

## About *many*\*

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### 1 Introduction

The ambiguity of quantity expressions, such as *many* in (1), is traditionally identified as the distinction between ‘weak’ and ‘strong’ determiners, e.g. Milsark 1977, Barwise and Cooper 1981, Partee 1989, Bowers 1991.

- (1) Many men are in the garden. Bowers 1991: 26  
(i) weak: ‘there are many men in the garden’  
(ii) strong: ‘of the existing men, a large proportion are in the garden’

The weak *many* is argued to have a cardinal reading, as in (2-a), which states that the cardinality of the intersection of a set of men and a set of entities in the garden is a large number. The strong *many*, on the other hand, has a proportional reading, as in (2-b), which states that the percentage of the men in the garden relative to the set of men is large. Both these readings are vague, in the sense that what counts as a large number or percentage depends on the context.

- (2) a. cardinal *many*:  $|\text{men} \cap \text{in the garden}| \geq n$   $n = \text{large number}$   
b. proportional *many*:  $|\text{men} \cap \text{in the garden}|/|\text{men}| \geq k$   $k = \text{large \%}$

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*Many* can appear in canonical adjectival positions - attributive, see (3-a), and predicative, see (3-b), as well as in quantificational, see (3-c), and differential, see (3-d), positions, usually associated with adverbs. In the adjectival position, *many* has only the cardinal reading (Partee 1989: 9).

- (3) a. The many students who attended enjoyed the lecture. Solt 2013  
 b. John's friends are many.  
 c. Many students attended the lecture.  
 d. Many more than 100 students attended the lecture.

Taking into account both the syntax and the semantics<sup>1</sup> of *many*, we arrive at the asymmetric picture of *many*, in which the quantificational (or adverbial) *many* is ambiguous between the cardinal and the proportional readings and the adjectival *many* is unambiguously cardinal, see (4). The above discussion of *many* and the picture in (4) can be extended to *few* and with some qualifications to *much* and *little*.

(4) *many* in English

	Quantificational	Adjectival
proportional	many	
cardinal	many	the many

In this paper, I look at the distribution of Russian *many*, which has two morphological forms - an adverbial uninflected *mnog-o* 'many-adv' and an agreeing adjectival *mnog-ie* 'many-agr', and show that the emerging picture of Russian *many* is also asymmetric, but is strikingly different from English. As shown in (5), Russian adverbial *many* is also ambiguous,<sup>2</sup> and, like in English, Russian adjectival *many* is unambiguous. However, unlike English, Russian adjectival *many* is unambiguously proportional (and not cardinal).

(5) *many* in Russian

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<sup>1</sup> The semantic discussion here is oversimplified. It does not reflect the difficulty of defining weak vs. strong determiners (see Barwise and Cooper 1981, Keenan 1987). In addition, it takes as a basis the quantificational approach to quantity expressions and does not make justice to other approaches that treat quantity expressions as predicates of sets of individuals or degrees and/or derive proportional reading from cardinal (Hackl 2009, Krasikova 2011, Solt 2013). My primary focus is on the syntax of *many*.

<sup>2</sup> However, this ambiguity is of a different kind, see below.

	Adverbial	Adjectival
proportional		mnogie
cardinal Ind	mnogo	
non-Ind	mnogo	

The generalizations above, if correct, raise a number of interesting questions. First of all, why do the gaps in (4) and (5) exist in the first place? In other words, why does English not have an adjectival proportional *many* and why an adjectival cardinal *many* is missing in Russian? Secondly, if we compare these two languages and put the emphasis on the languages, the question we can ask is why does English lack a proportional adjectival *many* and Russian a cardinal adjectival *many*? I.e. why not the other way around? Although the goal of this paper is to arrive at a better understanding of quantity expressions in Russian and I will not be able to provide full answers to the questions above, the results of the present investigation will allow us to answer these interesting questions partially and show new ways of thinking about the structure and nature of quantification.

The rest of this paper is organized as follows: In section 2, I show that Russian has three types of *many*: two adverbial *manys* and one adjectival *many*. The difference between the two adverbial *manys* is that one of them has a group interpretation and the other the individuated (or referential) interpretation. The adjectival *many*, in addition to being referential, has a familiarity interpretation. Section 3 provides an analysis of *many* in Russian. The main idea of the analysis is that the three *manys* have different structures. The difference between the two adverbial *manys* is in the maximal level of projection being either a QP or a full DP (parallel to the similar distinction in nominals with numerals, e.g. Franks and Pereltsvaig 2004, Pereltsvaig 2006).

## 2 Constructing the three-partite division of Russian *many*

In this section, I argue that Russian has three kinds of quantity expressions, as shown in (5) above. I construct this partitioning in three steps: First, based on the morphology and the syntactic distribution of Russian *many*, I show that it has an adverbial and an adjectival forms. Second, I demonstrate that the adjectival *many* and the adverbial *many* in its most salient use pattern similarly to strong and weak determiners respectively. Third, I provide evidence for the ambiguity of the adverbial *many*, thus arriving at the three-partite distinction.

### 2.1 Adverbial vs. adjectival many

In this section, I present evidence that Russian has two forms of *many* - an adverbial and an adjectival. There are two sets of evidence: one comes from the morphology of two forms of *many* in Russian and the other from their syntactic distribution. On the morphological side, *mnog-o* ‘many’ has the derivational adverbial suffix -o, whereas *mnog-ie* ‘many’ has an adjectival inflection, see (6) and (7). This inflection encodes gender, number and case.

- |        |         |                        |    |        |                         |
|--------|---------|------------------------|----|--------|-------------------------|
| (6) a. | mnog-o  | many <sub>ADV</sub>    | b. | tix-o  | quietly                 |
| (7) a. | mnog-ie | many <sub>PL.NOM</sub> | b. | tix-ie | quiet <sub>PL.NOM</sub> |

On the syntactic side, the adverbial *many*, like other quantifiers, numerals and measure phrases and unlike the adjectival *many* and adjectives, assigns the so-called genitive of quantification to the following noun. However, this evidence is slightly blurred by the fact that there are quantifiers in Russian that do not assign the genitive of quantification and pattern with *mnogie*, see (8-a,b). In addition, neither *mnogo* nor *mnogie* can appear in the predicative position, see (8-c).<sup>3</sup> Although we do not expect the adverbial *many* to be in the predicative position, the fact that the adjectival *many* is impossible in this position is puzzling. Note also that the verb in (8-a) can agree with the subject noun or appear in the neuter form. I will discuss this question in section 2.3.

- |        |   |                          |                              |             |
|--------|---|--------------------------|------------------------------|-------------|
| (8) a. | Mnogo/neskol’ko/pjat’   | studentov                | prišl-o/-i                   | na lekciju. |
|        | many/some/five  | students <sub>GEN</sub>  | came <sub>NEUT/-PL</sub>     | on lecture  |
|        | ‘Many/some/five students came to the lecture.’                            |                          |                              |             |
| b.     | Mnogie/vse/dobrosovestnye   | studenty                 | prišli na lekciju.           |             |
|        | many <sub>PL.NOM</sub> /all <sub>PL.NOM</sub> /diligent <sub>PL.NOM</sub> | students <sub>NOM</sub>  | came on lecture              |             |
|        | ‘Many/all/diligent students came to the lecture.’                         |                          |                              |             |
| c.     | Druzja Ivana byli *mnogo  | /*mnogie                 | / veselye.                   |             |
|        | friends Ivan were many  | / many <sub>PL.NOM</sub> | / cheerful <sub>PL.NOM</sub> |             |
|        | ‘Ivan’s friends were many/cheerful.’                                      |                          |                              |             |

<sup>3</sup> There are constructions, in which *mnogo* occurs after the verb ‘be’, as in (i). I take such constructions to involve fronting of the complement of *mnogo*, as evidenced by the fact that the noun *druzej* ‘friends-m.gen’ is in genitive (not nominative) and the plural agreement on the predicate is excluded.

(i) Druz-ej u Ivana bylo mnogo.  
 friends<sub>M.GEN</sub> at Ivan be<sub>PAST.NEUT</sub> many  
 ‘Ivan had many friends.’

However, there are data that strongly suggest that *mnogo* is adverbial, whereas *mnogie* is adjectival. As illustrated in (9), *mnogo*, like other adverbs and unlike *mnogie* and adjectives, can modify a verb, see (9-a), and be a differential modifier in comparatives, see (9-b):

- (9) a. Ivan mnogo / dolgo / \*mnogie spal.  
 Ivan many / long / many slept  
 ‘Ivan slept a lot / for a long time.’  
 b. Ivan (na)mnogo /na dva santimetra /\*(na)mnogie vyše Mishy.  
 Ivan by-many /by two centimetres / by-many taller Misha  
 ‘Ivan much/two centimetres taller than Misha.’

Finally, there is a piece of morpho-syntactic evidence: the non-inflected *mnogo* is restricted to environments in which only the structural cases are assigned. In other words, it is excluded from the environments where an inherent case is assigned, because inherent cases have to be spelled out and *mnogo* does not inflect, nor does it allow the inherent case to be assigned ‘through’ to the embedded nominal as in other languages (see Alexiadou et al. 2007). The examples in (10) illustrate this fact.

- (10) a. Ja rabotaju so mnogimi pianistami.  
 I work with many<sub>PL.INS</sub> pianists<sub>SPL.INS</sub>  
 ‘I work with many (of the) pianists.’  
 b. \*Ja rabotaju so mnogo pianistov /pianistami.  
 I work with many pianists<sub>PL.GE</sub> /pianists<sub>SPL.INS</sub>  
 ‘I work with many pianists.’

These observations allow us to categorize *mnogo* as an adverb and *mnogie* as an adjective. There is no disagreement on this classification in the generative literature (Pereltsvaig 2006, Krasikova 2011).

## 2.2 *Weak vs. strong many*

In this section, I review the tests that are presented in the literature (Babko-Malaya 1998, Krasikova 2011) for arguing that the adverbial *many* in Russian patterns with weak determiners, whereas the adjectival *many* with strong determiners. I will add some other tests that demonstrate weak vs. strong distinction in Russian. The general conclusion of this section is that ‘many-adv’ in its most salient use is similar to weak determiners, whereas ‘many-agr’ is similar to strong determiners.

I start with the observation that the objects in (11) are interpreted differently. More precisely, the adjectival *mnogix* in (11-b) gives rise to a familiarity interpretation of the noun phrase.

- (11) a. Ja znaju mnogo pianistov.  
I know many pianists<sub>GEN</sub>  
'I know many pianists.'  
b. Ja znaju mnogix pianistov.  
I know many<sub>ACC.PL</sub> pianists<sub>ACC</sub>  
'I know many (of the) pianists.'=from a familiar set of pianists

(11-b) is infelicitous in the out-of-the-blue context. It is natural in a context in which particular pianists are discussed or during a reception after a piano recital where many pianists are present.<sup>4</sup> The conclusion that it is, indeed, the agreement that is responsible for the familiarity interpretation is supported by the fact that cases, in which the agreement is obligatory, have only the familiarity interpretation, as we saw in (10-a) above. To express the indefinite meaning, an amount noun phrase, in which both the adjective and the noun can inflect, is used, see (12):

- (12) Ja rabotaju s bol'sim količestvom pianistov.

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<sup>4</sup> A reviewer points out that in case of *mnogie* the notion of familiarity as being present in the previous discourse is too strong and provides the following example in which *mnogie* is felicitous with no previous mentioning of *pianists*:

- (i) - Čem ty uvlekaeš'sja?  
'What are you interested in?'  
- Ja ljublju klasičeskuju muzyku i, kstati, znaju mnogix pianistov.  
'I like classical music and even know many pianists'

I assume that *mnogie* has *weak* familiarity as in Roberts 2000. Weak familiarity does not require that an antecedent discourse referent of NP be introduced via the utterance of NP. Weak familiarity can be satisfied by the perceptual accessibility of the referent to interlocutors, bridging, contextual existence entailments or global familiarity in the general or local culture (Roberts 2000: 14-5). (i) is an illustration of the global familiarity in the general culture. Compare (i) with (ii) in which *classical music* is substituted by *motorcycles*, which makes the use of *mnogie* much less acceptable:

- (ii)- Čem ty uvlekaeš'sja?  
'What are you interested in?'  
- Ja ljublju motocikly i, kstati, #znaju mnogix pianistov.  
'I like motorcycles and even know many pianists'

I work with large<sub>INS</sub> amount<sub>INS</sub> pianists<sub>GEN</sub>  
'I work with a large number of pianists.'

In the paragraphs that follow, I show that this difference in interpretation is supported by standard tests for weak vs. strong determiners.

Krasikova (2011) uses three tests to show that Russian *mnogo* is a weak determiner, whereas *mnogie* is a strong determiner. The first test is standard: whether or not a determiner can appear in existential constructions (Milsark 1977). In Russian, *mnogo*, but not *mnogie*, can be used in existential sentences, see (13).

- (13) a. V lesu bylo mnogo razbojnikov. Krasikova 2011: 95  
in wood was<sub>NEUT</sub> many outlaws  
'There were many outlaws.'  
b. \*V lesu byli mnogie razbojniki.  
in wood were many outlaws  
'There were many outlaws in the wood.'

The second test uses individual-level predicates. *Mnogo*, unlike *mnogie*, cannot be a subject of an individual-level NP predicate, see (14) with the judgements provided in Krasikova 2011:

- (14) a. Mnogie razbojniki byli vorami. Krasikova 2011: 95  
many outlaws were burglars  
'Many outlaws were burglars.'  
b. \*Mnogo razbojnikov byli vorami.  
many outlaws were burglars  
'Many outlaws were burglars.'

It is notoriously difficult to find clear tests for weak vs. strong distinction in Russian. This can be observed on the example of this test. Although at the first glance there is a distinction in acceptability of (14-a) vs. (14-b), it is not clear that the deviance of (14-b) is due to the fact that *mnogo* is weak. First, observe that if we add more context, constructions parallel to (14-b) become marginally (and for some speakers fully) acceptable:<sup>5</sup>

- (15) ?V 90-e v SSSR esše mnogo škol'nikov byli pionerami.

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<sup>5</sup> The addition of the frame adverbs facilitates the individuated interpretation of *mnogo* making the use of individual-level predicate more acceptable.

in 90 in USSR still many pupils were pioneers  
 ‘In 90s in the USSR, many pupils still were ‘pioneers’.’

Second, note that in both (14-b) and (15) the copular ‘be’ agrees with the plural subject. We saw in (8-a) that *mnogo* ‘many-adv’ can appear with agreeing verbs, as well as with verbs in the neuter form. I will discuss the differences between these two constructions in detail in section 2.3. Anticipating this discussion, I mention the generalization that emerges from the data in section 2.3: *mnogo* with the agreeing verb has an individuated interpretation, whereas *mnogo* with the verb in neuter has a non-individuated (quantificational) interpretation, which is expected to be semantically odd (but not ungrammatical) with individual level-predicates. The quantificational non-individuated reading of *mnogo* is more salient and more easily accessible for Russian speakers. This may explain the fact that adding more context, as in (15), reduces the deviance of the sentence.

The third test builds on the observation made by Herburger (1997) for English and Babko-Malaya (1998) for Russian. The observation is that cardinal quantifiers are focus-sensitive, i.e. the truth-conditions of a sentence depend on the placement of focus. The sentence in (16-a), in which *flu* is focussed, is true if the number of children who has the flu is large compared to the number of children who has other illnesses. The sentence in (16-b) with the focus on *children* has different truth-conditions: it is true if the number of children who has the flu is large relative to other age groups. *Mnogie*, on the other hand, does not give rise to focus-sensitive readings. The only difference between (17-a) and (17-b) is contrastive and not truth-conditional.

- (16) a. *Mnogo detej boleet [gripom]<sub>F</sub>*. Krasikova 2011: 106  
 many children be.ill flu-m  
 ‘Many children have the flu.’  
 b. *Gripom boleet mnogo [detej]<sub>F</sub>*.  
 flu be.ill many children  
 ‘Many children have the flu.’
- (17) a. *Mnogie deti bolejut [gripom]<sub>F</sub> (a ne vetrjankoj)*.  
 many children be.ill flu but not chickenpox  
 ‘Many children have the flu (not chickenpox).’  
 b. *Gripom bolejut mnogie [deti]<sub>F</sub> (a ne vzroslye)*.  
 flu be.ill many children but not adults  
 ‘Many children (not adults) have the flu.’ Krasikova 2011: 106



For Krasikova (2011), this last difference between *mnogo* and *mnogie* is the most important. She uses it to explain the existence of two *manys* in Russian. In her view, *mnogo* and *mnogie* have different lexical entries: The adverbial *mnogo* has a denotation close to a measure phrase (it denotes a predicate of degree sets) and a wired-in property of being focus-sensitive. As a result, *mnogo* can never give rise to a proportional reading. The adjectival *mnogie* has a denotation similar to a gradable non-intersective adjective (it denotes a predicate of individuals), whose comparison class argument is saturated by the noun phrase that it modifies. As a result, *mnogie* has an unambiguous proportional reading. Krasikova 2011 suggests that the ambiguity of Russian *many* is a strategy the language chooses in order to have both proportional and cardinal readings in its inventory: ‘If the adverb-type *many* happens to be focus-sensitive it fails to express a proportional reading and the language has to make available an adjectival *many* which combines with a noun non-intersectively and triggers a proportional reading’ (Krasikova 2011: 111).

In this paper, I will take another direction. Based primarily on syntactic arguments, I will suggest that we do not have to postulate a lexical ambiguity between *mnogo* and *mnogie* in Russian. As Krasikova herself points out the line of reasoning she proposes does not explain why this particular strategy is chosen, i.e. why with the absence of a proportional *many*, Russian uses an adjectival *many* and not another mechanism that transforms *mnogo* into a proportional quantifier. Nor does it explain the English facts. In addition, as I will show in the next section, Russian adverbial *many* itself is ambiguous, although this ambiguity does not align neatly with the weak-strong distinction.

However, before concluding this section, I would like to present three other tests that show that *mnogo* patterns with weak determiners, whereas *mnogie* with strong determiners. The first test is mentioned in Barbara Partee’s lecture on March 25th, 2004 at the RGGU7 in Moscow. She attributes this observation to one of her students - Yura Lander. The observation is that strong determiners are disallowed as arguments of the verb *imet’sja* ‘have-refl’. This test seems to draw a line between the adverbial and adjectival *manys* in Russian, see (18):

- (18) a. V muzee imeetsja mnogo kartin.  
       in museum have many paintings  
       ‘There are many paintings in the museum.’  
       b. \*V muzee imejutsja mnogie kartiny.

in museum have many paintings  
'There are many paintings in the museum.'

The second test is the test for specificity, which involves placing the adjective *opredelennye* 'certain' before the quantity expression (see Pereltsvaig 2006: 442). Unfortunately, neither *mnogo* nor *mnogie* can be used in this test because there is a syntactic restriction disallowing adjective preposing, see (19).<sup>6</sup>

- (19) \*Talantlivye /\*opredelennye mnogie/mnogo balerin  
talented /certain many ballerinas  
tanceval-i v Mariinskom teatre.  
danced in Mariinsky theatre  
'Many talented/certain ballerinas danced in the M. Theatre.'

The third test builds on the hypothesis that the complement of a verb with the cumulative prefix *na-* is a QP (and never a DP), see Bailyn 2004, Franks and Pereltsvaig 2004, Pereltsvaig 2006.<sup>7</sup> With respect to this test, *mnogie* patterns with DPs, whereas *mnogo* with QPs, see (20).

- (20) a. Ivan na-kupil [<sub>QP</sub> mnogo /djužinu /stol'ko knig].  
Ivan <sub>NA</sub>bought many /dozen<sub>ACC</sub> /so-many books<sub>GEN</sub>  
'Ivan bought (so) many/a dozen of books.'  
b. \*Ivan na-kupil [<sub>DP</sub> mnogix knig].  
Ivan <sub>NA</sub>bought many<sub>GEN</sub> books<sub>GEN</sub>  
'Ivan bought many (of the) books.'

To summarize, in this section, we saw six tests that suggest that the adverbial *many* in Russian patterns with weak determiners, whereas the adjectival *many* patterns with strong determiners. One test that uses individual-level predicates seems to test not for weak vs. strong distinction, but rather for individuated vs. non-individuated readings. In the next section, I turn my attention to these readings. I will show that it

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<sup>6</sup> I thank an anonymous reviewer for pointing this out to me.

<sup>7</sup> This hypothesis is based on the observation that such complements bear an obligatory genitive case (the so-called genitive of quantification), presumably assigned by a null Q-head. (26-b) shows that when the Q-head is spelled out by a nominal, it appears in the accusative, whereas its complement still bears the genitive of quantification, see (20-a).

is not only the case that ‘many-agr’ has an individuated reading and ‘many-adv’ non-individuated, but also that ‘many-adv’ is ambiguous with respect to these two readings. Thus, we will arrive at the three-partite distinction of Russian *many*.

### 2.3 *The ambiguity of many-adv*

The discussion in this section builds on the work done by Pereltsvaig 2006 (see also Franks and Pereltsvaig 2004). Pereltsvaig 2006 starts with the observation that quantity expressions with numerals can trigger either a plural or neuter agreement, see (21):

- (21) V etom fil'me igral-i /-o [pjat' izvestnyx akterov].  
 in this film played<sub>PL/-NEUT</sub> five famous actors  
 ‘Five famous actors played in this film.’

Based mainly on data from Russian, Pereltsvaig 2006 argues for the existence of Small Nominals, as parallel to Small Clauses. She hypothesizes that Small Nominals (QPs and bare NPs) can appear in the argument position (cf. Longobardi 1994 and subsequent literature). However, unlike full DPs, they have a non-individuated<sup>8</sup> interpretation. As a result, Small Nominals cannot control PROs, be antecedents of reflexives or reciprocals, and trigger the plural agreement on predicates. However, unlike full DPs, they can be arguments of verbs with the cumulative prefix *na-*. To account for the different behaviour of Small Nominals, Pereltsvaig 2006 proposes to divide referentiality into two concepts: the criterion of identity (see Baker 2003) and ‘the ability to pick out an individual referent’ (Pereltsvaig 2006: 483). Syntactically, this division is captured by associating the criterion of identity with a set of unvalued  $\phi$ -features present in Small Nominals and the ability to pick out an individual referent with a set of  $\phi$ -features valued by a D-head, thus, present only in full DPs, as illustrated in (22):<sup>9</sup>

- (22) a. [<sub>DP</sub> D [<sub>QP</sub> pjat' [<sub>NP</sub> banditov]]] full DP

<sup>8</sup> Pereltsvaig 2006 uses ‘non-individuated’ as equivalent to ‘non-referential’.

<sup>9</sup> Pereltsvaig 2006 proposes to distinguish between structural  $\phi$ -features and grammatical gender and number. The latter are specified lexically and responsible for the concord-agreement within NP. The mismatch between these two sets can account for cases like *madame le directeur...* and conjunctions like *the boy and the girl...*

b. [QP pjat' [NP banditov]]

Small Nominal

In what follows, I employ some of the tests proposed by Pereltsvaig 2006 to argue that Russian *mnogo* is ambiguous and although its ambiguity resembles that of numerals, it is different in that the individuated meaning is provided by the constituent smaller than DP (I will call it Ind(ividuated Reference)P).

I begin with the observation that subjects with quantity expressions in Russian can trigger either plural or neuter agreement on the predicate. Traditionally, subjects with the plural agreement are associated with an individuated reading and subjects with the neuter with a group reading, see (23) and (24).<sup>10</sup> The examples in *a* show verb agreement, the examples in *b* show the agreement with short-form adjectives. (25) shows that *mnogie* can appear only with agreeing predicates.<sup>11</sup>

- (23) a. Mnogo ljudej daval-i v sude položitel'nye xarakteristiki...  
many people gave<sub>PL</sub> in court positive comments  
'Many people gave positive comments in the court...'  
b. Mnogo ljudej obespokoen-y tem čto etot Krepkij vyjdet na  
many people concerned<sub>PL</sub> that what this Krepkij will.go to  
svobodu...  
freedom  
'Many people worried that this K. will be released...'
- (24) a. Mnogo volkov pal-o žertvami volč'ego terrora.

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<sup>10</sup> A reviewer correctly points out that the distinction between 'individuated' and 'non-individuated' interpretations are very difficult to pinpoint in terms of truth-conditions. Pereltsvaig 2006: 440 offers the following example to illustrate the difference between these two interpretations:

- (i) Rol' Dz'ejsma Bonda ispolnjali        /#ispolnjalo  
role James Bond performed.PL        /#performed.NEUT  
[pjat' izvestnyx akte'rov].  
five famous actors  
'Five famous actors performed the role of James Bond.'

In (i), only the individuated interpretation is possible because the role of James Bond can be performed only individually by each actor on different occasions. See the discussion in Pereltsvaig 2006 and references cited there.

<sup>11</sup> The examples in (23)-(25) are from the Russian National Corpus online (<http://www.ruscorpora.ru/index.html>) searched on June 14, 2013.

- many wolves fell<sub>NEUT</sub> victims wolves slaughter  
 ‘Many wolves became victims of wolves’ slaughter.’
- b. Mnogo trevog svjazan-o s caricej cvetov - rosoj.  
 many worries connected<sub>NEUT</sub> with queen flowers rose  
 ‘Many worries are associated with the queen of flowers, the  
 rose.’
- (25) Mnogie momenty vyzyval-i / \*-o ulybku.  
 many moments triggered<sub>PL</sub> /-<sub>NEUT</sub> smile  
 ‘Many moments caused a smile.’

It is important to note that not all quantity expressions are equally frequent with the plural agreement (many factors, such as animacy of the subject and choice of the predicate influence its availability). *Mnogo* with a predicate in neuter is a more salient option, see Table 1 from Corbett 1981.

Table 1: Plural agreement with quantified subjects, from Corbett 1981

quantity expression:	% of plural agreement:
2-4	83%
5-10	50%
<i>neskol’ko</i> ‘several’	36%
<i>mnogo</i> ‘many’, <i>skol’ko</i> ‘how much’, <i>stol’ko</i> ‘so much’	3%

Given these agreement facts, it would be natural to expect that *mnogo*, like numerals, can be either DPs or Small Nominals, i.e. QPs. However, this does not seem to be the case. I will use two tests from Pereltsvaig 2006 to demonstrate this point.

Like Small Nominals with numerals, *mnogo* with non-agreeing predicate cannot be used in constructions that require the subject to be referential, such as control and anaphora-binding. (26-a) and (27-a) show that the adverbial *mnogo* with non-agreeing predicate can not license PRO and be an antecedent of a reciprocal, as expected.<sup>12</sup> The unexpected fact is that the adverbial *mnogo* with agreeing predicate are equally infelicitous in these constructions, unlike numerals, see (26-b) and (27b).

- (26) a. [\*Pjat’ /??mnogo soldat]<sub>i</sub> ležal-o na zemle [PRO<sub>i</sub> ranenye].

<sup>12</sup> The examples in (26)-(27) are modelled on the examples from Pereltsvaig 2006.

- five /many soldiers lay<sub>NEUT</sub> on ground wounded  
 ‘Five/many soldiers lay on the ground wounded.’
- b. [Pjat’ /??mnogo soldat]<sub>i</sub> ležal-i na zemle [PRO<sub>i</sub> ranenye].  
 five /many soldiers lay<sub>PL</sub> on ground wounded  
 ‘Five/many soldiers lay on the ground wounded.’
- (27) a. [\*Pjat’ /??mnogo soldat] prikryval-o drug druga ot vetra.  
 five /many soldiers shielded<sub>NEUT</sub> each other from wind  
 ‘Five/many soldiers shielded each other from the wind.’
- b. [Pjat’ /??mnogosoldat] prikryval-i drug druga ot vetra.  
 five /many soldiers shielded<sub>PL</sub>each other from wind  
 ‘Five/many soldiers shielded each other from the wind.’

These data show that nominals with the adverbial *many* in Russian are ambiguous, however their ambiguity is not that between Small Nominals and full DPs as is the case with nominals with numerals.<sup>13</sup> Similarly to Pereltsvaig 2006, I will propose to capture this ambiguity structurally by adding another layer to the D-domain, see section 3.

To summarize, the goal of this section was to construct a three-partite division of Russian *many*. According to this classification, *mnogie* ‘many-agr’ is referential and restricted to entities familiar from the discourse, which equivalent to saying that it is proportional. And there are two adverbial *mnogo* in Russian, one of which has an individuated (referential) interpretation and triggers plural agreement on V. The other one has a non-individuated (non-referential) interpretation and neuter agreement.

### 3 Analysis: decomposing the D-head

The core idea of my proposal is that three *manys* in Russian are structurally different. To explain the ambiguity of ‘many-adv’, I will build on the analyses of nominals with numerals advanced in Franks and Pereltsvaig 2004 and Pereltsvaig 2006. I will treat the non-referential

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<sup>13</sup> A reviewer correctly points out that as the diagnostics that distinguish Small Nominals from full DPs do not work for *mnogos*, the empirical generalization that *mnogo* is ambiguous is weakened. Unfortunately, at this point, I was not able to find further empirical evidence to support the generalization. However, the recent work on semantics of definites that distinguishes between definiteness and determinacy extended to plurals (see esp. Coppock and Beaver 2014) can provide new insights that will help to locate new empirical data and capture the generalization in semantic terms.

adverbial *many* as a Small Nominal, whose maximal projection is QP, see (28-a), and the referential adverbial *many* as projecting into the D-domain. However, I depart from Franks and Pereltsvaig 2004 and Pereltsvaig 2006 in proposing that the functional projection above QP is not a DP, but what I will call an Individuated Reference Phrase - IndP, which is a locus of the individuated referential interpretation and is a head from the DP-zone, see (28-b). Another head from the DP-zone - a Fam(ilarity) head - is present in the structure of the adjectival *many*, see (28-c). Such a decomposition of DP into (at least) two phrases - IndP and FamP - has a familiar flavour of decomposing a CP into the variety of phrases (Rizzi 1997).

- (28) a. [<sub>QP</sub> mnogo [<sub>NP</sub> studentov]] ‘many-adv’ (non-ind)  
 b. [<sub>IndP</sub> Ind<sub>φ</sub> [<sub>QP</sub> mnogo [<sub>NP</sub> studentov<sub>φ</sub> ]]] ‘many-adv’ (ind)  
 c. [<sub>FamP</sub> mnogie [<sub>IndP</sub> Ind<sub>φ</sub> [<sub>NP</sub> studentov<sub>φ</sub> ]]] ‘many-agr’

In the following sections, I will first look at the difference between the individuated/referential and non-individuated/referential ‘many-adv’ and explain what the IndP is. It will turn out that having a Ind as a separate head in the structure is useful not only to capture Russian data, but some cross-linguistic data as well. In section 3.2, I will discuss the adjectival *many*, which I propose should be treated as a ‘definite’ adjective in Slavic.

### 3.1 *The analysis of ‘many-ADV’: IndP*

The idea that the DP-zone is richer than just a projection of a single head is not entirely novel (see Alexiadou et al. 2007 and Kyriakaki 2011 from whom I borrow the label FamP). It is particularly useful when you work on languages without articles and the contribution that is usually assigned to articles should be divided between some syntactic and non-syntactic mechanisms.

Consider the proposal outlined in Pereltsvaig 2006 for Small Nominals: they can be arguments, they have a criterion of identity represented as a set of unvalued  $\phi$ -features. However, they are ‘reduced’ arguments: they can not be part of constructions that require individual reference, e.g. control PRO, bind anaphora, have a specific or a partitive interpretation, as we saw above. On the other hand, if DP is projected the Small Nominal becomes fully referential.

Imagine now a slight variation on this picture. Small Nominals are QPs, which have a group interpretation. They are transformed into

arguments via some last resort semantic operation, which explains their ‘reduced’ properties. If QP needs to receive an individuated interpretation an Individuated-Reference head (Ind-head) is merged. This head is from a cluster of heads conventionally referred to by a cover-term Determiner-head. Using Pereltsvaig’s phrasing cited above, it adds ‘the ability to pick out an individual referent’. In other words, Ind-head transforms a property-like NP into an argument. In a sense, it marks the boundary between the lexical NP-zone and the functional NP-zone by signalling that the structure in its c-command domain is the description of the referent, functional layers that are added above can only specify the referent with respect to some discourse related properties, e.g. familiarity, definiteness, etc. In this respect Ind-head is similar to Infl-head in clauses and represents the nominal argument for the purposes of external agreement. Assume that Ind-head has a set of unvalued  $\phi$ -features; it can probe down and value them using the closest nominal in its c-command domain, then it can value the features of the main predicate, which takes this nominal as an argument. Small Nominal do not project IndP, thus although accepted as arguments, they do not have agreeing predicates. and the predicate surfaces in the default neuter form, see (29):

- (29) a. Mnogo volkov pal-o žertvami volč’ego terrora.  
       many wolves fell<sub>NEUT</sub> victims wolves slaughter  
       b. [[<sub>QP</sub> mnogo volkov <sub>$\phi$ : 3pl</sub>] [<sub>Predicate-NEUT $\phi$ : \_</sub> ]]

QPs with individuated interpretation, on the other hand, project IndP and their predicates agree with the embedded noun, see (30):

- (30) a. Mnogo ljudej daval-i v sude položitel’nye xarakteristiki...  
       many people gave<sub>PL</sub> in court positive comments  
       b. [[<sub>IndP</sub> Ind <sub>$\phi$ : 3pl</sub> [<sub>QP</sub> mnogo ljudej <sub>$\phi$ : 3pl</sub>]] [<sub>Predicate-PL $\phi$ : 3pl</sub> ]]

Now, consider a construction, in which there are two nominals in a noun phrase with mismatching  $\phi$ -features. Ind-head should probe down and agree with the closest nominal. This scenario is illustrate with a pseudo-partitive construction in (31), in which the Q-head is filled with the nominal *oxapka* ‘bunch-f.sg.nom’. That this nominal merges in the Q-head is suggested by the fact that it assigns the genitive of quantification to the noun. The noun *cvetov* ‘flowers-f.pl.gen’ has different  $\phi$ -features. However, the predicate can agree only with the nominal in Q-head, which is predicted by the proposal outlined above.



- (31) Oxapka            cvetov            ležal-a /\*-i na stole.  
 bunch<sub>F.SG.NOM</sub> flowers<sub>SF.PL.GEN</sub> lay<sub>SG</sub> /\*-PL on table  
 ‘A bunch of flowers was laying on the table.’

An interesting question is what would happen if Ind-head merges below the nominal Q-head or the two nominal are equidistant. The prediction is that the main predicate will be able to agree with the embedded nominal or with either. The reason is that it is the Ind-head that determines the referent. This situation is, indeed, attested in Greek pseudo-partitive constructions. The Greek example in (32) from Alexiadou et al. 2007: 424 shows that the predicate can bear plural and thus agree with *flowers*, as well as *a bunch*.

- (32) Ena buketo luludja itan pesmen-o/-a sto patoma.  
 a bunch flowers was/were thrown on.the floor

To summarize, in this section, I proposed that the difference between the individuated and non-individuated ‘many-adv’ can be accounted for by the fact the the individuated ‘many-adv’ has an additional functional layer - IndP.

### 3.2 *The analysis of ‘many-AGR: FamP*

With respect to the adjectival *many* in Russian, I propose to treat it on a par with ‘definite’ adjectives in Slavic. The agreement on *mnogie* ‘many-agr’ is the same agreement that distinguishes long-form (LF) adjectives from short-form (SF) adjectives in Russian. It is a shared belief among linguists that LF-adjectives in Slavic languages were derived by addition of the 3rd person singular pronoun *-ji* to a corresponding short form in prehistoric Slavic: *dobri* ‘kind-m.sf’ + *ji* → *dobriji* ‘kind-m.lf’, *dobra* ‘kind-f’ + *ja* → *dobraja* ‘kind-f.lf’ (e.g. Kramsky 1972, Schmalstieg 1976, Larsen 2007, Mladenova 2007, among others). At that time, if a noun was modified with an LF-adjective, it was interpreted as definite (or more precisely, familiar, see Larsen 2007), SF-adjectives produced an indefinite interpretation. For some time, all Slavic languages enjoyed the definite/indefinite distinction in modified noun phrases. Then, some Slavic languages, including Russian, Czech and (standard) Bulgarian, lost this distinction. In Russian, SF-adjectives became specialized to occur only in the predicative position, whereas LF- adjective - only in the attributive position, see Siegel 1976, Matushansky 2008, Babby 2010,

among many others.

This is a standard story. I would like to propose that in some contrastive cases, Russian retained ‘definiteness’ marking on adjectives. *Mnogie* is an example of such a case. We saw in section 2.2 that *mnogie* unlike *mnogo* has a familiar interpretation, is unacceptable in existential constructions and cannot be the argument of the verb with the cumulative prefix *na-*. To capture these facts I propose that *mnogie* is a ‘definite’ adjective in Russian. It merges as a specifier of the Fam-head in the DP-zone. This explains the adjectival agreement on *mnogie* and its interpretative properties. This also explains why *mnogie* does not assign the genitive of quantification to the noun - it is not a Q-head. The structure is illustrated in (33). This treatment of *mnogie* is very similar to the proposal for ‘definite’ adjectives in Serbo-Croatian in Aljovich 2002.

- (33) a. *mnog-ie studenty*  
many students  
b. [<sub>FamP</sub> *mnogie* [<sub>Fam</sub> Fam [<sub>IndP</sub> Ind [<sub>NP</sub> *studenty* ]]]]

To summarize, in this section I proposed that three *manys* in Russian have different structures. The difference between the two adverbial *manys* is the presence or absence of the Individuated Reference head. The head from the DP-zone that I argued provides the individuated interpretation to the quantity expression and is responsible for the agreement with the main predicate. The adjectival *many* is treated as a ‘definite’ adjective.

#### 4 Conclusion

In the conclusion, I would like to return to the questions raised in the introduction section and provide some partial answers. To remind the questions, I repeat the asymmetric division of different types of *many* in English and Russian in (34) (note that the schema to Russian is slightly more complex than presented in the introduction). The questions were: i) Why do the gaps in these systems exist? and ii) Why do these particular gaps exist in English and Russian? I.e. why does English lack a proportional adjectival *many* and Russian a cardinal adjectival *many* (not the other way around)?

(34)	a.	<i>many</i> in English		b.	<i>many</i> in Russian	
		Quant.	Adj.		Adv.	Adj.
	prop.	many		prop.		mnogie
	card.	many	the many	card. (ind)	mnogo	
				(non-ind)	mnogo	

As already mentioned above the two systems do not match perfectly. The two Russian adverbial *manys* are distinguished along the line of referentiality (individuation), rather than existential presupposition as in English and it is the adjectival *many* in Russian that has a familiar interpretation. It remains to be determined what is the relation between the ability to have an individuated referent and proportionality (i.e. existential presupposition). It seems that referentiality is weaker than the existential presupposition. What I would like to propose is that the difference between *many* in English and Russian stems from the difference in the determiner, rather than quantificational, system of these two languages.

Let us consider Russian first. If the analysis in this paper is on the right track, the relevant part of Russian NP has the structure in (35). The ‘top’ part of the structure (FamP > IndP) is the DP-zone, which hosts ‘definite’ APs in Slavic. If FamP is not projected or more information on definiteness is needed, these functions are done by the discourse. Adjectives are merged low as adjuncts to NumP.

(35) [<sub>FamP</sub> def-AP [<sub>FamP</sub> Fam [<sub>IndP</sub> Ind [<sub>QP</sub> Q [<sub>NumP</sub> AP [<sub>NumP</sub> Num [<sub>NP</sub> ]]]]]]]]]

Suppose that Russian once had two adjectival *manys*: definite (a long-form which we see today as *mnogie*) and indefinite (a short-form without the agreement which merged as an adjunct to NumP). There is no problem to keep the long-form (proportional) *many*; however, the short-form *many* was lost when short-form adjectives became specialized for the predicative position only. As we saw above Russian *many* cannot be used in the predicative position. Thus, Russian does not have the adjectival *many* with cardinal (non-familiar) interpretation.

The role of the lacking short-form cardinal *many* in Russian is played by the adverbial *many* with the individuated reading. As we saw above the most salient reading of the adverbial *mnogo* is a group-reading, but when the Ind-head is merged, it receives an individuated reading and triggers the agreement on the main predicate, like nominals with the adjectival *many*, but assigns the genitive of quantification like the

adverbial *many*. This is a strategy that the language uses to compensate for the lacking indefinite adjectival *many* (the two readings are equivalent as far as I can see).

Russian does not have a strong proportional adverbial *many* simply because it does not have (and never has had) means to add definiteness apart from *as* as an inflection on adjectives. This account makes two predictions: i) Slavic languages that keep the distinction between definite and indefinite adjectives should have both strong and weak adjectival *many* (unless there are additional language-specific restrictions); ii) if a Slavic language has an overt definiteness marker, it should allow for both strong and weak adverbial *many*. The second prediction is born out. As shown in (36), Bulgarian definiteness marker *to* can attach to the adverbial *many*:

- (36) mnogo(to) knigi                      Bulgarian, Tasseva-Kurktchieva 2006  
       many<sub>(DEF)</sub> books

Finally, let us consider English. Suppose that English *the* spells out at least two heads FamP and tP as in Kyriakaki 2011, see (37). The adjectival *many* will merge low in NumP and combine with NP intersectively. Combined with *the*, it would be interpreted as unique, definite and cardinal. English does not have definite adjectives that can combine with the nominal, nor can it move an adjective to Spec-FamP to acquire familiarity reading with the exclusion of uniqueness (tP).

- (37) ([<sub>UP</sub> t [<sub>FamP</sub> Fam] [<sub>IndP</sub> Ind [<sub>QP</sub> Q [<sub>NumP</sub> AP [<sub>Num'</sub> Num [<sub>NP</sub> ]]]]])  
       = *the*

This is also in line with the proposal in Giusti 1991 and subsequent work. To account for the data in English and Italian, Giusti 1991 argues that *many* can merge either as an adjunct to NP like adjectives, or as a functional head that selects either DP or NP depending on its semantics.

At the present moment I do not have anything to add to this picture, however, I believe that looking for the source of the differences between Russian and English *many* in the DP-domain is a promising approach.

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