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Прилагательные в иерархической структуре именной группы

В данной статье исследуются синтаксис и семантика атрибутивных (модифицирующих) прилагательных в русском языке, в котором отсутствуют артикли, но имеются сложные модели падежного маркирования и согласования между элементами именной группы. В синтаксической литературе утверждается, что из-за отсутствия артиклей у именных групп в русском языке совершенно иная структура, чем у их аналогов в языках с артиклями. В статье показывается, что данное утверждение неверно, а модифицирующие прилагательные могут занимать один из шести уровней в функциональной структуре именной группы.

Ключевые слова: именные группы, атрибутивные прилагательные, модификация, падежное маркирование, согласование, семантика.

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Adjectives in layers

This paper investigates the syntax and semantics of modifying/attributive adjectives in Russian, a language lacking articles but having complex patterns of case marking and agreement within a noun phrase. It has been claimed

in the literature that due to its lack of articles, Russian has a completely different internal structure for noun phrases than in languages with articles. In this paper we argue against that claim and propose that there are six layers of functional structure within a noun phrase which modifying adjectives can occupy.

Key words: noun phrases, attributive adjectives, modification, case marking, agreement, semantics.

1. Introduction

The main aim of this paper is to investigate the distribution, ordering and interpretation of prenominal modifying adjectives. The syntax of modifying adjectives has been hotly debated for more than two decades, with proposals including analyzing adjectives as heads that take NP as a complement [Abney, 1987], as heads left-adjoined to N [Sadler, Arnold, 1994], as heads that take NP as a rightward specifier [Delsing, 1993], as adjoined to NP [Svenonius, 1993], or as specifiers of dedicated functional projections [Cinque, 1994; Scott, 2002]. In this paper, we will probe into the syntax and semantics of modifying adjectives by closely examining the relevant data from Russian, an article-less language with intricate patterns of intra-nominal case marking and agreement. Based on this investigation, we argue that there are several (six, to be precise) slots that prenominal modifying adjectives can occupy, sprinkled throughout the extended noun phrase (eNP).

The idea is not completely new: it has been explored in the “cartographic approach” going back to Cinque’s study of adverbial modification in clauses [Cinque, 1999]. For a detailed analysis of adjectival modification along these lines, see Scott (2002); for the application of the cartographic approach to Russian adjectives, see Pereltsvaig (2007). However, we depart from these earlier studies in several significant ways.

First, unlike Scott (2002) and Pereltsvaig (2007), we base our argument not only on the ordering of various semantic classes of adjectives (e.g., Size, Age, Color, Material, etc.) *with respect to each other*, but on the ordering and interpretation of adjectives *with respect to other elements of the eNP*. In this, our approach is closer to that of Svenonius (2008): like him, we argue that the interpretation of a modifying adjective depends on the adjective’s position with respect to functional projections inside the eNP. We propose that adjectives are generated in functional projections we call α Ps which are sandwiched between other, independently-motivated functional projections, discussed in detail in Section 2 of this paper.

Another departure from Scott’s (2002) and Pereltsvaig’s (2007) approach is that we argue for a less fine-grained hierarchy of adjective classes than that

proposed by these authors. Based on a reanalysis of the data from Pereltsvaig (2007) and some additional new data, we show that the less fine-grained hierarchy is supported by stronger judgments about adjective ordering. This issue is addressed in Section 3 of this paper.

Furthermore, in addition to adjective classes considered by Svenonius (2008), all of which occur after/below numerals (i.e., projections αP -3 through αP -6 in the tree in (1) below), we also consider adjectives that can appear before/above numerals, that is above NumP (i.e., projections αP -1 and αP -2 in the tree in (1) below). The projection αP -1 – the highest projection for adjectives – hosts such items as the *poslednie*-type adjectives of Babby (1987), adjectival possessors (e.g., *mašin* ‘Masha’s’) and demonstratives such as *étot* ‘that’. In Section 4 of this paper, we show that these adjectives can appear either before or after numerals, with significant differences in meaning: when occurring above numerals, they are associated with referential, quantificational and/or exhaustive meaning, absent if the same adjective occurs lower in the structure, where property-modifying interpretation emerges. We propose that these differences in interpretation derive from the functional projection DP, and not from the adjectives themselves. Thus, these data (and our analysis of it) provide additional argument in favor of postulating a DP for Russian (contrary to [Bošković, 2005, 2008, 2009, 2012]). Following Pereltsvaig (2006a), we maintain that some noun phrases in Russian are DPs, while others are Small Nominals. We examine several types of Small Nominals in Russian (cf. [Kagan, Pereltsvaig, 2011; Pereltsvaig, 2011]) and show that these nominals lack the upper layers of eNP and hence have no room for the highest types of adjectives; as expected these adjectives are impossible in such nominals. Thus, our evidence for distinct classes of adjectives is based on syntactic facts and the syntax-semantics interface and cannot be explained away by appealing to purely semantic or cognitive factors (cf. [Sproat, Shih, 1988, 1991], among others).

Finally, in Section 5, we examine an additional, often overlooked class of adjectives in Russian, which modify numerals rather than nouns in the eNP (i.e., the *dobryx*-class of [Babby, 1987]). We show that even though these adjectives are closely associated with numerals, they are not projected in the specifier in the functional projection of the numerals itself, NumP. Instead, we propose that these adjectives are projected in an αP of their own, above NumP but below the αP hosting *poslednie*-type adjectives. This strengthens our argument that the interpretation of adjectives depends (at least in part) on the independently motivated functional projections inside the eNP between which the relevant αP is merged.

It should be noted that for the purposes of this paper we focus on one-word modifying adjectives (e.g., *bol’šoj* ‘big’) leaving phrasal adjectival

modifiers (e.g., *gordyj svoimi uspexami* ‘proud of own successes’) aside.¹ While the question of whether such one-word adjectives are in the head or specifier of α Ps is largely outside the scope of this paper, we adopt Pereltsvaig’s (2006b) position that one-word adjectives are heads rather than phrases. Given this, we ignore the alternative possibility of phrasal adjunction of adjectives to the independently-motivated functional projections (e.g., *poslednie*-type adjectives being adjoined to DP, etc.); nothing in our analysis crucially depends on the choice between adjunction and separate α P functional projections for adjectives.

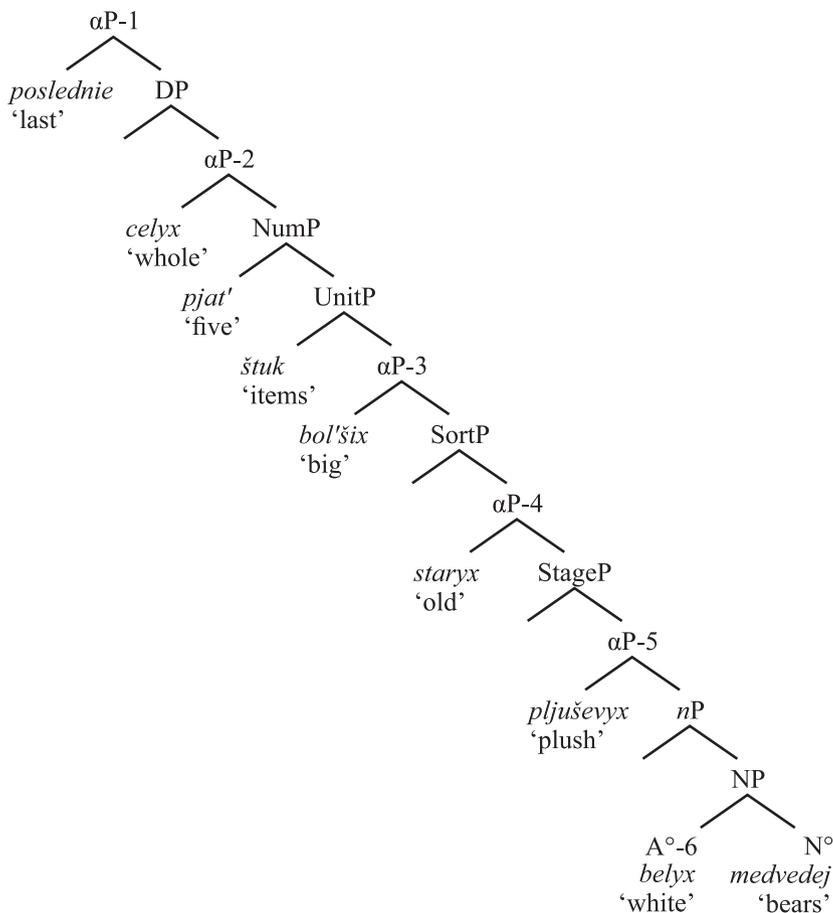
2. Independently motivated functional projections

In this section, we start our consideration of the structure of the extended noun phrase (eNP), in particular in Russian, by reviewing our views about the independently motivated functional projections that constitute the “skeleton” of the eNP, such as DP, NumP, UnitP, ClP, *n*P, etc. The functional architecture of the eNP that we ultimately adopt is shown in the tree in (1). The six positions for the six different types of adjectives are numbered, for ease of reference.

The highest independently motivated functional projection we assume is the DP, whose roots trace back to the work of Abney (1987). When it comes to article-less languages like Russian, a debate has been raging in the literature for some time as to whether such languages have the DP projection at all. Thus, some researchers argue that DP is found only in languages with articles ([Chierchia, 1998; Willim, 1998, 2000; Baker, 2003, p. 113; Trenkic, 2004] and most notably [Bošković, 2005, 2008, 2009, 2012]). The opposing view, namely, that even in article-less languages a nominal may have the fully projected functional architecture, including the DP, is argued for in Rappaport (1992, 2001), Engelhardt & Trugman (1998), Progovac (1998), Leko (1999), Pereltsvaig (2001, 2006a, 2007), Rutkowski (2002a, b, 2006a, b, 2007), Franks & Pereltsvaig (2004), Rutkowski & Maliszewska (2007) and elsewhere. In this paper we provide an additional, albeit indirect, argument in favor of DP in article-less languages by showing that adjectives merged above and below this projection have a different morphosyntax and a different interpretation. Crucially, we show that the higher adjective position – α P-1 – is associated with referentiality and exhaustivity, properties that are known to characterize the DP projection in other languages.

¹ Furthermore, we ignore the possibility of focused adjectives; an interested reader is referred to Gutiérrez-Rexach & Mallen (2002), Giusti (2002), Truswell (2004), Demonte (2008) and Svenonius (2008). According to the latter, focused adjectives are merged above KindP [Zamparelli, 2000]. In all the empirical studies reported in this paper, the speakers have been explicitly instructed to ignore the possible focused pronunciation/interpretation of adjectives.

- (1) *poslednie* *celyx* *pjat'* *štuk* *bol'six* *saryx* *pluševyx*
 last whole five items big old plush
belyx *medvedej*
 white bears
 'the last whole five items of big old plush polar bears'



Next, we assume the projection of NumP, which hosts numerals and other quantity expressions, including lower quantifiers like *mnogo* 'many' and idiomatic quantity expressions like the PP *do figa* 'lots' and even clausal quantity expressions like *čert znajet skol'ko* 'devil knows how many'. Overall, this projection is uncontroversial (in some literature on Slavic it is called QP, but we adopt the label "NumP" so as to avoid a confusion

of quantifiers like *vse* ‘all’, which are merged higher). Moreover, we remain agnostic as to whether numerals like *pjat* ‘five’ are merged in the Num^o or in Spec-NumP (see Bailyn 2004 for a discussion). As we discuss in Section 5 below, this choice is immaterial for the purposes of the present paper.

Furthermore, following Svenonius (2008), we adopt a three-way distinction between numeral classifiers merged in UnitP (cf. Borer’s 2005 #P), sortal classifiers merged in SortP (cf. Borer’s 2005 CIP) and noun classifiers merged in *nP*. Numeral classifiers make nominal referents countable or quantifiable, whereas sortal classifiers sort nominal referents by characteristics such as shape (see Svenonius 2008: 20). While in many languages, these two functions are performed by the same lexical items, there are a few other languages such as Akatek (as described by [Zavala, 2000]), where numeral and sortal classifiers co-exist.² In Akatek, numeral classifiers distinguish human, animal and inanimate nouns (here, only the inanimate one is shown). The sortal classifier distinguishes a dozen or more shapes (‘smooth,’ ‘long three-dimensional,’ ‘erect,’ ‘half-circle,’ ‘round,’ ‘wide flat,’ ‘small spherical,’ ‘separate,’ etc.); note that the same noun can appear with different sortal classifiers, depending on how the referent is perceived. As shown in the examples below (from [Zavala, 2000, p. 117, 123]), numeral classifiers appear structurally outside sortal classifiers.

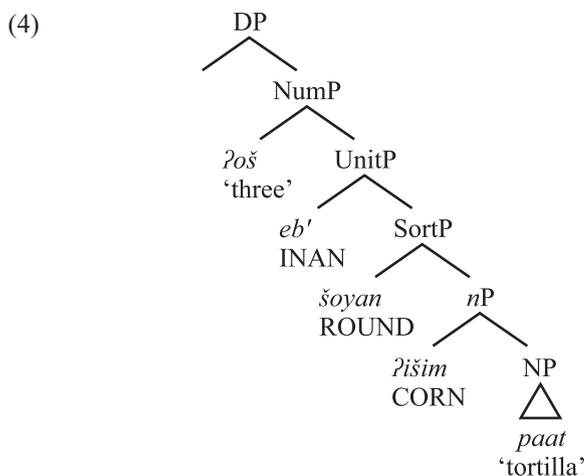
- (2) a. kaa-b’ sulan aw-aan
 two-INAN smooth A2-corncob
 ‘your two corncocks’
- b. ʔoš-eb’ jilan ’aan
 three-INAN long.3d corncob
 ‘three corncocks’
- c. kaa-b’ b’ilan poon yalixh-taj
 two-INAN SMALL.ROUND plum small-PL
 ‘two small plums’

The third type of classifier is the noun classifier, which typically sorts nouns by material qualities or essences (cf. [Svenonius, 2008, p. 21]). Akatek has a set of fourteen noun classifiers (‘man,’ ‘woman,’ ‘animal,’ ‘tree,’ ‘corn,’ ‘water,’ ‘salt,’ etc.) alongside the three numeral classifiers and the set of sortal classifiers, discussed above. All three types of classifiers are illustrated below (adapted from [Zavala, 2000, p. 126–127]).

² Another example of a language with distinct and co-occurring numeral and sortal classifiers appears to be Squamish Salish (cf. [Kuipers, 1967, p. 149–152]). According to Aikhenvald (2000, p. 114), in this language “numerals and numerical interrogative ‘how much’ distinguish three forms: objects, animals, and humans... In addition, numerals co-occur with one of the seven so-called ‘lexical suffixes’ the choice of which depends on the semantics of the noun, e.g., /-qs/ ‘small oblong object’”.

- (3) a. ʔoš-k'on kupan no' wakaš
 three-ANIM HALF.CIRCLE ANIMAL cow
 'three cows' (lying down)
- b. ʔoš-eb' kupan ʔišim paat
 three-INAN HALF.CIRCLE CORN tortilla
 'three (folded) tortillas'
- c. ʔoš-eb' šoyan ʔišim paat
 three-INAN ROUND CORN tortilla
 'three tortillas'

The (simplified) structure for (3c) is shown below:



In Russian, only the first type of classifier is instantiated. As in Akatek and Squamish Salish, the set of numeral classifiers contains three items: *štuk* 'items' for objects, *golov* 'heads' for animals (especially livestock) and *čelovek* 'persons' for humans (there is also an archaic version for humans, *duš* 'souls'). While Aikhenvald (2000, p. 115–116) claims that *golov* 'heads' in Russian (as well as the corresponding items in English and Hungarian) are not numeral classifiers, we find her arguments rather weak or faulty. First, she maintains that these items “do not fill an obligatory slot in the numeral-noun construction”: while we agree on the facts (i.e., that numeral classifiers in Russian are optional), their position in the eNP is rigidly determined. Her second argument is that these items “often have a lexical meaning of their own”: while these items derive from lexical nouns meaning ‘item’, ‘head’ and ‘person’, they do not contribute any lexical meaning when appearing as numeral classifiers. Her third argument that concerns the distinction

between mass and count nouns does not apply to Russian (Aikhenvald illustrates it with Hungarian). Her forth argument is that *golov* ‘heads’ and similar items occur with genitive complements; while this is true, we do not see it as an argument for the lexical nature of these items (cf. [Pereltsvaig, 2007] for arguments that numerals, which similarly take genitive complements, are not nouns either). Aikhenvald’s (2000, p. 116) fifth and last argument is that “there is a restricted number of such words in a non-classifying language”; however, as we point out above, Russian mirrors Akatek and Squamish Salish in having three items in the set of purely numeral (i.e., non-sortal) classifiers: one each for objects, animals and humans.

There are three additional arguments for treating these items as numeral classifiers rather than nouns. The first argument has to do with the form of the classifier for humans, *čelovek*: this special count form is peculiar for occurrences of ‘persons, people’ together with a numeral. In the absence of a numeral (even if a quantifier like *mnogo* ‘many’ is present), the plural form of *čelovek* ‘person, man’ is the suppletive *ljudi* ‘people’, as shown below (cf. [Mel’čuk, 1985; Yadroff, 1999]):

- (5) a. Ja videl pjat’ čelovek.
 I saw five person.PL.COUNT
 ‘I saw five people.’
- b. Ja videl (mnogo) ljudej.
 I saw many person.PL
 ‘I saw (many) people.’
- c. *Ja videl (mnogo) čelovek.
 I saw many person.PL.COUNT
 ‘I saw (many) people.’

More generally, *štuk* ‘items’, *golov* ‘heads’ and *čelovek* ‘persons’ cannot occur without a numeral being present; this is the hallmark of a numeral classifier (cf. [Yadroff, 1999, p. 152]):

- (6) *My ne našli štuk jablok.
 we not found items.GEN apples.GEN

Finally, *štuk* ‘items’, *golov* ‘heads’ and *čelovek* ‘persons’ used in this classifier function cannot take any modifiers (cf. [Yadroff, 1999, p. 151–152]):

- (7) a. *desjat’ veselyx čelovek našix oficerov
 ten happy persons our officers
- b. *pjat’ otdel’nyx štuk nexorošix slov
 five separate items obscene words

Therefore, contrary to Aikhenvald (2000), we take *štuk* ‘items’, *golov* ‘heads’ and *čelovek* ‘persons’ to be numeral classifiers; a similar position for corresponding items in Bulgarian is argued for by Cinque and Krapova (2007). According to our analysis, these numeral classifiers are merged in UnitP (cf. the structure we propose in (1) above). Note further that there is no adjective-hosting projection above UnitP, which explains why numeral classifiers cannot be modified directly (as shown in (7) above). The numeral classifiers are discussed further in Section 5 below.

The final, and perhaps the most controversial, functional projection that we assume in this paper is StageP, which turns entities to which Individual-level properties apply into entities to which Stage-level properties may apply. While the exact nature of the Individual-/Stage-level distinction remains illusive, at least some scholars analyze Stage-level properties/predicates as applying to the Event argument (or perhaps, a “Stage argument”) of the nominal (cf. [Kratzer, 1989, 1995]). It is our contention that StageP is the functional projection where this Event/Stage argument is added, similar to adding the Agent argument in vP (cf. [Kratzer, 1996]). This StageP projection becomes particularly relevant for structurally distinguishing between such Individual-level properties as material and origin, on the one hand, and such Stage-level properties as age and temperature, etc.; this is discussed in more detail in Section 3 below.

3. “Lower” adjectives

In this section, we focus on adjectives that modify the property denoted by the noun, such as *bol’šoj* ‘big’, *staryj* ‘old’, *pljuševyj* ‘plush’, *belyj* ‘white/polar’ in (1) above. Following Svenonius (2008), we reject the approach adopted by Scott (2002) whereby individual adjective classes (e.g., Size, Color, etc.) are associated with specific functional projections. As pointed out by Svenonius, “the categories [such as Size, Color, etc.] are not well-motivated outside of the adjectival ordering phenomenon that they are introduced to describe”. Furthermore, as we show below, the fine-grained hierarchy of adjective classes proposed by Scott (2002) is not supported by the actual adjective ordering facts; in particular, as we show below, ordering restrictions on some of Scott’s categories, such as Age and Color, are far stricter than those on, say, Length and Height.

But first, we will briefly address the syntax of the so-called idiomatic adjectives, such as the ones in *belyj medved* ‘polar [literally, white] bear’, *beloe vino* ‘white wine’, *železnaja doroga* ‘rail road [literally, ferrous] road’, *Černoe more* ‘Black Sea’, *Bol’šaja Medvedica* ‘Ursa Major’. First of all, note that adjectives appearing as idiomatic are not an exclusive lexical class: these adjectives can also appear as non-idiomatic, in combination with

different nouns (e.g., *belaja/čěrnaja kraska* ‘white/black paint’, *železnyj zamok* ‘iron lock’, *bolšaja kuča* ‘big heap’). However, when occurring in such collocations, idiomatic adjectives do not make the usual, transparent contribution to the interpretation of the noun phrase (i.e., that of Color, Material, Size, etc.); for example, *beloe vino* ‘white wine’ is not white but yellowish-green and *železnaja doroga* ‘rail road [literally, ferreous] road’ of the toy kind may be made from plastic:

- (8) a. zelenovatoe beloe vino
 greenish white wine
 ‘a greenish white wine’
- b. plastikovaja železnaja doroga
 plastic ferrous road
 ‘a plastic railroad’

Note that the adjective with the idiomatic interpretation must be closest to the noun, hence the ungrammaticality of the following:

- (9) a. *beloe zelenovatoe vino
 white greenish wine
 intended: ‘a greenish white wine’
 (ok with comma intonation: ‘wine that is white in color with
 a greenish tint)
- b. *železnaja plastikovaja doroga
 ferrous plastic road
 intended: ‘a plastic railroad’

The same is true if we use two adjectives, each of which can potentially have an idiomatic meaning with the given noun: only the adjective that is closest to the noun will have idiomatic meaning in each case:

- (10) a. belaja bol’šaja medvedica
 white big she-bear
 ‘a white Ursa Major’
- b. bol’šaja belaja medvedica
 big white she-bear
 ‘a big (female) polar bear’

This is in line with our general observation that the same lexical items can appear in distinct syntactic positions with distinct meaning (see also this section below and the following sections).

A further example is provided by the phrase *belyj čěrnyj medved* ‘a white black bear’, referring to a Kermode bear (or “spirit bear”, as the First Nations

people call them). These bears are not albinos and not related to polar bears, but belong to the *Ursus americanus kermodei* subspecies of the American black bear. Thus, in *belyj čěrnnyj medved'* 'a white black bear' the adjective closest to the noun – *čěrnnyj* 'black' – is used idiomatically, to designate a species (and does not denote color per se), while the first adjective – *belyj* 'white' – refers to the white (or cream-colored) coat of such a bear.³ Thus, in the structure we propose, *belyj* 'white' in this phrase occupies the position αP -5, whereas *čěrnnyj* 'black' occupies the position A-6.

Idiomatic adjectives also differ from non-idiomatic adjectives in that they cannot be modified or extended by a complement, such as *očen' belyj* 'very white', *belyj po cvetu* 'white in color':

- (11) a. *očen' belaja medvedica
 very white she-bear
 'a very (typical) polar bear'
- b. belaja po cvetu medvedica
 white in color she-bear
 'a white in color (female) bear', not 'polar bear'

Given the lexical nature of idiomatic adjectives, we propose to analyze them as part of a lexical compound, specifically as an A° merging with a N°. This position is marked as adjective position 6 in the tree in (1) above. This proposal is similar to what Sadler and Arnold (1994) propose for **all** prenominal adjectives; we limit this structure to **idiomatic** adjectives only.

Let us now consider non-idiomatic noun-modifying adjectives. Here, we propose that these adjectives can be divided into three groups (rather than thirteen or more classes, as done by Scott 2002), and, as shown in the tree in (1), we believe that these three groups of adjectives are merged in three different structural layers.

The first, highest group includes adjectives that can modify only count nouns, not mass nouns. Such adjectives include those denoting various dimensions of size (overall size, length, height, depth, width), as well as speed and shape. Since substances do not have intrinsic boundaries, one cannot talk about the length, height or width of a substance. Examples of these adjectives are given in (12a) below, and the structural position of these adjectives – above SortP and below UnitP – on our tree in (1) is marked as αP -3.

The second group includes adjectives that denote potentially Stage-level properties that can apply to mass nouns as well as count nouns, such as weight, wetness, age and temperature. Examples of adjectives from those

³ Bruce Barcott describes the coats of the *belyj čěrnnyj medved'* 'a white black bear' thus: "more like a vanilla-colored carpet in need of a steam cleaning" [Barcott, 2011, p. 41].

two types are given in (12b) below, and their structural position – above StageP, but below SortP – on our tree in (1) is marked as $\alpha P-4$.

The distinction between these two groups of adjectives has been drawn already by Muromatsu (2001), who divides adjectives into two classes: those which are sensitive to shape and merge above classifiers and those which are not sensitive to shape and merge below classifiers. Since we adopt Svenonius' (2008) distinction between three kinds of structurally distinguished classifiers, we modify Muromatsu's proposal as follows: adjectives that are sensitive to shape merge above **sortal** classifiers (in SortP) and adjectives that are not sensitive to shape merge below sortal classifiers.

Thus, a close semantic connection is established between elements to be merged in the functional projection, in this case SortP (i.e., classifiers that “sort nominal referents by characteristics such as shape”) and the adjectives to be merged in the functional projection immediately above SortP: these adjectives denote properties that are sensitive to shape (and hence can apply only to count, not mass nouns).

This is a general pattern that obtains with respect to other projections that host adjectives and functional projections that constitute the skeleton of the eNP: at each level, the interpretation of a given adjective depends crucially on the functional projection immediately below the projection where the adjective is merged.

The third and structurally the lowest group of (non-idiomatic) noun-modifying adjectives include those that denote properties of color, material and origin. Examples of adjectives from this group are given in (12c) below, and their structural position – immediately above *n*P and below SortP – on our tree in (1) is marked as $\alpha P-5$.

(12) a. Adjectives sensitive to shape ($\alpha P3$):

malen'kij ‘small’, *dlinnyj* ‘long’, *vysolkij* ‘tall, high’,
glubokij ‘deep’, *širokij* ‘wide’, *bystryj* ‘fast’, *polnyj* ‘hollow’

b. Adjectives with stage-level meanings not sensitive to shape ($\alpha P4$):

lëgkij ‘light’, *mokryj* ‘wet’, *staryj* ‘old’ and *tëplyj* ‘warm’

c. Individual-level adjectives ($\alpha P5$):

čërnyj ‘black’, *russkij* ‘Russian’ and *železnyj* ‘ferrous’

It should be noted that the distinction between adjectives merged in $\alpha P-4$ and those merged in $\alpha P-5$ is not a distinction of gradability, as has been often suggested (cf. [Scott, 2002]), nor does it correspond to the distinction between *kačestvennye* vs. *otnositel'nye prilagatel'nye* (“quality vs. relative adjectives”), drawn by Russian grammars (cf. [Academy Grammar, 1980]). For instance, the category of *otnositel'nye prilagatel'nye* ‘relative adjectives’

in Russian includes not only such low α P-5 adjectives as those denoting material or origin (e.g., *derevjannyj jaščik* ‘a wooden box’, *gruzinskoe vino* ‘Georgian wine’), but also possessive adjectives which are structurally high, as discussed in Section 4 below (e.g., *olina kniga* ‘Olga’s book’). Furthermore, even though adjectives denoting color can form adverbs in *-o/-e* (e.g., *belo*), comparative and superlative forms (e.g., *bele* ‘whiter’, *belejšij* ‘whitest’) and adjectives with the suffix *-ovat* (e.g., *belovatyj* ‘whitish’), which can be attached only to gradable adjectives [Kagan, Alexeyenko, 2011], and are thus classified as both gradable and *kačestvennye prilagatel’nye* ‘quality adjectives), we classify them as belonging to the lowest category, structurally in α P-5, for reasons discussed in detail below.

Instead of relying on gradability or the morpho-semantic distinctions like the one underlying the distinction between *kačestvennye* (quality) vs. *otnositel’nye* (relative) adjectives, we propose that the relevant property that characterizes adjectives appearing in α P-5, as distinct from those appearing in α P-4, is their inherently Individual-level nature. As can be seen from (1), α P-5 appears below the StageP projection, the one in which the event argument of Stage-level predicates is introduced. As a result, adjectives that merge above this projection, for example in α P-4, are compatible with Stage-level interpretation (although this interpretation is not obligatory, since an event argument need not be introduced). In contrast, adjectives that merge in α P-5 appear too low in the structure to receive Stage-level readings: these adjectives apply to the property denoted by the NP irrespective to any particular stage, situation or event, and are thus interpreted as denoting permanent, inherent, essential, Individual-level properties.

One way to distinguish between Individual- and Stage-level properties/predicates in English is their grammaticality in existential constructions: only Stage-level properties/predicates are said to be possible [Kratzer, 1995]:

- (13) a. There are firemen available.
 b. *There are firemen altruistic.

Another test involves their grammaticality as secondary predicates: once again, only Stage-level properties/predicates are grammatical in such structures (cf. [Rapaport, 1991; McNally, 1993]):

- (14) a. I bought the dog sick.
 b. *I bought the dog intelligent.

When it comes to Russian, two tests emerge as distinguishing Individual vs. Stage-level properties/predicates. The first test involves the pronoun doubling in colloquial Russian. As has been shown by McCoy (1998), this construction is possible only with essential, Individual-level properties/predicates:

- (15) a. Moroženoe ono xolodnoe.
ice-cream it.NOM cold
'As for ice-cream, it is cold.'
- b. *Moroženoe ego Alla ljubit.
ice-cream it.ACC Alla loves
'As for ice cream, Alla loves it.'

The second test concerns the availability and use of short vs. long forms of adjectival predicates. As argued by Kagan and Alexeyenko (in progress), following traditional grammars, short forms typically denote Stage-level properties in the sense that they “denote properties that hold of an individual in a particular event/situation”, whereas (nominative) long forms “attribute a property to an individual without a dependence on a particular situation/event which typically results in an individual-level interpretation”.⁴ (But see e.g. Bailyn (1994) for a different approach and some counterexamples.) When it comes to instrumental long forms, they “are relativized to a temporal interval, [but] this interval can be equivalent to an individual’s lifetime, in which case the resulting meaning is close to that of an individual-level (nominative) predicate”. Crucially for our present purposes, short forms generally denote Stage-level properties; hence, if a given adjective does not have a short form, it is likely to denote an Individual-level property (except for a few rare cases of morphological gap in the paradigm).

With these tests in mind, we can now consider the categories of adjectives that occur, according to our analysis, in αP-5. Adjectives that are most clearly linked to this position are adjectives of material and origin, such as *železnyj* ‘ferrous’ and *rususkij* ‘Russian’. Both groups relate to properties that are generally conceptualized as permanent and inherent and that are not expected to change from situation to situation. In English, these types of adjectives are impossible in existential constructions (e.g., **There are chairs wooden* / **There are songs Russian*) and as secondary predicates (e.g., **I bought the chairs wooden* / **I heard the songs Russian*).

In (colloquial) Russian adjectives denoting material or origin can occur in the pronoun doubling construction, even in non-generic sentences:

- (16) a. Ètot ključ on železnyj.
this key he.NOM ferrous
'As for this key, it’s iron-made.'
- b. Vanja on russkij.
Vanya he.NOM Russian
'As for Vanya, he’s Russian.'

⁴ See Soschen (2001), Geist (2010) and references therein for a discussion of the relation between short and long forms of adjectives in Russian and the individual-/stage-level distinction.

Furthermore, the Individual-level nature of such adjectives in Russian is supported by the fact that they generally lack short forms. For example, adjectives such as *derevjannyj* ‘wooden’, *stekljannyj* ‘glass-made’, *mednyj* ‘brass-made’, *russkij* ‘Russian’, *amerikansky* ‘American’, *švedskij* ‘Swedish’, *brjussel'skij* ‘of Brussels’ all lack a short form (cf. [Sochen, 2001, p. 6; Timberlake, 2004, p. 290]), which points to their inherently Individual-level nature.

A somewhat less obvious case is posed by the third group of adjectives that occupy $\alpha P-5$, namely, adjectives denoting color. Whether these predicates are originally (unless coercion is involved) Individual-level or Stage-level may be subject to debate. We believe, however, the basic meaning is indeed Individual-level, which is why the adjectives pattern together with those of material and origin. Even though the color of certain objects may be changed either by external factors (e.g., *This chair was black but now it is red – we painted it*) or by internal factors (e.g., *This apple was green last week, but now it's red – it's ripened*), unless forced by such special context, color is perceived as an inherent property. For example, when a recipe calls for *green apples*, it is understood as calling for Granny Smith apples, not unripe Red Delicious or Gala apples. The idea is that even though color may in principle be changed, we do not typically conceptualize this property as one that changes from situation to situation and is therefore linked to a particular stage or eventuality. Furthermore, adjectives of color pattern with other Individual-level predicates in the existential sentence test: **There are chairs green* (cf. **There are chairs wooden*, vs. *There are chairs available*). Similarly, color is not good (unless coerced) as a secondary predicate: **I bought the dog brown* (cf. **I bought the dog intelligent*, vs. *I bought the dog sick*).⁵

Similarly, in Russian, adjectives denoting color can occur in the pronoun doubling construction, even in non-generic sentences (compare the sentence in (17a) with an adjective of color to the sentence in (17b) with an adjective of material):

- (17) a. Èto moroženoe ono zelënoe.
 this ice-cream it.NOM green
 ‘As for this ice-cream, it is green.’
- b. Èto moroženoe ono fistaškovoe.
 this ice-cream it.NOM of.pistachios
 ‘As for this ice-cream, it is made from pistachios.’

Furthermore, adjectives of color typically lack short forms. This is particularly true of descriptive color adjectives (i.e., those that are derived

⁵ On coercion from Individual- to Stage-level property, see Chierchia (1995: 177).

from the name of an object of that color); cf. [Sochen, 2001, p. 6–7]: there are no such short forms as **kremov* (from *kremovyi* ‘cream-colored’), **kofeen* (from *kofeinyi* ‘coffee-colored’, **šokoladen* (from *šokoladnyi* ‘chocolate-colored’), **persikov* (from *persikovyj* ‘peach-colored’). Even when it comes to abstract color terms, their use in short forms is limited to archaic meanings (e.g., *krasen* from *krasnyj* with the archaic meaning ‘beautiful’, not the modern meaning ‘red’) and archaic/poetic style, as in the example below from Marina Tsvetaeva’s poem:

- (18) *И плащ его – был – красен,*
 I plašč ego – byl – krasen,
 and cloak his was red.SHORT
И конь его – был – бел.
 I kon’ ego – byl – bel.
 and horse his was white.SHORT
 ‘And his cloak was red and his horse was white.’

Also, short forms of color adjectives may occur in the attributive position in idiomatic expressions, but these expressions are frozen relics of an earlier stages of Russian when short forms were not associated with Stage-level properties:

- (19) a. *krasna devica*
 red/beautiful.SHORT maiden
 ‘a beautiful maiden’
 b. *sred’ bela dnja*
 amidst white.SHORT day
 ‘in broad daylight’

Thus, we classify adjectives of color as belonging to the same category as those of material and origin, the category of Individual-level properties. These adjectives denote inherent characterizing properties that are Individual-level by default, unless coercion is involved. Therefore, they appear especially close to the NP and below the StageP projection.

Our division of noun-modifying adjectives into three large groups instead of a more fine-grained hierarchy is supported by the data concerning the strength of judgments regarding adjective orderings, as expressed by inter-speaker homogeneity of judgments (i.e., how little variation across speakers is found with respect to a given adjective pair). Having reanalyzed the data presented in Pereltsvaig (2007), we find that judgments regarding different adjective pairs vary in homogeneity. Some adjective pairs, such as in the phrase *staryj belyj taburet* ‘an old white

stool', present no problem to the speakers who select the same adjective ordering unanimously. In contrast, judgments for other pairs, such as *uzkij suxoj ovrag* 'a narrow dry ravine', are much more variable, with only 68% of speakers selecting the preferred order. Overall, pairs involving adjectives that would be merged in α_3 and α_5 , according to our proposal in (1), were judged most unanimously, with the average figure of judgment homogeneity being 95.6%. For pairs that involve adjectives from α_3 and α_4 , or from α_4 and α_5 , this figure is 83.3%. For pairs that involve adjectives that belong to the same group, according to our proposal, that is adjectives that are both merged in α_3 or in α_5 , the figure is merely 74% (there are no adjective pairs in Pereltsvaig's 2007 data that involve two α_4 -type adjectives). The unpublished follow-up study conducted by Pereltsvaig in 2008, enhanced by pictures (whose goal was to make sure that speakers interpret the adjectives in the most uniform fashion), came up with similar figures. The combined results from Pereltsvaig (2007) and the follow-up study (with 66 speakers total) are as follows: 91% for α_3 - α_5 adjective pairs, 79% for α_3 - α_4 and α_4 - α_5 adjective pairs, and 76% for α_3 - α_3 and α_5 - α_5 adjective pairs.

However, there are several problems with these two studies. First, some adjectives could be interpreted differently because of inherent lexical ambiguities; for example, *zdorovyj* (in *zdorovyj ryžij kot* 'a huge red cat') could be interpreted alternatively as 'huge' or 'healthy'. The classification of certain other adjectives adopted by Pereltsvaig (2007) is questionable as well: for instance, she classifies *blestjaščij* 'shiny' as Color and *drevnij* 'ancient' as Age (rather than Typing Attribute, the lowest category on her hierarchy). Many of these problematic examples are due to the fact that Pereltsvaig (2007) implements very strict measures to control for adjective frequencies. In particular, she selected adjectives with closely matching frequency: no more than 30 positions apart on [Sharoff, 2002] frequency ranking of 5,000 most frequent words, and no adjectives ranked in between the two adjectives selected as a pair to be tested. While controlling for frequency is necessary (e.g., [Scott, 2002] shows that adjective frequency in a corpus can affect its ordering), we felt that the measures implemented by Pereltsvaig (2007) were too strict and resulted in too many unnatural, ambiguous or difficult to process pairs.

In order to remedy these problems, we conducted a new follow-up study, using a different set of lexical materials. In particular, we implemented a different set of measures to control for the frequency of adjectives by using adjectives that are the most frequent in each meaning subcategory (size, length, etc.), according to Sharoff (2002) frequency dictionary of Russian. These adjectives are listed below:

- (20) a. $\alpha P3$:
malen'kij 'small', *dlinnyj* 'long', *vysokij* 'tall, high',
glubokij 'deep', *širokij* 'wide', *bystryj* 'fast', *polyj* 'hollow'
- b. $\alpha P4$:
lëgkij 'light', *mokryj* 'wet', *staryj* 'old' and *tëplyj* 'warm'
- c. $\alpha P5$:
čërnyj 'black', *rususkij* 'Russian' and *železnyj* 'ferrous'⁶

Six types of pairs have been tested: $\alpha 3$ – $\alpha 4$, $\alpha 3$ – $\alpha 5$, $\alpha 4$ – $\alpha 5$, $\alpha 3$ – $\alpha 3$, $\alpha 4$ – $\alpha 4$ and $\alpha 5$ – $\alpha 5$, with two examples of each type of pair (thus, the total 12 items were tested). The actual test items (in the expected order) are listed in (21) below. The types of pairs and the order in which the two alternative orders – the expected and the reverse orders – were presented have been randomized. Each adjective has been used in no more than three test items; all test items involved masculine gender.

(21) a. <i>vysokij staryj dom</i>	'a tall old house'	$\alpha 3$ – $\alpha 4$
b. <i>čërnyj železnyj šar</i>	'a black ferrous [i.e., iron] ball'	$\alpha 5$ – $\alpha 5$
c. <i>tëplyj rususkij platok</i>	'a warm Russian kerchief'	$\alpha 4$ – $\alpha 5$
d. <i>lëgkij mokryj plašč</i>	'a light wet cloak'	$\alpha 4$ – $\alpha 4$
e. <i>dlinnyj čërnyj xvost</i>	'a long black tail'	$\alpha 3$ – $\alpha 5$
f. <i>staryj čërnyj avtomobil'</i>	'an old black car'	$\alpha 4$ – $\alpha 5$
g. <i>glubokij širokij rov</i>	'a deep wide trench'	$\alpha 3$ – $\alpha 3$
h. <i>staryj tëplyj sviter</i>	'an old warm sweater'	$\alpha 4$ – $\alpha 4$
i. <i>dlinnyj tëplyj šarf</i>	'a long warm scarf'	$\alpha 3$ – $\alpha 4$
j. <i>malen'kij železnyj ključik</i>	'a small ferrous [i.e., iron] key'	$\alpha 3$ – $\alpha 5$
k. <i>železnyj rususkij krest</i>	'a ferrous [i.e., iron] Russian cross'	$\alpha 5$ – $\alpha 5$
l. <i>dlinnyj vysokij zabor</i>	'a long tall fence'	$\alpha 3$ – $\alpha 3$

Overall, 70 speakers participated in the study, giving us a total of 840 responses. These responses were coded according to whether they were in agreement with the expected order. For each tested pair, we calculated the percentages of speakers who preferred the expected order. Then, average percentage for each pair type, as well as for inter-type pairs (i.e., $\alpha 3$ – $\alpha 4$, $\alpha 3$ – $\alpha 5$ and $\alpha 4$ – $\alpha 5$) and intra-type pairs (i.e., $\alpha 3$ – $\alpha 3$, $\alpha 4$ – $\alpha 4$ and $\alpha 5$ – $\alpha 5$) was calculated. The results are as follows: for the inter-type pairs the average percentage of expected orders is 78.8%, whereas for intra-type pairs

⁶ *Zolotoj* 'golden' is more frequent than *železnyj* 'ferreous', but it is ambiguous between Color and Material interpretations.

the corresponding figure is 52.2%. In other words, speakers were much more in agreement regarding the pairs that involve adjectives from different types (i.e., according to our analysis, adjectives attaching at different levels of the structure) than regarding the pairs that involve adjectives of the same type. This is one measure of how strong and homogeneous the intuitions are.

Individual responses and speaker comments are also interesting. One thing to point out is the much higher frequency of “no preference” responses for intra-type pairs than for inter-type pairs. Such responses were particularly frequent for pairs (21g), (21h), (21k) and (21l). The pair in (21g) received 16 (23%) “no preference” responses (plus five additional speakers commented that their “preference is very slight”), and the pairs in (21h) and (21k) received 6 and 5 “no preference” responses, respectively. The pair in (21l) received only three “no preference” responses, but three additional speakers commented that their “preference is very slight”. Many speakers also commented that items (21g) and (21l) are better rephrased as coordinated phrases with either order of the adjectives (i.e., *glubokij i širokij rov* ‘deep and wide trench’ or *širokij i glubokij rov* ‘wide and deep trench’; *dlinnyj i vysokij zabor* ‘long and tall fence’ or *vysokij i dlinnyj zabor* ‘tall and long fence’). Of the inter-type pairs, only the item in (21i) received a significant number of “no preference” responses (five, to be precise); we are not sure why. Overall, however, it is the intra-type pairs that received the most variable responses and the highest number of “no preference” responses.

Conversely, the pairs with the highest percentage of responses preferring the expected order (i.e., pairs with the most homogeneous responses) were all inter-type pairs: (21e), (21f) and (21j), receiving 81%, 86% and 100%, respectively.

To summarize, our study shows that there is a clear difference between adjective pairs that involve two adjectives of the same type (i.e., intra-type pairs) and adjective pairs that involve adjectives of different types (i.e., inter-type pairs). The intuitions about adjective ordering are much stronger and more homogeneous across speakers for inter-type pairs than for intra-type pairs. This strongly supports our division of adjectives into these three types.

4. *Poslednije*-Type Adjectives

In this section, we consider the adjectives of the so-called *poslednie*-type (cf. [Babby, 1987]), which precede quantifiers such as numerals and fulfill a special semantic function. Unlike the adjectives discussed in the previous section, they do not modify the property contributed by the NP, but rather provide information regarding the individuals referred to or quantified over by the DP. In the presence of such adjectives, the nominal expression cannot be interpreted as property-denoting; rather, it receives a referential

(or sometimes quantificational) status. It is important to note that we include in this group indefinite pronouns (e.g. *kakie-to*) and determiners (e.g. *èti*) that appear in a DP and exhibit adjective-like behavior in that they agree with the head noun in number and gender:

- (22) a. *poslednie* *pjat'* *knig*
 last five books.GEN
 'the last five books'
- b. *kakie-to* *desjat'* *podrozkov*
 some ten teenagers.GEN
 'some (unknown) ten teenagers'
- c. *èti* *šest'* *fil'mov*
 these six movies.GEN
 'these six movies'

In (22a), the adjective *poslednie* 'last' does not modify the kind of the books in question. Instead, it specifies which particular books the nominal refers to. In other words, its function is not to modify the property but to help identify the referent. It helps us choose, out of those entities that instantiate the property of being a book, the particular individuals referred to by the DP. The item *kakie-to* 'some' in (22b) contributes existential quantification over groups of ten teenagers and further makes sure that the speaker cannot identify the particular teenagers involved. In other words, it marks the referent as not speaker-identifiable (cf. [Kagan, 2011] for a detailed discussion of *-to* items). Once again, lack of identifiability is a characteristic of the referent, not part of the property denoted by the NP. Finally, the demonstrative *èti* 'these' in (22c) is an indexical expression that provides the nominal with a referential and definite status, making sure that its referent is familiar from the context (either physical or linguistic). Thus, in all these cases, the adjectives that precede the numeral provide information about the intended referent of the nominal, about the individuals that it picks up, and not about the property denoted by the NP.

Crucially, the referential interpretation of the nominal is not a mere by-product of the lexical meaning of the adjective. Rather, the structural position in which the adjective appears plays a crucial role in determining its meaning. Evidence for this claim comes from the fact that many adjectives can appear in different positions: either in the high position above the NumP ($\alpha P-1$) or lower in the structure below NumP (e.g., in $\alpha P-3$). In these cases, the interpretation of the adjective and of the nominal expression as a whole depends on the position of the adjective. Adjectives merged high – in $\alpha P-1$ – modify **individuals** rather than properties and thus indicate that the nominal

as a whole is either referential or quantificational in terms of its semantic type. In contrast, when the same adjectives are merged lower in the structure, they are interpreted as modifying the **property** denoted by the NP. This sometimes results in interesting shifts in the meaning of the adjective itself. In the following two subsections, we will illustrate this interaction between the syntactic position of the adjective and its interpretation with a number of examples. The contrast between the higher and the lower site will be determined by two factors: the position of the adjective relative to a numeral and its case form. Adjectives appearing in the higher site precede the numeral and exhibit nominative/accusative case (we will call the AP_{NOM/ACC}-Num order ‘the A-initial pattern’), whereas adjectives appearing in the lower site follow the numeral and appear in the genitive case, which is associated with the numeral (the Num-AP_{GEN} order will be referred to as ‘the Num-initial pattern’).⁷ Then, in Section 4.3 we show that when occurring in the lower position, the adjective does not rule out the option of the nominal as a whole receiving a property-type interpretation, but with adjectives occurring in αP -1, the nominal as a whole cannot be interpreted as denoting a property.

4.1. Referentiality

Appropriately, our first set of examples contains the adjective *pervyj* ‘first’. Consider the following pair of sentences:

- (23) a. Pervye pjat’ učitelej vyšli v final.
 first.NOM five teachers.GEN went-out to final
 ‘The first five teachers came through to the finals.’
- b. Pjat’ pervyx učitelej vyšli v final.
 five first.GEN teachers.GEN went-out to final
 ‘(The) five first teachers came through to the finals.’

When the adjective *pervyj* ‘first’ occurs in the higher position, above the numeral, its function is to make the referent of the nominal identifiable; as such, it makes the nominal as a whole referential. For instance, in order to figure out who came through to the finals according to (23a), one has to consider the first five teachers that participated in the contest, or the first five teachers in the row, etc., as should be specified by the context.

Interestingly, a different interpretation emerges if the adjective is merged in a lower position, to the right of the numeral, as in (23b). This sentence,

⁷ For the purposes of this discussion, we focus on nominals as they would appear in a structural case (nominative or accusative) position. If the nominal occurs in an oblique case position, pronominal adjectives appear in the relevant oblique case, regardless of their structural position (cf. [Babby, 1987; Bailyn, 2004], and the discussion in Section 5 below).

unlike (23a), receives the meaning in which *pervyje* ‘first’ does not affect the referentiality of the nominal, but rather determines the nature of the kind of teacher involved. This sentence can be uttered, for example, if people nominate for participation in the contest their first teachers (each person nominates the first individual who taught him or her at school). In this case, we deal with a contest in which *first teachers* participate. The sentence (23b) asserts that five participants came through to the finals. Here, the adjective *pervyx* ‘first’ modifies the property denoted by the NP, rather than relating to particular instantiations of this property. The individuals instantiate the property ‘first teacher’, and not merely the property ‘teacher’. Except for being characterized by this property, the individuals need not be first in sequence in any other sense (e.g., first to make it through to the finals, first in a row, etc.). For instance, they could be the last participants on the list. Such a meaning can even be expressed in a phrase like (24a), in which the items *pervyx* ‘first’ and *poslednie* ‘last’ are perfectly compatible since the former modifies the property and the latter helps to identify specific instantiations of the property.⁸ Note that (24b) with the A-initial pattern cannot receive the corresponding reading, and in fact is ungrammatical.

- (24) a. *poslednie* *pjat'* *pervyx* *učitelej*
 last.NOM five first.GEN teachers.GEN
 ‘the last five first teachers’
- b. **poslednie* *pervye* *pjat'* *učitelej*
 last.NOM first.NOM five teachers.GEN

Our next example is provided by what we may call *specificity markers*, that is items that when occupying the high position, mark the nominals as either specific or non-specific. To illustrate, consider the minimal context in (25), discussed by Pereltsvaig (2006a):

- (25) V Mariinskom teatre tancevali...
 In the Mariinsky Theatre danced
- a. ...*opredelënnnye* *pjat'* *balerin.*
 certain.NOM five ballerinas.GEN
 ‘A certain five ballerinas danced in the Mariinsky Theatre.’
- b. ...*pjat'* *opredelënnnyx* *balerin.*
 five certain.GEN ballerinas.GEN
 ‘In the Mariinsky Theatre danced five ballerinas of a certain kind.’

⁸ Moreover, even the following phrase is acceptable in an appropriate context:

- (i) *pervyje* *pjat'* *pervyx* *učitelej*
 first.NOM five first.GEN teachers.GEN
 ‘the first five first teachers’

In (25a), the nominal receives a specific interpretation and is understood to refer to a particular set of ballerinas. The adjective *opredelënyye* ‘certain, particular’ affects the referentiality status of the whole nominal, making sure that it refers to a specific group of individuals. In turn, as pointed out by Pereltsvaig, (25b) relates to five ballerinas of **a certain kind**. Once the adjective occupies a lower position, it applies to the property denoted by the head noun.

Demonstratives provide another interesting case to consider:

- (26) a. èti pjat’ mašin
 these.NOM five cars
 ‘these five cars’
- b. pjat’ ètix mašin
 five these.GEN cars
 ‘five of these cars’
 ‘five cars of this kind’

The A-initial order illustrated in (26a) is semantically unmarked, in the sense that here we receive the typical meaning associated with a demonstrative: the phrase refers to a group of individuals that are familiar from either linguistic or physical context. In turn, (26b) is interpreted differently. One interpretation that it may have is a partitive interpretation ‘five of these cars’. To distinguish the demonstrative and the partitive reading, imagine a manager of a car dealership giving instructions to a salesperson to sell (26a) or (26b): in the former case, the manager has to point out the specific five cars in the lot and the salesperson is required to sell the five cars pointed out by the manager. But if the instruction are to sell (26b), the manager must point out a larger number of cars on the lot (i.e., more than five), and the salesperson is required to see some five cars out of that larger set.

But (26b) may also have a different meaning, according to which the demonstrative applies to some **property** of cars involved, rather than to the specific set of cars. This meaning is comparable to that of ‘five such cars’ or ‘five cars of this type’. The relevant type of cars must be familiar from the context, but not necessarily a set of the particular cars involved. In fact, the phrase as a whole need not be interpreted as definite or even specific. The latter use of a demonstrative is illustrated in (27):

- (27) Vsego za vojnu VVS SŠA poterjali
 all.in.all during war Air.Force USA lost
 pjat’ ètix mašin...
 five these.GEN vehicles.GEN
 ‘All in all, during the war, US Air Force lost five vehicles of this kind.’⁹

⁹ http://fictionbook.ru/author/maksim_kalashnikov/kreshenie_ognem_vyuga_v_pustiyne/read_online.html?page=7

The generalization appears to be the following: under the Num-initial pattern, demonstratives and specificity markers apply to the property denoted by the NP. But under the A-initial pattern, these items relate to specific individuals that instantiate that property.

Also, a similar kind of behavior is exhibited by a number of indefinite pronouns. For instance, consider the pronoun *kakoj-to* ‘some’. As a rule, such pronouns appear phrase-initially, mark the nominal as indefinite and provide information regarding the speaker’s knowledge about the referent (namely, that the referent cannot be identified by the speaker). Thus, the phrase in (28a) can be used to relate to five ballerinas that are not known to the speaker. But an alternative order, as in (28b), is possible too. This phrase is most likely to be interpreted as ‘five ballerinas of some type’, where the speaker does not know which type of ballerinas exactly the women instantiate.

- (28) a. *kakie-to* *pjat’* *balerin*
 some.NOM *five* *ballerinas.GEN*
 ‘some five ballerinas’
- b. *pjat’* *kakix-to* *balerin*
 five *some.GEN* *ballerinas.GEN*
 ‘five ballerinas of some kind’

Our next example, appropriately, involves the adjective *sledujuščij* ‘next’. As with the adjectives considered above, *sledujuščij* ‘next’ may occur either before or after a numeral, with the different case marking.

- (29) a. *sledujuščie* *pjat’* *knig*
 next.NOM *five* *books.GEN*
 ‘the following five books’
- b. *pjat’* *sledujuščix* *knig*
 five *next.GEN* *books.GEN*
 ‘five of the/some following books’

This example is somewhat different from what we have discussed above. Both orders are acceptable. As expected from our discussion of similar examples so far, the adjective in (29b) can be understood as property-modifying, in the sense that the entities instantiate the property of being a book that comes later in some ordering than a certain contextually specified book (e.g., was written later or stands on the shelf after some contextually specified book). The phrase is definitely not exhaustive; see discussion of exhaustivity in the next subsection. Also as expected, the phrase with the A-initial pattern in (29a) can be interpreted as meaning ‘the next five books’, but it can also have the interpretation in which the list of books is to be provided after the phrase. In such cases, the adjective is cataphoric, and the nominal has to be interpreted referentially.

- (30) Interes predstavljajut sledujušće pjat' knjig:
 interest present.3.PL following.NOM five books.GEN:
 "Emma", "Gordost' i predubeždenije", "Oliver Twist",
Emma, Pride and Prejudice, Oliver Twist,
 "Mol' Flanders" i "Alice v strane čudes".
Moll Flanders and Alice in Wonderland.
 'The following five books are of interest: *Emma,*
Pride and Prejudice, Oliver Twist, Moll Flanders
 and *Alice in Wonderland.*'

Of course, under the cataphoric use, the adjective cannot be interpreted as applying to the property. Rather, its use is purely referential. Non-surprisingly, such an interpretation is possible only under the A-initial order.

The facts are rather similar with the adjective *takoj* 'such', which can also receive a cataphoric reading, but only if it appears in the higher position. Both (31a) and (31b) may mean 'two such textbooks', although under this interpretation, (31b) is somewhat more natural.

- (31) a. *takie* dva učebnika
 such.NOM two textbooks.GEN
 b. dva *takix* učebnika
 two such.GEN textbooks.GEN

Interestingly, even under the 'such' reading, the two phrases do differ. The phrase in (31b) may relate either to the subject of the textbooks (e.g. such textbooks = textbooks of physics) or to less inherent properties (e.g. such textbooks = old and dirty textbooks), but the phrase in (31a) cannot refer to the subject of the textbook. For example, (31b) but not (31a) can serve as a natural continuation for *Nam očēn' nužny učebniki po semantike. My kupili...* 'We really need textbooks in semantics. We bought...'. Our explanation for this fact is as follows: in (31a) *takie* 'such' is merged outside the NP too high to be interpretable as the argument of *učebnik* 'textbook', while in (31b) *takie* 'such' is low enough to be interpretable as referring to the argument of 'textbook'.

Furthermore, (31a) is much more appropriate than (31b) in cataphoric cases like (32), where the nominal is followed by the list of textbooks, and *takie* is interpreted as 'the following':

- (32) Byli kupleny *takie* dva učebnika:
 were bought such.NOM two textbooks.GEN
 "Vvedenie v semantiku" i "Osnovy sintaksičeskogo analiza"
Introduction to Semantics and Basics Syntactic Analysis
 'The following two textbooks were bought: *Introduction*
to Semantics and The Basics of Syntactic Analysis.'

Again, the cataphoric meaning, which forces a referential interpretation of the nominal, is only available under the A-initial pattern.

Our final example involves the adjective *redkij* 'rare' and its interpretational properties. As a rule, this adjective modifies the property denoted by the noun and, thus, appears under the Num-initial pattern (33a). However, the alternative A-Num order is possible as well, which results in an interesting shift in the interpretation:

- (33) a. Pjat' redkix životnyx pereplyvut ètu reku.
 five rare.GEN animals.GEN will-swim-across this river
 'Five rare animals can swim across this river.'
- b. Redkie pjat' životnyx pereplyvut ètu reku.
 rare.NOM five animals.GEN will-swim-across this river
 ≈ 'It's difficult to find five animals that are able to swim across this river.'

The sentence in (33a) asserts that five rare animals, i.e. five animals of rare species, will cross the river, whereas the sentence in (33b) involves a totally different claim. Roughly, the latter sentence asserts that there exist few (if any) groups of five animals that are able to cross the river. Such animals may not exist at all; if they exist, they need not be of rare kinds.¹⁰ Thus, while in (33a) the adjective modifies the kind, in (33b), it relates to instances of the kind (we may say that it essentially quantifies over five-member sets of such instances, specifying that there are few such sets).

On the basis of the data discussed above, the following conclusions can be drawn. First, we have shown that a range of adjectives can appear in two distinct positions, above or below NumP. Second, the interpretation of such adjectives depends on the structural position they occupy. Third and final, the position located above NumP is associated with the referentiality status of the nominal; adjectives that appear in this position describe not the property but rather the individual instantiations that the nominal refers to.

The last point is especially important. It reveals that in Russian, there is a structural position within nominal expressions that appears above NumP

¹⁰ Compare to the quote from Nikolai Gogol's *Večera na xutore bliz Dikan'ki*, praising the width of Dnieper:

- (i) *Редкая птица долетит до середины Днепра.*
 Redkaja ptica doletit do serediny Dnepra.
 rare bird will-fly.PERF to middle Dnieper.GEN
Пышный! Ему нет равной реки в мире.
 Pušnyj! Emu net ravnoj reki v mire.
 Magnificent to-it there-is-no equal river in world

'Hardly any bird could fly to the middle of the Dnieper.
 Magnificent! It has no equal river in the world.'

and is responsible for referential interpretation. This position makes sure that the nominal is not interpreted as a property (type $\langle e, t \rangle$), but rather as an individual ($\langle e \rangle$) or a quantifier ($\langle \langle e, t \rangle, t \rangle$). Of course, this is exactly what characterizes the DP projection. Thus, the data provided above constitute evidence for the existence of the DP projection in Russian.

4.2. Exhaustivity

We claim above that even an article-less language like Russian has a DP projection and that this is the projection crucial to the referential interpretation of *poslednie*-type adjectives, which are merged in an αP immediately above the DP. These claims are further buttressed by the data involving exhaustivity inferences that depend on the position of possessive phrases. Like other examples of *poslednie*-type adjectives discussed in the preceding subsection, possessive adjectives (e.g., *diminy* ‘Dima’s’) and possessive pronouns (e.g., *moi* ‘my’) too can appear either above or below a numeral. If they appear above a numeral, the phrase receives an exhaustive interpretation, which is associated with definiteness and with the DP projection (cf. [Zamparelli, 2000]). In contrast, when a possessor appears below NumP, exhaustivity is absent. These facts constitute further evidence that the high position in which adjectives can appear is located in the DP field.

To illustrate, consider the following contrast:

- (34) a. *pjat'* *diminyx* *knig*
 five Dima’s.GEN books
- b. *diminy* *pjat'* *knig*
 Dima’s.NOM five books
- both: ‘Dima’s five books’

Normally, possessive adjectives such as *diminy* ‘Dima’s’ appear to the right of the numeral, as in (34a), and in such cases, exhaustivity is absent. However, they may also appear phrase-initially, to the left of the numeral, in which case the exhaustivity interpretation emerges. Thus, (34b) presupposes that Dima has exactly five books, whereas (34a) does not carry such a presupposition.¹¹

The facts concerning demonstratives are actually similar:

- (35) a. *èti* *pjat'* *mašin*
 these.NOM five cars
 ‘these five cars’

¹¹ Partee (2006) notes in passing that possessives in Russian do not carry an exhaustivity presupposition and in that pattern with Mandarin Chinese, rather than English. Phrases like (34b) constitute counterexamples to this generalization. Plausibly her generalization is based on examples with the number-initial pattern, such as (34a).

- (35) b. *pjat'* *ètix* *mašin*
 five *these.GEN* *cars*
 ‘five of these cars’
 ‘five cars of this kind’

The phrase in (35a), in which the demonstrative appears above NumP, is exhaustive: it presupposes that there exist exactly five relevant cars. This, we propose, results from the fact that the demonstrative appears in the DP area. In contrast, (35b) does not involve exhaustivity, since here, the demonstrative appears below NumP (and is thus not in, or immediately above, the DP).

4.3. Adjectives in Small Nominals

If *poslednie*-type adjectives are merged in the functional projection above the DP, we predict that they should not be grammatical in nominals that lack the higher levels of the functional architecture, specifically the DP. In other words, we predict that high adjectives considered in this section are ungrammatical in Small Nominals [Pereltsvaig, 2006a; Kagan, Pereltsvaig, 2011]. The prediction is borne out. For instance, Kagan and Pereltsvaig (2011) argue that genitive complements of intensive reflexive verbs in Russian (verbs that contain the prefix *na-* and the suffix *-sja*) are Small Nominals which lack the DP and even the NumP projections. For instance, this view is supported by the fact that the nominals in question cannot contain numerals and other quantifying expressions.

- (36) **Ja najelas'* *pjati* / *džužiny* *kotlet.*
 I *na-ate-sja* *five.GEN* *dozen.GEN* *burgers.GEN*
 intended: ‘I ate my fill of five / a dozen burgers.’
 [Kagan, Pereltsvaig, 2011, p. 223]

Crucially for our purposes, genitive complements of intensive reflexives cannot contain high adjectives. Within these genitive nominals, such adjectives are either ruled out completely or, if accepted, receive the property-modifying interpretation that is associated with lower positions.

- (37) a. *Ja načitalas'* *takix* *učebnikov.*
 I *na-read-sja* *such.GEN* *textbooks.GEN*
 ‘I have read my fill of such textbooks.’
 b. *Maša nasmotrelas'* *ètix* *fil'mov.*
 Masha *na-watched-sja* *such.GEN* *films.GEN*
 ‘Masha has watched her fill of such films.’
 c. *Lena najelas'* *redkix* *konfet.*
 Lena *na-ate-sja* *rare.GEN* *sweets.GEN*
 ‘Lena has eaten her fill of a rare type of sweets.’

Specifically, *takix* in (37a) can only relate to the type of textbooks involved. For instance, the sentence may mean, depending on the context, that the speaker has had enough of reading textbooks written by non-professionals or textbooks that are not reader-friendly. Furthermore, *takix* ‘such’ may be interpreted as referring to the subject-matter of the textbooks the speaker has had enough of: for example, the speaker has had enough of reading textbooks in physics. Recall from our earlier discussion that this interpretation is possible only if *takix* ‘such’ is merged low enough to be interpretable as an argument of *učebnikov* ‘textbooks.’ However, *takix* ‘such’ in (37a) cannot receive a cataphoric reading, which is associated with a referential interpretation and signals the presence of a DP projection:

- (38) *Ja načitalas’ takix knig:
 I *na-read-sja* such.GEN books.GEN
 “Vojna i mir”, “Idiot” i t.d.
 War and Peace *Idiot* etc.
 intended: ‘I have read my fill of such books as the following:
 War and Peace, Idiot, etc.’

Analogously, the demonstrative *ètix* ‘these’ in (37b) relates to the kind of movies involved. The object is interpreted as ‘such movies’ or ‘movies of this type’. It cannot be used to refer to a particular set of movies that has been previously mentioned in the discourse. Finally, (37c) asserts that Lena has eaten a fair amount of a rare type of sweets. It cannot mean that it is difficult to find sweets that Lena has eaten in a sufficient quantity. In other words, the adjective *redkix* modifies the property-denoting noun, rather than quantifying over objects.

The sentences in (37) above show that even *poslednie*-type adjectives are forced to receive property-related meanings that have been shown above to arise in lower positions. This is to be expected if, as we argue, the referential and quantificational meanings of such adjectives only arise when they are merged above the DP projection, which is absent in Small Nominals such as the genitive complements of intensive reflexives. If a given adjective can only receive the “high”, referentiality-oriented interpretation, due to its lexical properties or to the context in which it appears, it is incompatible with Small Nominals:

- (39) *Ja naelas’ {ostal’nyx /sledujuščix /pervyx /dannyx}
 I *na-ate-sja* {remaining /following /first /given}
 kotlet.
 burgers
 intended: ‘I ate my fill of the {remaining/following/first/given}
 burgers.’ [Kagan, Pereltsvaig, 2011, p. 223]

To sum up, the fact that *poslednie*-type adjectives are attached at the DP-level is supported by their incompatibility with Small Nominals, in which this projection is absent.

Of course, these facts also leave open the possibility that the adjectives appear lower than the DP and are merged immediately above the NumP projection, which is absent from these nominals as well. However, there are two reasons to reject this alternative. Firstly, the referentiality-oriented interpretation of numerous *poslednie*-type adjectives makes them more naturally associated with DP than with NumP. Secondly and most importantly, the alternative analysis is ruled out by the fact that there is another type of adjectives (*dobryx*-type) that are merged between the DP and NumP projections (cf. position αP -2 in our tree in (1) above). These adjectives are discussed in the following section.

5. *Dobryx*-type adjectives

As we show in the preceding section, adjectives do not always modify the noun itself (contra [Rijkhof, 2002], who places adjectives in the innermost (Quality) layer). Quite the contrary, adjectives may modify not only the property denoted by the noun itself or its projection NP, but also provide additional referential information about the individual denoted by the DP as a whole. In this section, we consider yet another type of adjectives in Russian, which modify (or express speaker's evaluation) of the quantity denoted by the NumP. This type of adjective has been identified by Babby (1987); following Babby's work and Pereltsvaig (2011), we will refer to these adjectives as the *dobryx*-type adjectives. In addition to *dobryx* 'good', this relatively small class of adjectives includes *celyx* 'whole', *dolgix* 'long', *kakix-nibud* 'some/any', *nepolnyx* 'incomplete' and a few others.

In terms of their position, such adjectives appear before numerals (and other quantity expressions), as shown in (40) below.

- (40) a. **celyx** tridcat' svobodnyx dnei
 whole thirty free days
 'a whole thirty free days' [Babby, 1987, p. 121]
- b. ...otnositel'no nedavno otkryto **celyx** do figa peščer
 relatively recently discovered whole to fig caves
 'Relatively recently, a whole lot of caves has been discovered (there).'¹²

¹² <http://cml.happy.kiev.ua/cgi-bin/cml.cgi?num=12376>

Note that those adjectives among the *dobryx*-type that can occur both above and below numerals have different meaning, depending on the position:

- (41) a. *celyx desjat' celyx butylok*
 whole ten whole bottles
 'a whopping ten unbroken bottles'
- b. On *soveršil dobryx desjat' dobryx del.*
 he committed good ten good deeds
 'He committed a whopping ten kind deeds.'

It can be seen that when the adjectives appear in the higher position (according to our analysis, $\alpha P-2$; cf. (1) above), they relate to the quantity denoted by the quantifier. In particular, they express the speaker's evaluation of this quantity, generally either as impressively high or as relatively low. Importantly, the adjectives, when they appear to the left of the numeral, do not modify the noun and contribute no information about the property denoted by the NP. Thus, both *desjat' butylok* 'ten bottles' and *celyx desjat' butylok* 'a whopping ten bottles' contribute exactly the same property of being a bottle. In contrast, when the same adjective appears in a lower position, it does affect the property contributed by the nominal (but provides no evaluation of the quantity). Thus, the phrase *desjat' celyx butylok* 'ten unbroken bottles' involves the property of being an unbroken bottle. Once again, we see that the interpretation of the adjective and its domain of modification depends in a crucial way on the syntactic position it occupies. In this section, we concentrate on the higher position available to *dobryx*-type adjectives, which is located above the numeral and in which, a quantity-related evaluative meaning is triggered.

5.1. *Dobryx*-type adjectives: Syntactic analysis

Our proposal is that these adjectives are merged in $\alpha P-2$, that is above NumP but below the level of DP (and consequently, below the level of the *poslednie*-type adjectives, discussed in the preceding section). That the *dobryx*-type adjectives are merged below the *poslednie*-type is confirmed by their relative ordering:

- (42) *poslednie celyx sem' let otdany*
 last whole seven years given
polnometražnomy xudožestvennomu fil'mu
 [feature-length fiction film].DAT
 'The last whole seven years have been dedicated to a feature-length fiction film.'¹³

¹³ http://uisrussia.msu.ru/docs/nov/2009/133/nov_2009_133_07.htm

Note that *dobryx*-type adjectives do not affect the referentiality status of the DP (unlike the *poslednie*-type adjectives), nor do they modify the property contributed by the nominal (unlike the lower adjectives that appear to the left of the numeral; cf. Section 3). Instead, they apply to the quantificational meaning component. This is captured under our analysis by the fact that they occupy a special syntactic position, which differs from those of all the other adjectives. The *dobryx*-type adjectives appear below the DP level, and thus too low to affect referentiality. Rather, they are merged in the α P immediately above NumP, which results in their quantity-related interpretation.

A further support for our analysis comes from a negative demonstration: we show in the next subsection that an alternative analysis that places *dobryx*-type adjectives closer to the numeral that they modify is not validated by the data.

5.2. *Dobryx*-type adjectives: An alternative analysis (to be rejected)

According to Babby's (1987, p. 122) original analysis of *dobryx*-type adjectives, they must occur closer to the numeral that they modify. Unfortunately, his analysis cannot be easily restated in contemporary X'-theoretic terms, but one way to implement his general idea would be to place *dobryx*-type adjectives in the specifier of the functional projection in which the numeral itself appears (or in the specifier of the quantity-expressing PP, such as *do figa* 'lots' in (40b) above). In what follows we provide evidence against this alternative analysis and ultimately reject it in favor of the analysis outlined in (1) above.

But before we proceed, it is crucial to consider the question of where the numeral itself is. According to the dual analysis of Bailyn (2004) and Pereltsvaig (2006b), the position of the numeral depends on the case marking pattern: in Babby's (1987) heterogeneous case pattern, that is if the noun phrase as a whole appears in a structural case position (i.e., nominative or accusative case), the numeral is argued to appear in the specifier of NumP, whereas in Babby's homogeneous case pattern, that is if the noun phrase as a whole appears in an oblique case position (e.g., dative, genitive, instrumental or prepositional case), the numeral is argued to appear in the head of NumP. One piece of evidence for this dual analysis involves the distribution of phrasal quantity expressions such as the PP *do figa* 'lots': it can occur only in the heterogeneous case pattern illustrated in (43a) and not in the homogeneous case pattern, illustrated in (43b). Since this quantity expression is phrasal it cannot appear in those structures where the corresponding numeral would occur in the head position.

- (43) a. Bond vypil {pjat' / do figa} koktejlej.
 Bond drank-up five.ACC / to fig} cocktails.GEN
 'Bond drank up {5 / a lot of} cocktails.'
- b. Bond napilsja {pjat'ju /* do figa} koktejljami.
 Bond got-drunk five.INSTR /* to fig} cocktails.INSTR
 'Bond got drunk from {5 / a lot of} cocktails.'

As shown below, *dobryx*-type adjectives are possible in both case patterns:

- (44) a. Artisty polučili celyx desjat' nagrad.
 Actors received whole.GEN ten.ACC rewards.GEN
 'The actors received a whole ten rewards.'
- b. Artisty byli premirovany celymi desjatju
 Actors were prized whole.INSTR ten.INSTR
 nagradami.
 rewards.INSTR
 'The actors received a whole ten rewards.'¹⁴

On the alternative analysis, which we will ultimately reject below, the examples in (44) will be analyzed as follows: in the homogeneous case pattern in (44b), the numeral is in the Num^o and *celyx* 'whole' can be taken to be in the Spec-NumP. The structure for (44a) is a bit more complicated: here, the adjective is in the specifier of a phrasal category QP headed by the numeral and the QP is in the specifier of NumP; the Num^o itself is empty (as shown by Pereltsvaig 2006b, this empty Num^o serves as an intermediate landing site for Approximative Inversion, which is possible in the heterogeneous case pattern but not in the homogeneous case pattern). These alternatives are schematized below:

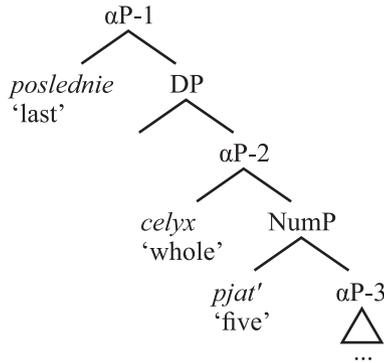
- (45) a. Homogeneous case pattern b. Heterogeneous case pattern
-

Although the structures in (45) seem to represent better Babby's original insight that *celyx* 'whole' modifies the numeral only, we argue that

¹⁴ <http://www.liveinternet.ru/community/a1tv/post55449883/page1.html>

the structure we proposed in (1) above – the relevant portion of this structure is repeated in (46) below – is the correct one.

(46)



The argument in favor of (46) over the alternatives in (45) comes from the data involving the so-called Approximative Inversion and the optional numeral classifiers (such as *štuk* 'items'; cf. Section 2 above). The Approximative Inversion is a process which creates an approximative meaning by inverting the highest nominal element around the numeral; this highest nominal element can be any element with nominal morphology: a numeral classifier, as in the examples below; a measure or container noun; or a lexical head of the noun phrase itself (see Pereltsvaig 2006b for a more detailed discussion of Approximative Inversion in Russian). The simplest case of Approximative Inversion inverts the noun around the numeral:

- (47) a. *sto* *karandašej*
 100 pencils.GEN
 'a hundred pencils'
- b. *karandašej* *sto*
 pencils.GEN 100
 'approximately a hundred pencils'

If an optional numeral classifier like *štuk* 'items' is present, the Approximative Inversion will invert the classifier rather than the noun around the numeral.

- (48) a. *sto* (*štuk*) *karandašej*
 100 items.GEN pencils.GEN
 'a hundred pencils'
- b. *štuk* *sto* *karandašej*
 items.GEN 100 pencils.GEN
 'approximately a hundred pencils'

The alternative analyses schematized in (45) provide no room for the classifier *štuk* ‘items’ to land: since on these analyses the *dobryx*-type adjective is merged in the specifier of the projection headed by the numeral, there is no room between the adjective and the numeral where another functional projection (i.e., EvidP) can be tucked in. According to the analysis we propose in (46), the EvidP must be merged between αP -2 and NumP.

6. Conclusion

To sum up, in this paper, we have investigated syntactic and semantic properties of prenominal adjectival modifiers, focusing on Russian facts. We have argued that prenominal adjectives may appear in six distinct structural positions, and that each position correlates with certain semantic (and in some cases pragmatic) properties. The internal functional structure of a DP that we have assumed for this purpose consists of projections that are, crucially, independently motivated and used to account for additional phenomena in different languages. We have demonstrated that the syntax-semantics interface plays an important part in the behavior of prenominal adjectives. The semantics of an adjective correlates with the structural position it occupies; further, numerous adjectives can appear in more than one position, in which case the syntactic position of an adjective determines the way in which it gets interpreted. In other words, the semantic contribution of an adjective is often determined not only by its lexical meaning but also on the basis of the syntactic position it occupies.

The present investigation has consequences for a number of additional phenomena, independently discussed in the linguistic literature. Firstly, the syntactic-semantic properties of *poslednije*-type adjectives provide evidence in favor of the existence of the DP projection in an article-less language like Russian, an issue that has received a considerable attention in the recent years (see [Zlatić, 1997; Progovac, 1998; Willim, 1998, 2000; Leko, 1999; Rappaport, 2001; Franks, Pereltsvaig, 2004; Trenkic, 2004; Bošković, 2005, 2008, 2009, 2010; Pereltsvaig, 2006a, 2007, 2008; Lutikova, 2010; Bošković, Gajewski, 2011], *inter alia*). A second and partially related fact is that possessive expressions in Russian do contribute an exhaustivity presupposition, contrary to what has been believed previously, although the presupposition only arises in a certain syntactic configuration. These facts suggest that Russian is much more similar to a language with articles like English than it may superficially seem to be. Thirdly, we argued, contrary to Aikhenvald (2000), that Russian has numeral classifiers, which occupy the same position as numeral classifiers in other languages do. While the use of classifiers in Russian is relatively restricted and the classifier system of this language is not very rich,

the facts discussed in Section 2 point to certain similarities between Russian and the more classical classifier languages. This way, the investigation of adjectival syntax and semantics reveals a number of cross-linguistic patterns that plausibly point to universal principles governing languages with superficially different properties.

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