dut.
three book-ABS bought I.have
'I have bought three books.'

This paradigm is preserved with comparative cardinals:

- (19) c. Liburu bat baino gehiago erosi dut.
book one-ABS than more-ABS bought I.have
'I have bought more than one book.'

- d. Hiru liburu baino gehiago erosi dut.
three book-ABS than more-ABS bought I.have
'I have bought more than three books.'

Arregi 2010: the paradigms in (17) and (19) provide two separate arguments in favor of the bracketing in (3b) over the one in (3a):

- the syntactic relationship between the cardinal and the lexical NP is preserved in comparative cardinals
- (3a) cannot explain why the comparative+cardinal sequence is discontinuous in (17c) and (19d)

For other arguments against the structure in (3a), see the Appendix, section 5.2.

2.4. Focus

Geurts and Nouwen 2007: the distinction between *many* and *much* readings is one of focus, rather than bracketing (cf. Krifka 1999):

- the *many* reading involves a scalar alternative to the cardinal, achieved by focus on the cardinal
- the *much* reading involves a scalar alternative to the entire NP, achieved by focus on the entire NP

(20) Mary drank more than three highballs.

- a. Mary drank more than [three]_F highballs – she drank five! [many reading]
b. Mary drank more than [three highballs]_F – she drank six martinis! [much reading]

A problem for this view, however, is that in Russian, comparison unambiguously involving scalar alternatives is only possible with *bole*, which with cardinals has only the *many* reading (10b):

- (21) a. Ètot čelovek bole/*bol'se čem iskupil svoju vinu pered obščestvom.
this man more than expiated his guilt before society
This man has more than expiated his debt to society.
b. Ja znakom s ètim bole/*bol'se čem očarovatel'nyj junošej.
I familiar with this more than charming young man
I'm familiar with this more than charming young man.

A simpler explanation: *bole* comparatives lack the *much* reading because the *much* reading requires an overt *much*, which is inside *bol'se*, but not inside *bole*.

Further evidence that *bol'se* contains *much* and *bole* does not: *bol'se*, like *mnogo*, and unlike *bole*, can function as a direct object or adverbial modifier in the absence of a head noun:

- (22) a. Lisa rabotaet mnogo. b. Lisa rabotaet bol'se/*bole čem Vera.
Lisa works much Lisa works more than Vera
Lisa works a lot. Lisa works more than Vera.

3. PROPOSAL: THE STRUCTURE OF COMPARATIVES

We analyze clausal comparatives (4b,d) as full CP structures, and phrasal comparatives (4a,c) in terms of degrees (Pancheva 2006).

- (4) a. bol'se pjati detej [suppletive comparative of *mnogo*; phrasal]
more five-GEN child-GEN.PL
b. bol'se čem pjat' detej [suppletive comparative of *mnogo*; clausal]
more than five-NOM=ACC child-GEN.PL

- 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

3.1. Structure of clausal comparatives with *bol'she*

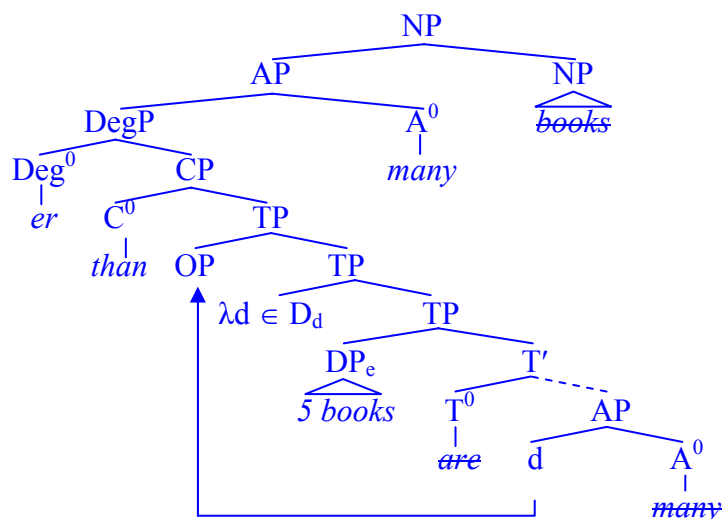
Clausal comparatives with *bol'she* have both *many* and *much* readings (10a).

- (10) a. Ja s'jela bol'she čem pjat' buterbrodov.
 I ate more than five-ACC sandwiches.
 'many reading': \approx *six or more sandwiches*
 'much reading': \approx *something more substantial than five sandwiches*

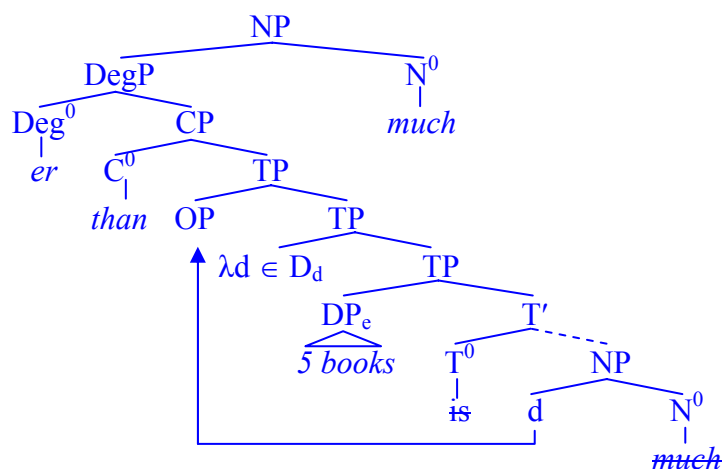
Proposal: clausal comparatives with *bol'she* may be built on an underlying *many* (23a) vs. an underlying *much* (23b). Both options are available to English clausal comparatives.

NB: Russian normally disallows NP-internal synthetic comparatives, but *more* is an exception.

- (23) a. cardinal-containing clausal comparative with *bol'she*, *many* reading:



- b. cardinal-containing clausal comparative with *bol'she*, *much* reading:



The fact that *five books* in (23a,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 *bol'she* clausal comparatives (14a,b).

NB: A possible reason for why the *many* reading is unavailable for comparatives over referential expressions (13) might be that there is no NP antecedent available.

A potential problem for our analysis of clausal comparatives is case assignment within the comparative; see the Appendix, section 5.3.

3.2. Structure of clausal comparatives with *bole*

Clausal comparatives with *bole* have *many* readings but not *much* readings (10b), and cannot contain a referential expression (14a,b).

- (10) b. Ja s'jela bole čem pjat' buterbrodov.
I ate more than five-ACC sandwiches
'many reading': \approx *six or more sandwiches*
#'*much* reading': \approx *something more substantial than five sandwiches*

- (14) a. Ja priglasila bol'she/*bole 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/*bole čem èti pjat' knig.
I read more than these five-ACC book-GEN.PL
'I read more than these five books.'

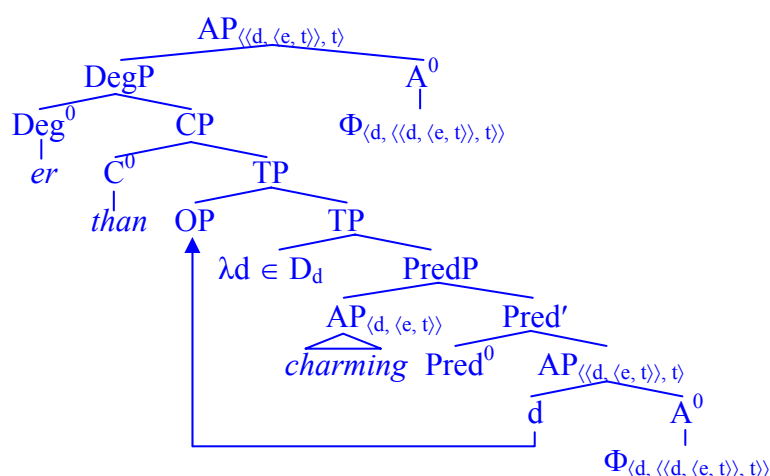
Solution: in the *bole* comparative the NP must be a property rather than an entity.

Supporting evidence: *bole*, not *bol'she*, is used for comparison of properties:

- (21) a. Ètot čelovek bole/*bol'she čem iskupil svoju vinu pered obščestvom.
this man more than expiated his guilt before society
This man has more than expiated his debt to society.

- b. Ja znakom s ètim bole/*bol'she čem očarovatel'nym junošej.
I familiar with this more than charming young man
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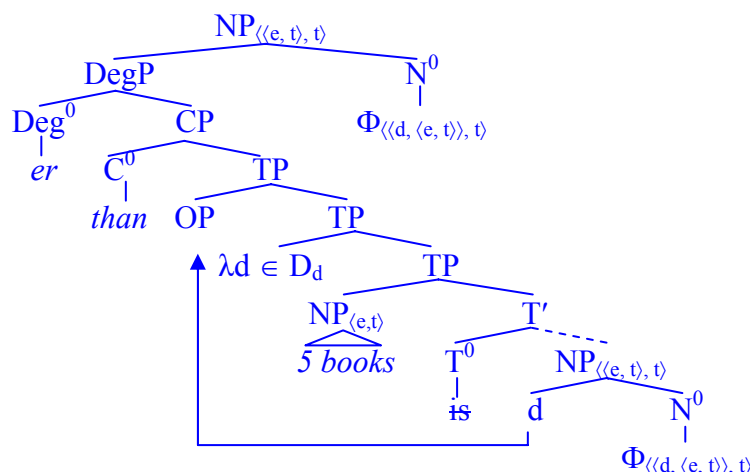
(24) structure for the comparative in (21b):



Φ in (24) is a predicate whose subjects have the type $\langle d, \langle e, t \rangle \rangle$ (such as *charming*); 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 (24) as a free relative, or add an existential quantifier.

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 (24) to cardinal-containing clausal comparatives with *boleē*:

(25) cardinal-containing clausal comparative with *boleē*:



In (25), 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 (type $\langle\langle e, t \rangle, t\rangle$) for the entire NP.

NB: Like existential quantifiers, cardinal-containing comparatives can scope over negation, in both English and Russian (e.g., *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 *boleē* 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'se* clausal comparatives, nothing in our 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.

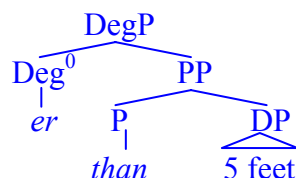
3.3. Structure for phrasal comparatives

Pancheva 2006: two types of phrasal comparatives:

- small clauses
- degrees

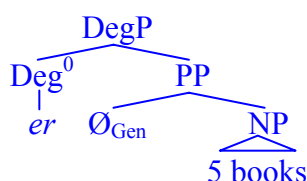
Russian cardinal-containing phrasal comparatives are compatible with the degree analysis. See the Appendix, section 5.4, for evidence that the small clause structure is incompatible with Russian cardinal-containing phrasal comparatives, but works for Bulgarian.

(26) degree analysis of measure phrases, 'taller than 5 feet' (Pancheva 2006)



Applying the degree analysis to Russian cardinal-containing phrasal comparatives with *boleē*:

(27) cardinal-containing phrasal comparative with *boleē*: degree analysis



Hypothesis: An NP that denotes in the count domain can be converted into a degree:

NB: This is similar to analyses of degree relatives (Carlson 1977, Heim 1987, Grosu and Landman 1988).

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

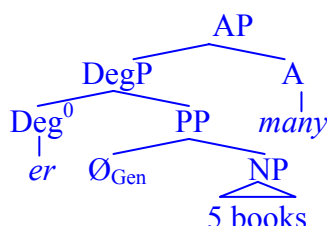
In other words, for an NP like *five books*, we obtain the degree such that it is the projection of any five-book individual onto the contextually provided scale.

Supporting evidence: any cardinal-containing NP can be used as a measure phrase:

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

Turning to *bol'she*, we assume the same structure as for (29), but with *many* in place of *long/wide*:

(30) cardinal-containing phrasal comparative with *bol'she*: degree analysis



We hypothesize that a degree is compatible with totally ordered scales, like *many* (as opposed to *much*, whose domain is only partially ordered), and that this is why *bol'she* phrasal comparatives lack *much* readings.

NB: 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 set this issue aside for now.

4. CONCLUSION

Russian has four different options for cardinal-containing comparatives. These options can be accounted for by assuming the following distinctions:

- clausal comparatives vs. phrasal comparatives
- two different *more*'s: *mo*-support vs. overt *much/many*

5. APPENDIX

5.1. The relationship between *many* and *more*

While *bol'she* is the synthetic comparison of *mnogo* 'many', it has a wider distribution than *mnogo*:

- (31) a. Lisa rabotaet bol'she čem Vera.
Lisa works more than Vera.
'Lisa works more than Vera.'

- b. Lisa mnogo rabotaet.
Lisa much works.
'Lisa works a lot.'

But...

- (32) a. Ja nagrela sup bol'she čem na 20 gradusov.
I heated soup more than on 20 degrees
'I heated the soup by more than 20 degrees.'
- b. Ja sil'no/*mnogo nagrela sup.
I strongly/much heated soup
'I heated the soup a lot.'
- (32) a. Ja ljublju Mašu bol'she Peti.
I love Mary-Acc more Peter-Gen
'I love Mary more than Peter.'
- b. Ja očen'/*mnogo ljublju Mašu.
I very/*much love Mary-Acc
'I love Mary a lot.'

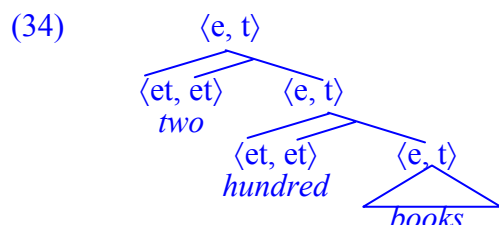
Compare to English:

- (33) a. I heated the soup by more than 20 degrees.
b. I heated the soup a lot / *much.
c. I love Mary more than Peter.
d. I love Mary a lot / *much.

Tentative explanation: in comparatives, we can compare across scales.

5.2. Syntax and semantics of cardinal-containing NPs

Ionin and Matushansky 2006: complex cardinals require a cascading structure:



NB: The structure above is that of complex cardinals involving multiplication. We analyze complex cardinals involving addition (e.g., *twenty-seven*) as having the syntax of (asyndetic) coordination (Ionin and Matushansky 2006)

Our proposal contradicts standard proposals concerning the syntax of cardinals:

- cardinals occupy [Spec, NumP/QP] (Selkirk 1977, Franks 1994, Li 1999, Haegeman and Guéron 1999, etc.); Num⁰/Q⁰ is suggested to hold the singular/plural features.

(35) [[two hundred] [books]]

- cardinals are Num⁰ or Q⁰ (Ritter 1991, Barbiers 1992, Giusti 1997, Zamparelli 2002)

(36) [two-hundred [books]]

However, neither proposal can explain the Case-assigning properties of cardinals.

5.2.1. Ruling out the specifier theory of cardinals

Problem: in many languages, cardinals behave as heads, assigning Case to the NP, with the actual Case dependent on the cardinal (Franks 1994, Nelson and Toivonen 2000, etc.).

- (37) a. četyre knigi
four book-GEN.SG Russian
Gen.sg = paucal Case (Franks 1994)
- b. šest' knig
six books-GEN.PL
- (38) a. kyehti / kulmâ / nelji / vittâ / kuttâ päärni Inari Sami
two / three / four / five / six child-ACC.SG
- b. čiččâm / kávcí / ovce / love / ohtnubáloh / kyehtnubáloh / čyeti... pärnid
seven / eight / nine / ten / eleven / twelve / 100... child-PART.SG

Conclusion: cardinals are not specifiers

5.2.2. Ruling out the Num⁰ theory of cardinals

Problem: complex cardinals, which are unlikely to function as heads:

- (39) a. one hundred and two b. seven and two thirds
c. laba iyo toban d. zwei und zwanzig
two Conj ten two and twenty
twelve (Somali) twenty-two (German)

Case assignment inside Russian complex cardinals also argues for the cascading structure:

- (40) a. četyre tysjači knig
four 1000-GEN.SG book-GEN.PL
- b. pjat' tysjač knig
five 1000-GEN.PL book-GEN.PL

Conclusion: cardinals are not Num⁰ or Q⁰.

5.2.3. Semantic type of cardinals

Proposal: the syntax required for cardinals necessitates that they have the type $\langle\langle e, t \rangle, \langle e, t \rangle\rangle$ (cf. Link 1987, Verkuyl 1997, Landman 2003...)

NB: Are there other nouns with the semantic type of modifiers? Possible candidate: measure nouns.

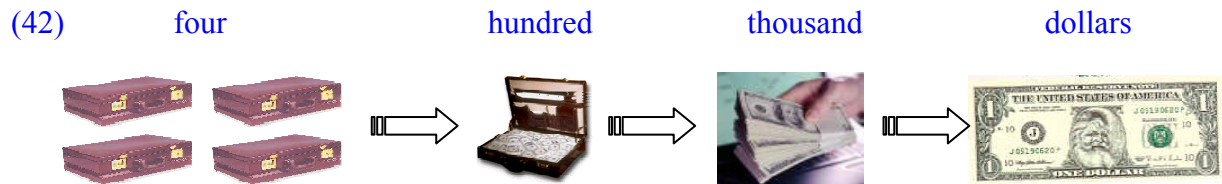
Having the semantic type of **modifiers**, cardinals necessitate an argument:

- (i) an NP argument: *one book*
(ii) a PP argument: *one in three people* (possibly contains a \emptyset_{NP})

Basic intuition: *four* in (41a) is semantically the same as in (41b). The meaning of a complex cardinal should be derived in such a way that each cardinal inside it is also compatible just with an NP:

- (41) a. four hundred books
b. four books

Solution: full recursivity



To achieve full recursivity, we suggest the following lexical entry for simplex cardinals:

$$(43) \llbracket 2 \rrbracket = \lambda P \in D_{\langle e, t \rangle} . \lambda x \in D_e . \exists S \in D_{\langle e, t \rangle} [\Pi(S)(x) \wedge |S| = 2 \wedge \forall s \in S P(s)]$$

S is a partition Π of an entity x if it is a cover of x and its cells do not overlap (cf. Higginbotham 1981:110, Gillon 1984, Verkuyl and van der Does 1991, Schwarzschild 1994):

$$(44) \Pi(S)(x) = 1 \text{ iff} \quad \text{partition}$$

S is a *cover* of x, and
 $\forall z, y \in S [z=y \vee \neg \exists a [a \leq_i z \wedge a \leq_i y]]$ (Forbidding that cells of the partition overlap ensures that no element is counted twice.)

$$(45) \text{ A set of individuals } C \text{ is a } \textit{cover of a plural individual } X \text{ iff}$$

X is the sum of all members of C: $\sqcup C = X$

The lexical entry in (43) requires that the lexical NP combining with a cardinal denote a set of atoms.

5.2.4. Implications for comparatives containing cardinals

The above Case assignment facts and the proposed semantics all provide evidence that a complex cardinal cannot form a unit to the exclusion of the lexical NP. This provides further evidence in favor of the structure in (3b), and against the one in (3a):

- (3) a. $\llbracket [\text{more than five}] \text{ sandwiches} \rrbracket$
 b. $\llbracket \text{more than } [\text{five sandwiches}] \rrbracket$

5.3. Open questions with clausal comparatives

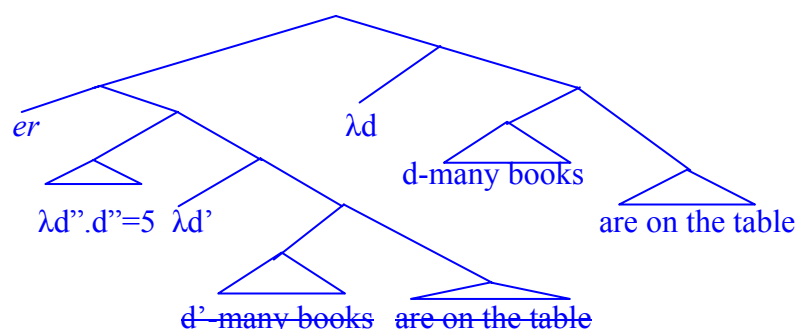
A potential problem for our analysis of clausal comparatives: the clausal comparative appears to be transparent for case assignment:

- (46) a. My prišli s (bol'she/boleee 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/boleee čem) pjati druž'jam.
 we gave gifts more than five-DAT friend-DAT.PL
 'We gave gifts to (more than) five friends.'

This is not a problem for the analysis of cardinal-containing comparatives proposed by Hackl 2000.

For Hackl, *More than five books are on the table* means, informally “More books are on the table than there are books in books being on the table”:

(47) More than five books are on the table.



Case assignment in Russian clausal comparatives is not a problem for Hackl's analysis: roughly, (46a) would mean "We came with more students than there are students in us coming with students". The Instrumental Case on the cardinal-containing NP is straightforwardly assigned by the matrix verb.

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.

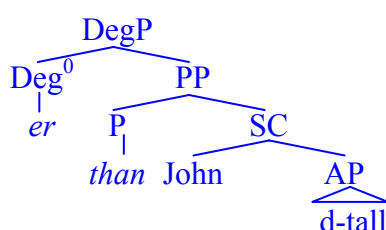
Clausal comparatives with *bole* also raise the question of what happens when *bole* combines with a verb (as in (21)). Despite the fact that the verb is contained in what looks like a maximal projection, it behaves like a head for the purposes of inflection.

5.4. The small clause analysis of phrasal comparatives

Pancheva 2006: two types of phrasal comparatives:

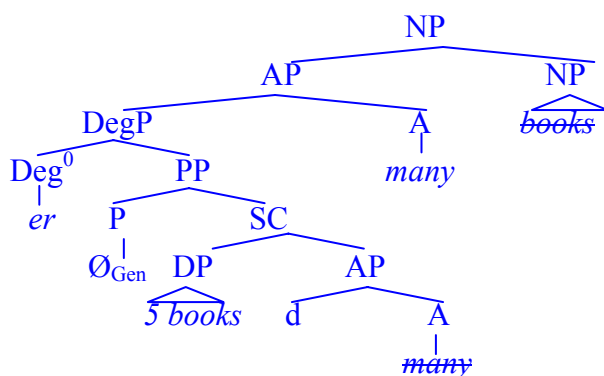
- small clauses
- degrees

(48) SC analysis, 'taller than John' (Pancheva 2006)

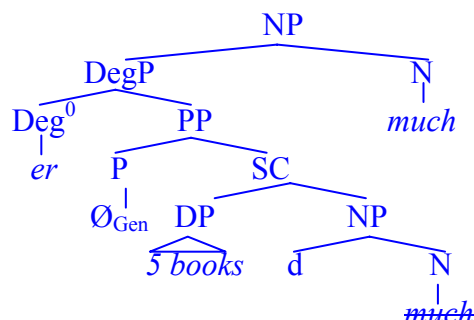


The small clause structure, just like the structure for a clausal comparative (23), should in principle be compatible with both *many* and *much* readings:

(49) a. SC analysis of cardinal-containing phrasal comparatives: the *many* reading



b. SC analysis of cardinal-containing phrasal comparatives: the *much* reading



Problem: Russian phrasal comparatives lack the *much* reading (10c), which suggests that they are not compatible with the small clause analysis.

- (10) c. Ja s'jela bol'se/bolee pjati buterbrodov.
I ate more five-GEN sandwiches
'many reading': *≈ six or more sandwiches*
'#much reading': *≈ something more substantial than five sandwiches*

Possible explanation: incompatibility with case assignment in small clauses.

The predicate of a Russian small clause must bear Instrumental Case:

- (50) a. Ivan vernulsja [sc p'janyj/veselyj].
Ivan returned drunk-INSTR/merry-INSTR
'Ivan returned drunk/happy.'
b. Ja znala [sc Mašu molodoj / devočkoj].
I knew Mary-ACC young-INSTR / girl-INSTR
'I knew Mary when she was young / when she was a girl.'

However, the Russian form *mnogo* 'many/much' cannot appear in Instrumental (or any other oblique) Case (cf. Mel'čuk 1985):

- (51) *My prišli so mnogo studentami.
we came with many student-INSTR
'We came with many students.'

The unavailability of an Instrumental form of *mnogo* accounts for the unavailability of the small clause structure in (49) for Russian phrasal comparatives.

Prediction: in a language with no such restriction on the form of *many/much*, the small clause structure in (49) should be available to phrasal comparatives.

Prediction confirmed (Roumyana Pancheva, p.c.): Bulgarian does not have Case marking, and allows *mnogo* 'many' in oblique as well as direct Case environments. Bulgarian phrasal comparatives have both *many* and *much* readings, as predicted by the small clause structure in (49).

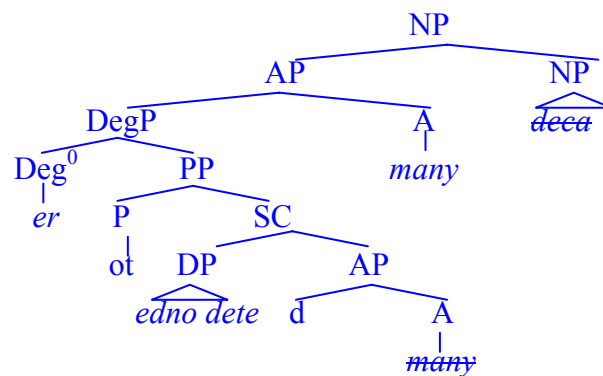
Furthermore, in Bulgarian, both singular and plural marking on the lexical NP is possible with *more than one book*. But while both *many* and *much* readings are available with singular marking, only the *many* reading is available with plural marking (Roumyana Pancheva, p.c.):

- (52) a. poveče ot edno dete
more from one-NSG child.NSG
'many reading': two or more children
'much reading': one child plus somebody else (e.g., one child and one adult)

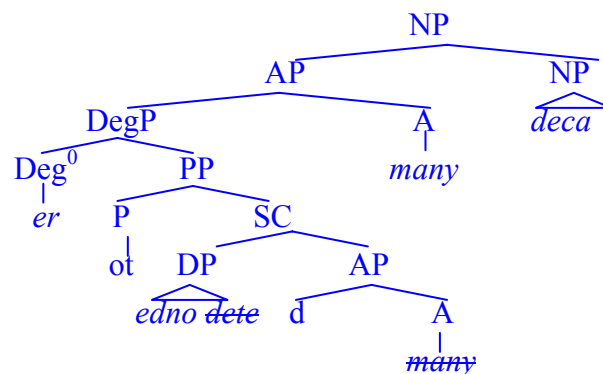
- b. poveče ot edno deca
more from one-NSG child-PL
'many reading': two or more children
'much reading': one child plus somebody else (e.g., one child and one adult)

Analysis: in Bulgarian, either the lower or the higher instance of the lexical NP can be overt with the *many* reading, allowing for both singular and plural agreement; with *much*, there is only one option.

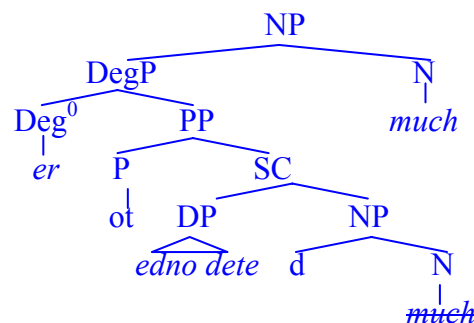
- (53) a. SC analysis of Bulgarian cardinal-containing phrasal comparatives: the 'many reading', singular agreement



- b. SC analysis of Bulgarian cardinal-containing phrasal comparatives: the 'many reading', plural agreement



- c. SC analysis of Bulgarian cardinal-containing phrasal comparatives: the 'much reading'



5.5. Information structure

Another property of *bole*: new information focus requirement.

Descriptively, *bole* comparatives must be part of new information focus:

- (54) 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'se/bole šesti košek.
at him five dog-GEN.PL and more six-GEN cat-GEN.PL
'He has five dogs and more than six cats.'
- b. - Eto pravda, što u Ferdinanda šest' košek i pjat' sobak?
this truth that at Ferdinand-GEN six cat-GEN.PL and five dog-GEN.PL
'Is it true that Ferdinand has six cats and five dogs?'
- Net, u nego bol'se/#bole šesti košek. U nego ix sem' kak minimum.
no to him more six cat-GEN.PL at him them seven as minimum
'No, he has more than six cats. He has at least seven of them.'

NP-ellipsis after *bole* is impossible:

- (55) -U Ferdinanda šest' košek?
at Ferdinand-GEN six cat-GEN.PL?
'Does Ferdinand have six cats?'
- Net, bol'se/#bole.
no more
'No, more.'

The impossibility of NP-ellipsis after *bole* is probably explained by the fact that ellipsis requires old-information status of the elided material.

On the other hand, focus on the cardinal is fine:

- (56) -Eto pravda, što u Ferdinanda bol'se/bole dvadcati košek?
this truth that at Ferdinand-GEN more twenty-GEN cat-GEN.PL
'Is it true that Ferdinand has more than twenty cats?'
- Net, u nego ix bol'se/bole sta!
no at him them more hundred-GEN
'No, he has more than a hundred of them!'

Finally, a *bole* comparative cannot be followed by a more precise description of the state of affairs:

- (57) U Ferdinanda bol'se/#bole šesti košek. U nego ix kak minimum sem'.
at Ferdinand-GEN more six cat-GEN.PL at him them at minimum seven
'Ferdinand has more than six cats. He has at least seven of them.'

All of the above facts also hold with regard to *bole* clausal comparatives.

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