MOTIVATING THE DP PROJECTION IN LANGUAGES WITHOUT ARTICLES

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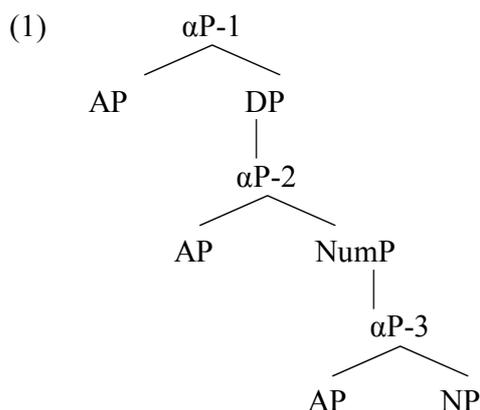ASYA PERELTSVAIG[2]
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1 Introduction

Languages without articles, such as Russian or Polish, pose a challenging question for the syntactic theory. In such languages, a bare nominal phrase may receive both a definite and an indefinite interpretation. A question emerges regarding the syntactic structure of the nominals. Do languages like Russian have a DP projection? Or are all nominals in these languages bare NPs? Yet another alternative is in the middle: maybe the nominals contain functional projections that are higher than NP but lower than DP. This question has received a considerable attention in the linguistic literature. For instance, Bošković (2005, 2008, 2009, 2010) argues against postulating a DP for Russian, whereas Rappaport (1992, 1998, 2001), Progovac (1998), Engelhardt & Trugman (1998), Pereltsvaig (2001, 2006, 2007, in press), Rutkowski (2002, 2007, in press), among others, argue for the presence of a DP projection.

In this paper, we contribute to the investigation of the structure of Russian nominals phrases by considering the behavior of adjectives. The goal of the paper is twofold: to examine the properties of APs at the syntax-semantics interface and, by looking at adjectival behavior, to provide evidence in favor of a DP projection. We will propose that adjectives can appear in (at least) three distinct positions: in the NP area, NumP (or QP) area and DP area, as tentatively sketched out in the tree in (1).

(1)

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              αP-1
             /    \
           AP      DP
                   |
                 αP-2
                /    \
              AP      NumP
                       |
                      αP-3
                     /    \
                   AP      NP
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Our evidence is based on three components: linear position of the adjectives, their case-marking and their semantic interpretation. We show that certain adjectives may receive considerably different meanings depending on the structural position they occupy. In general, we will see that adjectives that appear in αP-3 modify the property denoted by the NP, the adjectives in αP-2 contribute information regarding the amount denoted by the quantifier, and the highest adjectives in αP-1 provide information about the referent of the DP.

It is important to point out that the precise position occupied by an adjective within a given projection is subject to debate. For instance, a NP-level adjective can be analyzed as a head that combines with an NP creating as a result an AP (as in Abney 1987) or as an AP that functions as an adjunct in an NP (combines with a NP and renders another NP as a result, as in Svenonius 1993). We will not resolve this debate in the present paper. For our current purposes, the contrast in question is not essential, and we will remain agnostic in this respect. For the purposes of this paper, it is essential that adjectives can appear in three distinct levels and that we link these levels to the NP, NumP and DP areas. This is why we keep the unspecified alpha-phrases in the tree in (1). In addition, we believe that NP-related, property-modifying adjectives may appear in more than one (relatively low) position, but in this paper, we will ignore those further distinctions.

2 High Adjectives

The major part of this paper is devoted to 'high' adjectives that appear at the αP-1 level and to the comparison between these adjectives and their lowest, αP-3 counterparts.

2.1 Distinguishing between High and Low Adjectives

We may say that the prototypical position of As is the low one, illustrated in (2):

(2)   a.   pjat'   umnyx   mal'čikov
                 five   clever.GEN   boys.GEN
                 'five clever boys'

         b.   desjat' bol'šix   gorodov
                 ten   big.GEN   cities.GEN
                 'ten big cities'

Low adjectives are characterized by the following properties. First, they follow the numeral. Second, like the rest of the NP, they appear in the genitive case. The genitive on the NP in such phrases is related to the presence of the numeral (cf. Bailyn 2004); for the current purposes we will assume that the Num° assigns genitive case to the NP. The fact that low adjectives are genitive demonstrates that they appear NumP-internally, within the scope of genitive case-assignment. Finally, semantically, these adjectives modify the property denoted by the NP. For instance, in (2a), the NP denotes the property of being a boy; the adjective denotes the property of being clever, and the attachment of the adjective results in the phrase *umnyx mal'čikov* 'clever boys' denoting the property of being a clever boy. Analogously, in (2b), by virtue of adding a low adjective, we get the property of being a big city instead of the property of being (any kind of) city.

High adjectives differ from the low ones in all these three respects. Adjectives that can appear in the high position include such items as *poslednij* 'last', *pervyj* 'first', *sledujuščij* 'next', *takoj* 'such', *opredelennyj* 'certain', etc. We also include in this group indefinite pronouns (e.g. *kakie-to* 'some') and determiners (e.g. *èti* 'these') that appear in a DP and exhibit adjective-like behavior in that they agree with the head noun in number and gender.

(3)   a.   poslednie pjat' knig
                 last five books.GEN
                 'the last five books'
         b.   kakie-to desjat' podrostkov
                 some ten teenagers.GEN
                 'some (unknown) ten teenagers'

High adjectives are characterized by the following properties. First, they they appear phrase-initially, above (and to the left to) quantifiers such as numerals. Second, as can be seen in (3), these adjectives do not appear in genitive case, unlike the nouns. The high adjectives are not genitive but rather nominative (if the whole phrase appears in a nominative case position). This demonstrates that this is not merely a "free word order" effect. The adjectives have not moved from a NumP-internal position, since in that case they would be expected to retain genitive marking. Rather, they were generated above NumP, outside of the scope of genitive case-assignment. Finally, semantically, high adjectives 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. In (3a), 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 (3b) 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.

The contrast between (2) and (3) demonstrates the distinction between high and low adjectives. But we could hypothesize that the contrast is mainly lexical in nature. Some adjectives modify properties, others apply to individuals. Crucially, however, many adjectives can appear in either of the two positions. Such instances make it clear that it is the position that determines whether the adjective applies to a property or to a referent; this difference, in turn, results in curious contrasts in the way the adjective is interpreted. In what follows, we consider a range of such contrasts. First, we show that there is a syntactic projection that is linked to referential interpretation. Second, we argue that the same projection is also associated with exhaustivity.

2.2 Referentiality

Appropriately, our first set of examples contains the adjective *pervyj* 'first'.

(4)   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. We deal with the property of being a teacher; the phrase picks up five such individuals; in order to determine the particular referent we need to find the **first** five individuals. For instance, in order to figure out who came through, 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 (4b). This sentence, unlike (4a), 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. Here, we deal with the property **first teachers**, not just **teachers**. 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 (4b) 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 need not be first to make it through to the finals, first in a row, etc. For instance, they could be the last participants on the list.

As a result, under this low reading, *pervyx* 'first' is perfectly compatible with the high reading of *poslednie* 'last':

(5)   poslednie   pjat' pervyx   učitelej
        last.NOM   five first.GEN   teachers.GEN
        'the last five first teachers'

There is no contradiction in (5). We deal with individuals who instantiate the property of being someone's first teacher. The phrase refers to the last five individuals of this kind (e.g. the last on the list). In contrast, (6) is contradictory since here, both adjectives are high and thus both apply to the referent and not to the property:

(6)   # poslednie   pervye   pjat'   učitelej
          last.NOM   first.NOM   five   teachers.GEN

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.

(7)   a.   sledujuščie   pjat'   knig
               next.NOM   five   books.GEN
               'the following five books'
        b.   pjat'   sledujuščix   knig
               five   next.GEN   books.GEN
               'five books that follow (e.g. in a sequel)'

Let us begin with (7b). Here, the adjective modifies the property; so we deal with the entities that instantiate the property of being a book that comes later in some ordering than a certain contextually specified book (e.g., was written later, comes later in a sequel). (7a) may mean 'the next five books', where the adjective specifies how the referent of the phrase is to be determined. But especially interestingly, it can have yet another reading, definitely not available to (7b). This second reading is cataphoric, where the adjective is interpreted as 'the following', and the list of books is to be provided after the phrase. Naturally, under this reading, the phrase is obligatorily referential:

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

A similar contrast is also found with the adjective *takoj* 'such'. Demonstratives provide another interesting case to consider:

(9)   a.   èti   pjat'   mašin
               these.NOM   five   cars
               'these five cars'
        b.   pjat'   ètix   mašin
               five   these.GEN   cars
               'five cars of this kind'

The prototypical position of a demonstrative is illustrated in (9a). Here, the demonstrative shares the properties of high adjectives. It points to the referent of the phrase that is familiar from the context. It does not affect the property denoted by the NP: this is the property of being a car.

In contrast, in (9b), the demonstrative appears in the low position and applies to the property: it points to a particular **type** of cars, not to particular individuals. The resulting 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 a set of the particular cars involved. In fact, the phrase as a whole need not be interpreted as definite or even specific. This is illustrated in (10):

(10)   Vsego   za   vojnu VVS   SŠA poterjali pjat' ètix   mašin…
        all.in.all during war   Air.Force USA lost   five these.GEN   vehicles.GEN
        'All in all, during the war, US Air Force lost five vehicles of this kind.'

Similar contrasts are found with indefinite determiners characterized by adjectival properties, such as *kakoj-to* 'some' and *opredeljonnyj* 'certain'. Our final example involves the adjective *redkij* 'rare' and its interpretational properties.

(11)   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 example in (11a) exhibits the typical position of *redkij* 'rare'. This is the low position, and non-surprisingly, the adjective applies to the property denoted by the noun. The statement is about rare kinds of animals. The sentence asserts that five animals that belong to rare species will cross the river by swimming. (11b) 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, if they exist at all, need not be of rare kinds.[1] Thus, while in (11a) the

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[1] Compare to the quote from Nikolai Gogol''s *Večera na xutore bliz Dikan'ki*, praising the width of Dneiper:

(i)   Redkaja ptica   doletit   do serediny Dnepra.
        rare   bird   will-fly.PERF   to middle Dnieper.GEN

        Pyšnyj!   Emu   net   ravnoj reki   v   mire.
        Magnificent to-it   there-is-no   equal   river in   world

adjective modifies the kind, in (11b), it relates to instances of the kind (more precisely, it quantifies over five-member sets of such instances, specifying that there are few such sets). (The interpretation is quantificational, rather than referential in this case, but crucially, it is not the property type.)

What we saw meanwhile is that the interpretation of an adjective is not only a product of its lexical meaning. The syntactic position determines whether the adjective modifies the property denoted by the NP or rather applies to the referent of the nominal. This reveals that in Russian, there is a structural position within nominal expressions that appears above NumP and is responsible for referential interpretation. This position makes sure that the nominal is not interpreted as a property (type $<e,t>$), but rather as an individual ($<e>$) or a quantifier ($<<e,t>,t>$). Of course, this is exactly what characterizes the DP projection.

We now turn to the relation between syntax and exhaustivity.

2.3 Exhaustivity

It turns out that exhaustivity inferences in Russian depend on the syntactic configuration similarly to referentiality. Just like the adjectives discussed above, possessive adjectives (e.g., *Diminy* 'Dima's') and possessive pronouns (e.g., *moi* 'my') too can appear either above or below a numeral. To illustrate, consider (12):

(12)   a.   pjat'   Diminyx   knig
               five   Dima's.GEN   books
          b.   Diminy   pjat'   knig
               Dima's.NOM   five   books
               both: 'Dima's five books'

The prototypical word order is found in (12a). Here, the possessive adjective appears in the low position, and the phrase is not interpreted exhaustively: Dima may have more than five books. Apparently because the configuration in (12a) is the unmarked one, it has been concluded in the literature that possessives in Russian are not exhaustive (this is e.g. noted in passing in Partee 2006). In fact, however, the alternative configuration in (12b) is possible, where the possessive adjective appears phrase-initially. This phrase is exhaustive: unlike (12a), it presupposes that Dima has exactly five books. Thus, exhaustivity results when a possessive adjective appears in the high position. Apparently, there is a projection that is responsible for exhaustivity. Cross-linguistically, the exhaustive interpretation is known to be associated with definiteness and with the DP projection (for the latter, see Zamparelli 2000). Thus, the facts under discussion constitute further evidence that the high position in which adjectives can appear in Russian is located in the DP field.

To sum up thus far, we found evidence for the existence of a syntactic projection XP within the nominal phrase in Russian that has the following properties: (i) XP appears high in the structure, above NP and above NumP; (ii) XP is responsible for referentiality; (iii) XP is responsible for exhaustivity; (iv) XP hosts demonstratives (e.g. *eti* 'these'), indefinite determiners

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

(e.g. *kakije-to* 'some') and possessor phrases (e.g. moi 'my'). All these properties are known to characterize the DP projection. It is therefore reasonable to conclude that XP is DP.

2.4 Small Nominals

Before we proceed to yet another type of adjectives, it is worth noting that high adjectives are unavailable in so-called *small nominals* (Pereltsvaig 2006b), nominals that lack higher levels of the functional architecture, including the DP. This further proves that the adjectives in question appear high in the structure.

   For instance, in our earlier work, we argue that genitive complements of a certain group of Russian verbs (intensive reflexives, e.g. *najest'sja* 'eat one's fill', *napit'sja* 'drink one's fill') are bare NPs, lacking the DP and even NumP projections (cf. Kagan and Pereltsvaig 2011). For instance, this view is supported by the fact that the nominals in question cannot contain numerals and other quantifying expressions:

(13)   * Ja   najelas'   pjati   / djužiny   kotlet.
            I   *na*-ate-*sja*   five.GEN   dozen.GEN   burgers.GEN
            intended: 'I ate my fill of five / a dozen burgers.'
            (Kagan and Pereltsvaig 2011: 223)

   The prototypically high items like *poslednie* 'last', *pervye* 'first' and *èti* 'these' are either unacceptable in such nominals (14) or possible only with the property-type interpretation, which is systematically associated with their lower appearance (15).

(14)   * Ja naelas'   {ostal'nyx /sledujuščix /pervyx /dannyx}   kotlet.
             I *na*-ate-*sja*   {remaining /following /first   /given}   burgers
            intended: 'I ate my fill of the {remaining/following/first/given} burgers.'
            (Kagan and Pereltsvaig 2011: 223)

(15)   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.'

   The following conclusions can be drawn: (i) The behavior of adjectives can constitute evidence in favor of a particular structure of a nominal phrase (in this case, its syntactically restricted nature). (ii) The existence of small nominals and the fact that they differ from other types of nominals shows that it is wrong to treat all Russian nominals as bare NPs. Expressions like genitive objects of intensive reflexives show that some Russian nominals are smaller than others and, thus, while some are bare NPs, others do contain higher functional projections.

3 Intermediate Adjectives

We claim above that high adjectives do not appear within the NumP and are not immediately adjacent to NumP but are rather associated with a higher projection. We will now argue for the existence of the third, intermediate, position for adjectives, located precisely in the NumP area. Adjectives that appear in this position differ from both high and low adjectives, in terms of both their syntactic properties and semantic contribution.

Adjectives that can appear in the NumP area include *dobryx* 'good', *celyx* 'whole', *dolgix* 'long', *kakix-nibud'* 'some/any', *nepolnyx* 'incomplete'. The resulting configuration is illustrated in (16):

(16)   a.   **celyx**   tridcat' svobodnyx   dnej
                 whole.GEN   thirty   free   days
                 'a whole thirty free days' (Babby 1987: 121)
     b.   **dobryx**   desjat' kilometrov
                 good.GEN   ten   kilometers

Intermediate adjectives are characterized by the following properties: (i) They appear to the left of the numeral but to the right of high adjectives, as demonstrated in (17) below. In this example, the adjective *celyx* 'whole' follows the high adjective *poslednie* 'last' and precedes the numeral *sem'* 'seven'. (ii) They appear in the genitive case, which demonstrates their closeness to the numeral: they do fall within the scope of genitive case-assignment. (iii) Semantically, they modify the quantity denoted by the numeral.

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

Here again, we see that the interpretation of the adjective depends on the structural position it occupies. Those adjectives that modify the quantity while they appear in the intermediate position, come to modify the property when they are merged in the low position:

(18)   a.   celyx   desjat' butylok
                 whole.GEN   ten   bottles
                 'a whopping ten bottles'
     b.   desjat' celyx   butylok
                 ten   whole.GEN   bottles
                 'ten unbroken bottles'
(19)   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.'

(20)   a.   kakie-nibud'   desjat' romanov
              some.NOM   ten   novels
              'some / any set of ten novels'
        b.   kakix-nibud'   desjat romanov
              some.GEN   ten   novels
              'approximately ten novels or 'ten novels, where ten is a low quantity'
        c.   desjat' kakix-nibud'   romanov
              ten   some.NOM   novels
              'ten novels of some kid'

To illustrate, the adjective *celyx* 'whole' applies to the quantity of bottles in (19a) but to the property in (19b). In the latter example it specifies that the bottles in question are unbroken. The example in (20) demonstrates a three-way contrast. The item *kakie-nibud'* 'some' can appear in the high position, proving the referent of the nominal with a non-specific status (20a); it can occupy the intermediate position, specifying that the quantity contributed by the numeral is low or imprecise (20b); finally, it can appear in the low position, marking the kind (rather than the referent) as non-specific (20c).

4 Conclusion

In this paper, we have demonstrated the existence of at least three distinct levels on which adjectives can appear in Russian. The same adjective may appear in different positions, in which case its interpretation largely depends on syntax. The properties of the adjectives appearing in each of the three positions are summarized in Table 1:

Table 1

	low	intermediate	high
Linear position	follows the numeral	precedes the numeral	precedes the numeral
Case	genitive	genitive	nominative
Semantics	modifies the property	modifies the quantity	modifies the referent
Functional projection	NP	NumP	DP

We have used evidence from adjectival behavior in order to argue for the existence of at least three distinct projections within nominal phrases in Russian, which we suggested to be NP, NumP and DP. NPs denote properties, and adjectives that appear in the NP area modify these properties. Quantifiers that appear in the Num position specify quantities, and adjectives in the NumP area modify these quantities. Finally, the DP projection is responsible for the creation of individual-type, referential interpretations. Adjectives that appear in the DP area modify or help identify the referent.

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