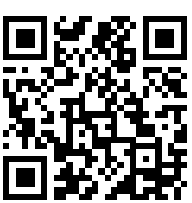

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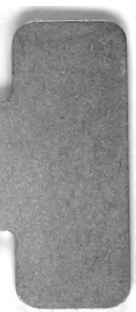

Functional Categories in Slavic Syntax

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Jindřich Toman

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Contents

The Syntax and Semantics of Russian Long and Short Adjectives: An X'-Theoretic Account*

John F. Bailyn
Cornell University

1 Introduction

Modern linguistic theory is becoming increasingly concerned with the interface between syntactic structures and semantic interpretation. Theories such as Categorial Grammar, Montague Grammar and the Uniformity of Theta Assignment Hypothesis (UTAH; Baker 1988) all contain various forms of compositionality in building semantic representations that allow a direct mapping between syntactic categories and semantic types. Of central interest is the idea that human language can be seen as an independent cognitive system whose semantic well-formedness is as subject to strict linguistic principles and notions of grammaticality as is its syntactic well-formedness.

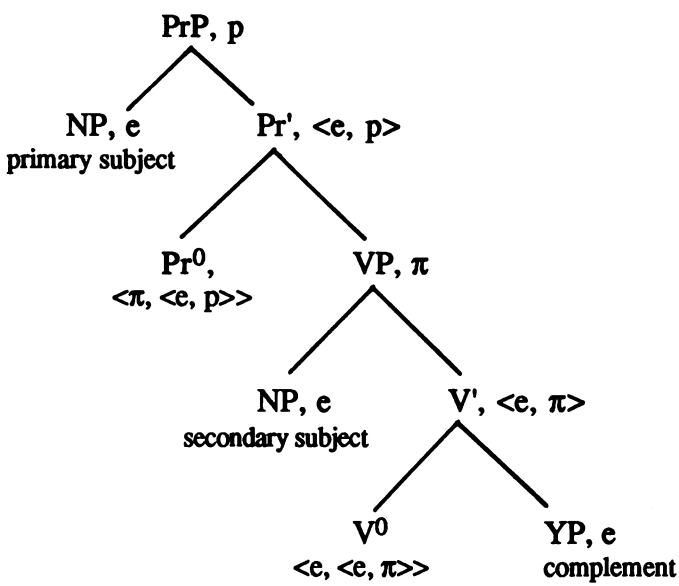
In this paper I will explore one potential problem with the Direct Mapping Hypothesis between syntax and semantics, and that is the issue of modification. I adopt Rubin's (1991, 1993) X'-theoretical account of modification that strengthens the attainability of the Direct Mapping Hypothesis, and brings new light to a long-standing problem in Russian morpho-syntax, namely the long/short adjective paradigm.

Bowers (1993), following Chierchia (1984), proposes a theory consistent with the Direct Mapping Hypothesis which contains a compositional semantics based on association with hierarchically

generated syntactic categories in accordance with X-bar Theory. This association links an expanded set of Montague semantic types not only with lexical categories, but also with functional categories, claiming that functional categories are unique semantic type-shifters necessitated by the compositional nature of the interpretive component of the grammar.[1] Each lexical and functional node in X-bar theoretic terms has a direct combinatorial translation composed of the set of basic semantic entities: (<u> = individual; <π> = property, <p> = proposition; <e> = entity).

Every sentence contains an occurrence of Predication Phrase which selects as its lexical complement the sentence's primary predicate (small clauses in this framework are also instances of PredP).[2] Thus propositions and their semantic types will look as follows:

(1) Structure of a Proposition, taken from Bowers (1993: 652):[3]



Thus the VP is a property predicated of the subject, compositionally forming a proposition as the complement of the functional category PredP. Predicate adjectives and predicate NPs will also be selected as the complement of this category. Thus *crazy* is the primary predicate adjective in (2a) and a secondary predicate in (2b), and behaves as a property, semantically, in both cases.

(2) a. John is crazy.
b. I consider John crazy.

However, we also know that in addition to acting as primary predicates, adjectives can also function as modifiers as in (3).

(3) There goes [a crazy linguist]$_{NP}$

Thus a problem arises in any compositonal theory like that of Bowers with respect to modification. Modification must, of course, be conceived as an operation that does not shift the type of the element modified. A modifier (say attributive adjective) must be a function from category X back into that same category. Thus adjectives, like all modifiers, represent a systematic paradox for the Direct Mapping Hypothesis. On the one hand they are properties selected as predicates, and on the other they are modifiers that are functions from a type back into that same type. This presents the problem that adjectives in the two uses will have to be represented as members of two different categories. By not differentiating attributive adjectives from predicative adjectives, categorial grammars will fail in their primary task: to consistently associate syntactic elements with semantic equivalents.

In a Montague-type analysis, adjectives have two discrete combinatorial representations. Indeed, in the conclusion to her article on the Montague Semantics of Russian adjectives, Siegel concludes:

> Under the assumptions about the interrelationship of syntax and semantics common to Montague grammar and transformational grammar we have no choice but to

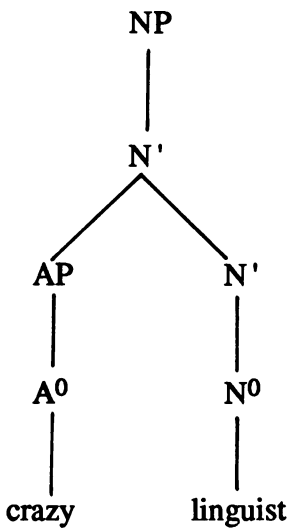
> treat Russian adjectives as belonging to two separate syntactic-semantic categories. (Siegel 1976: 308)

This is undesirable in light of the traditional and X-bar theoretical conception that attributive APs and predicative APs share some categorial status.[4] To maintain the Direct Mapping Hypothesis and achieve consistent representation of the type of modifiers, a semantic type shifter is necessary.

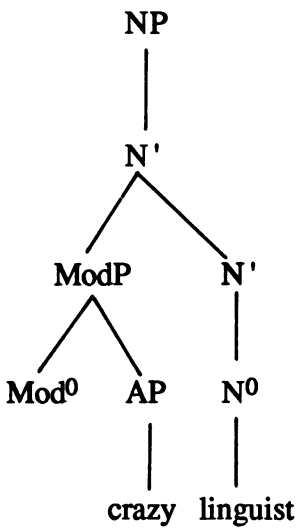
A solution to this dilemma, however, is developed in the work of Rubin (1991, 1993, in progress). In particular, Rubin proposes that there is a functional category Modification Phrase corresponding to a semantic operation that takes the type of the modifier (a property, for example) and gives out a function from category A (e.g., N' or NP) back into that same category A. Thus (4a) represents the schematic X'-representation of an adjectival modifier under standard views, whereas (4b) shows the same structure under the Rubin analysis:

(4) X'-Structure of Modification:[5]

a. Standard Analysis



b. Rubin's Analysis



(5) gives the general template of the category Mod^0.

(5) Semantic Type of Modification^0 (Rubin 1991):
<X, <Y, Y>>, where X, Y range over semantic types, and X stands for the type of the complement of Modification, and Y stands for the type of the category being modified.

In short, (5) says that Modification^0 will take the category of a modifier selected as its complement (say an attributive AP), and shift its type to that of a type-shifter from what is being modified (in this case N') into its same type, allowing a modified noun to be of the same semantic type as an unmodified noun.[6] (5) allows a unified treatment of modification, as well as maintaining a direct mapping between categories and types. General examples of ModP are given in (6):

(6) Mod^0 Types:

A ModP with an AP complement, shifting a property <π> into a **CN/CN** type shifter, is an "attributive adjective."

A ModP with a clausal complement, shifting a proposition **<p>** into a **CN/CN** type shifter, is a "relative clause."

A ModP with an AP complement, shifting a property <π> into a **VP/VP** type shifter is a "VP adverb."

A ModP with an AP complement, shifting a property <π> into an **IP/IP** type shifter is an "IP adverb."

Under this analysis, all base-generated adjuncts will be instantiations of the category ModP.

As with any functional category, we expect to find somewhere in natural language a syntactic realization of the category Modification. Support for the existence of such a functional category would be given by any language that regularly demonstrates its morphological manifestation. Rubin (1993, forthcoming) gives evidence for manifestations of Modification^0 from Romanian and Chinese and elsewhere. The next section will briefly review the Chinese and Romanian evidence for Mod^0.

In Chinese there is a distinct morpheme *de* that occurs only with modifiers inside NP. Canonical examples are given in (7):

(7) a. na yiben zai zhuozi-shang **de** shu
that one [at table-top] **de** book
"that book on the table"

b. youqu **de** shu
interesting **de** book(s)
"interesting books"

c. *youqu shu
interesting book(s)
"interesting books"

(7a) and (7b) show that when a prepositional phrase and an adjective are used attributively, the morpheme *de* must be included. (7c) gives an ungrammatical example of an attributive adjective without *de*.

Furthermore, this morpheme is absent in predicate constructions such as those in (8):

(8) a. Na yiben shu zai zhuozi-shang
that one book at table-top
"That book is on the table."

b. Na sanben shu youqu
this three book(s) interesting
"These three books are interesting."

Thus we can see that the occurrence of Chinese *de* is directly related to the presence or absence of modification.

In Romanian, there is a distinct morpheme *de* (no relation!) which appears with prepositional phrases acting as modifiers but not with those that appear in predicate position.[7, 8] This distribution is given in (9):

(9) a. Cutia **de** la bibliotecă / *Cutia Ø la bibliotecă
box-the **de** in library / box-the Ø in library
conține niște cărți.
contains some books
"The box in the library contains some books."

b. Cutia este la bibliotecă.
box-the is in library
"The box is in the library."

c. Nu-mi place covorul **de** sub masă
not-to-me pleases rug-the **de** under table
/ *covorul Ø sub masă.
rug-the Ø under table
"I don't like the rug under the table."

d. Covorul acela este sub masă.
rug-the that is under table
"That rug is under the table."

These examples have shown direct morphological manifestations of the functional category ModP that occurs whenever there is modification.

The remainder of this paper will investigate one further morphological manifestation of this functional category through an examination of the morphological and diachronic phenomena associated with Russian "Long" and "Short" form adjectives.

2 Analysis of Russian Adjectives

The Russian Short-Form/Long-Form adjective paradigm has been analyzed in both transformational and Montague frameworks (see Babby 1973, 1975, and Siegel 1976). Those accounts represent possible syntactic and semantic analyses respectively, but neither is able to unite the syntactic representation with the semantic interpretation. In this paper, I will show how the independently motivated functional category Modification Phrase can unite the essential

aspects of the syntactic and semantic behavior of the two kinds of adjectives in Russian.

2.1 Modern Russian Long-Form and Short-Form Adjectives

Modern Russian distinguishes two kinds of adjectives, at least when marked nominative.[9] The Long-Form adjectives have additional morphology not present in the Short Form. Long-Form adjectives in Modern Russian appear in attributive position, as shown by the NPs in (10), whereas Short Forms in this position are impossible:

(10) a. [umn**aja** devuška] ...
NP[smart (Long Form) girl]$_{NOM}$

b. *[umna devuška] ...
NP[smart (Short Form) girl]$_{NOM}$

Past participles are morphologically identical to Short-Form adjectives, and are also limited to predicative position. Those participles with Long-Form counterparts may be used attributively as derived adjectives.

In null-copular constructions, both Short-Form (11a) and Long-Form (11b) adjectives occur, as can predicate NPs (11c):[10]

(11) a. Devuška — umn**a**.
[The] girl$_{NOM}$ [is] smart (Short Form)

b. Devuška — umn**aja**.
[The] girl$_{NOM}$ [is] smart (Long Form)

c. Saša — gitarist.
Sasha$_{NOM}$ [is] guitarist (NP)
"Sasha is a guitarist."

(We will discuss the difference in meaning between (11a) and (11b) in section 2). This distribution is summarized in (12):

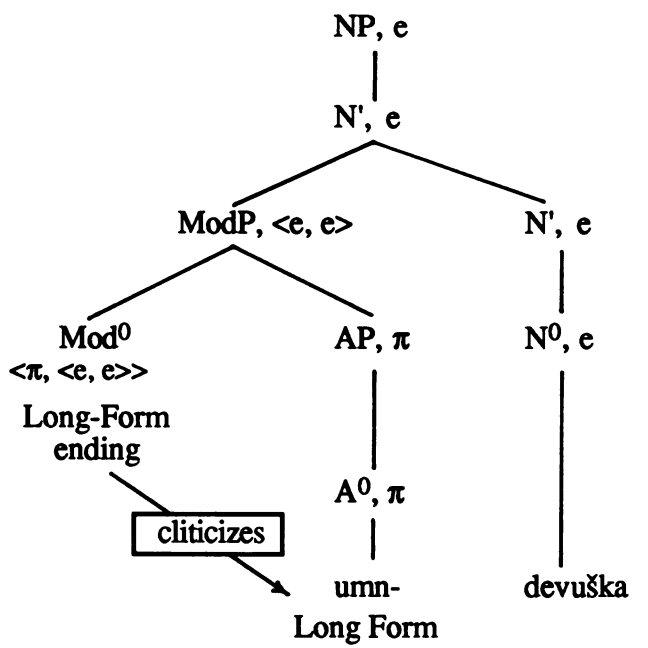
(12) Distribution of Modern Russian Adjectives:

	Long Form	Short Form
copular:	yes	yes
attributive:	yes	**no**

2.2 The Proposal

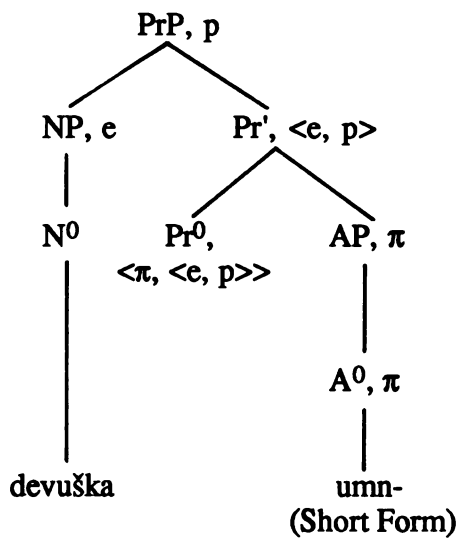
I propose that the Long-Form morphology found with attributive adjectives heads the functional category Modification Phrase. Without being embedded in Modification Phrase, no adjoined modifier will be of the proper semantic type to take, for example, a property and produce another property. The functional head Modification^0 shifts the type of the AP to that of a modifier. The structure and compositional semantics of a prenominal adjectival modifier such as (10a) is given in (13):[11,12]

(13) Structure of (10a) *umnaja devuška* "the/a smart girl" (Long Form):



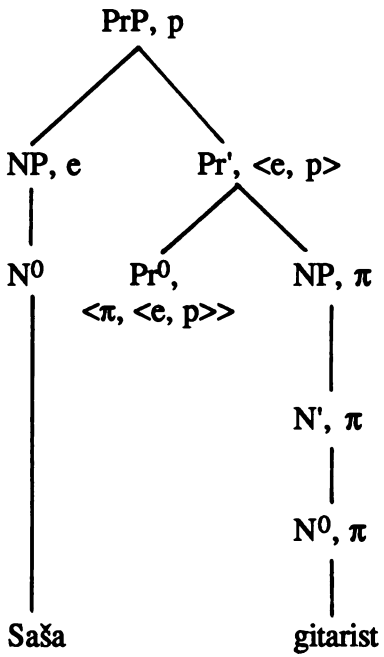
Clearly, the distributional fact that Short Forms can never appear in attributive position, as shown in (10b) above, falls out from the fact that attributive adjectives are modifiers and therefore must always be adjoined as in (13). Where can we find bare APs that are not modifiers? They should occur only in predicative position. This correlates exactly with the distribution of Short-Form adjectives. Following the analysis of Russian primary predication in Bailyn and Rubin (1991), the structure of (11a) is given as in (14) below:

(14) Structure of (11a) *Devuška — umna* "The girl is smart" (short-form):



(15) gives, for comparison, the structure of (11c), a copular construction with an NP predicate. In this case, Pr^0 has selected an NP complement rather than an AP complement. Otherwise the structures of (14) and (15) are identical.

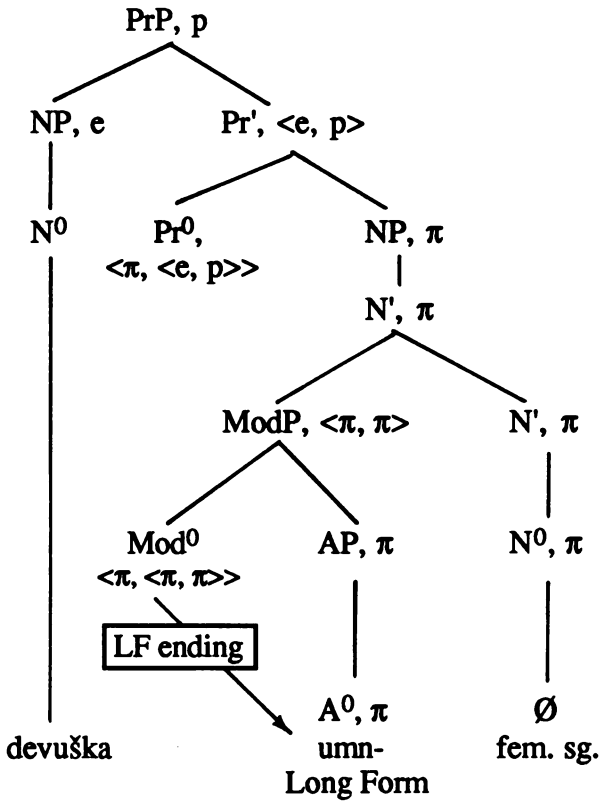
(15) Structure of (11c) *Saša — gitarist* "Sasha is a guitarist" (NP Predicate)



The only remaining question concerns the copular use of Long-Form adjectives as in (11b). In this example there is no modification, and therefore there should be no Modification Phrase. Long-Form morphology is predicted to be absent, and (11b) stands as an immediate counterexample to the theory.

Any native speaker of Russian agrees, however, that there is a difference in meaning between the Long Form and the Short Form in copular constructions. In particular, Babby (1973) shows that Long-Form adjectives in copular constructions are embedded in NPs with null heads. This is of course consistent with the proposal that Long-Form morphology is the manifestation of the functional head Modification, which only occurs attributively, and thus the structure of (11b) would be as in (16):

(16) Structure of (11b) *Devuška — umnaja* "The girl is a smart one" (Long Form)



Two arguments in favor of this view of the copular construction with Long-Form adjectives will be reviewed to support this claim.

Strong morphological evidence for this view comes from some agreement facts in copular constructions with the personal pronoun *vy* as subject. This pronoun is used as the second person plural pronoun as well as the second person formal singular. Both of these

uses trigger plural agreement on verbs as shown in (17a). (17b) shows that singular agreement is impossible with *vy* subjects:

(17) a. **Vy** igrali v futbol?
you played-PL at soccer
"Did you [formal singular] play soccer?"
"Did you [plural] play soccer?"

b. ***Vy** igral v futbol?
you played-SG at soccer
"Did you play soccer?" [singular or plural]

Similarly, any Short-Form adjective in a copular construction must be morphologically plural as in (18):

(18) a. **Vy** — **molody.**
you young (Short Form) (PL)
"You [formal singular] are young."
"You [plural] are young."

b. ***Vy** — molod-Ø/-a .
you young (Short Form) (masc./fem. sg.)
"You are young." [singular or plural]

However, Long-Form adjectives in copular constructions demonstrate a morphological distinction between the singular (formal) and the plural use of *vy*. In particular, when the subject *vy* pronoun is used in its plural meaning, the Long-Form adjective also appears in the plural. This is shown in (19):

(19) **Vy** — **molodye.**
you young (Long Form) (PL)
"You [all] are young."

However, when a Long-Form adjective is used with singular but formal *vy*, we do not find plural agreement. Thus (20a-c) show that only singular agreement appears on Long-Form adjectives used predicatively with singular *vy* subjects:

(20) a. **Vy — molodoj.**
you young (Long Form) (masc. sg.)
"You [one person masc.] are young."

b. **Vy — molodaja.**
you young (Long Form) (fem sg)
"You [one person fem.] are young."

c. ***Vy — molodye.**
you young (Long Form) (PL)
"You [one person] are young."

(20c) can only mean "you are all young." Because plural forms do not otherwise show gender in Russian, and because (17-18) show that semantically singular *vy* is always marked morpho-syntactically as plural, we can conclude that the ungrammaticality of (20c) (in the singular meaning of *vy*) shows that the agreement in examples like (20a-b) must be triggered by another noun, and not the *vy* subject. Babby argues for the presence of a null generic head meaning 'man', 'woman', 'person', 'entity' or other appropriate meaning as required in NPs where Long-Form adjectives appear alone as substantives.[13] These independent considerations led Babby to propose that apparently predicative uses of Long-Form adjectives are in fact attributive uses inside NPs with null heads, saying "Therefore, while cooccurring in the surface structure, the LF and SF in the predicate are nevertheless in complementary distribution with respect to NP constituency."[14]

Siegel (1976) comes to nearly the identical conclusion in her semantic analysis. She represents the equivalent of (11b) as given in (20):

(20) Studentka — umnaja = Studentka umnaja Δ (Siegel 1976)
[student smart-LONG]

(Δ is a free variable that ranges over CNs.)

"Pragmatic considerations will determine the interpretation of Δ. When appropriate it will be cointensional with the subject..." The

equivalent semantic result is found with English *one*-pronominalization. Consider the sentences in (22):

(22) a. That elephant is big.
= True.
b. That elephant is a big one.
= Depends on the elephant compared to its class.
c. That elephant is small.
= Strange unless the pragmatics intervene.
d. That elephant is a small one.
= Depends on the elephant compared to its class.

As indicated, the (a) and (c) sentences make a claim about the relationship between an elephant and some general notions of "big" and "small". The (b) and (d) sentences, on the other hand, examples of *one*-pronominalization, make a claim about the relationship between an elephant and the class or set of elephants. This distinction exactly mirrors that found in Russian Long-Form/Short-Form bare adjectival copular constructions, such as those in (22) (Siegel (1976):

(23) a. Ëlka — vysok**a**.
fir tall (Short Form) (fem. sg.)
"The fir is tall."

b. Ëlka — vysok**aja**.
fir tall (Long Form) (fem. sg.)
"The fir is a tall one."

Siegel concludes that "we can now say that long forms are actually generated only prenominally and short forms only in predicate position" (ibid).

Another piece of evidence from Babby, used also as evidence against an individual/stage level predicate distinction argued for in Soviet grammars, is based on the facts in (24):

(24) a. Prostranstvo — beskonečn**o**.
Space$_{NOM}$ infinite (Short Form)
"Space is infinite."

b. *Prostranstvo — beskonečnoe.
Space$_{NOM}$ infinite (Long Form)

Babby explains that *prostranstvo* 'space' is a unique noun, i.e., it forms a class of one, and, consequently, cannot be modified by a restrictive adjunct, which singles one item out of a class of similar items." Thus the null noun of the copular Long Form always refers to "the subject's class". If the subject cannot be so delineated, as in (24b), then Modification Phrase adjuncts will not be licensed by such heads. This analysis explains the agreement facts with the formal 2nd person pronoun *vy* given above.

The same distinction between copular constructions containing bare adjectival modifiers (11b/16) and real predicates (11a/14), is found with the Chinese *de* constructions. Consider (25):

(25) CHINESE

a. da **de** zhanglang
big **de** cockroach(es)
"big cockroaches"

b. Zhexie zhanglang hen da.
these cockroach(es) very big
"These cockroaches are big."

c. Zhexie zhanlang shi da **de**.
these cockroach be big **de**
"These cockroaches are big ones."

(25a) presents a normal atributive adjective construction in which *de* is required. (25b) gives a predicate construction. (25c) shows that if the head of Mod^0 is present, as in Russian or English, the adjective is interpreted as modifying a null N^0 head, with the appropriate connotation given in the English gloss with *one*.

Thus we have shown that the AP in (11b) is not the primary predicate of that sentence. Rather, the predicate is an NP with a null head, as shown in (16). (Notice this is structurally equivalent to the structure of (11c) given in (15) where the primary predicate is an (overt) NP.) This section has shown that the presence of Long-

Form morphology can be reduced to the presence of Modification Phrase. Long Forms are thus always attributive.[15] Short Forms are always bare AP predicates.

3 Old Russian

In Old Russian (hereafter OR), the distribution of Long Form and Short Form was quite different from Modern Russian (MR).[16] First of all, there do not seem to be any instances of Long-Form adjectives being used in copular constructions in Old Russian. Second, (25) shows that Short-Form adjectives were possible in attributive position in OR:

(26) povelě iskopati jamu veliku
ordered to-dig [hole great (Short Form)
i gluboku
and deep (Short Form)]$_{ACC}$
"[He] ordered [them] to dig a great and deep hole."

Third, attributive short form adjectives were systematically interpreted as indefinite in Old Russian, as indicated by the English indefinite article in all the translations. Fourth, Short-Form attributive adjectives in Old Russian typically follow the noun, instead of preceding it as they do in the Modern Russian equivalents. Examples with Modern Russian translations are given in (27-30). (Notice that in Modern Russian, prenominal Long-Form adjectives are used wherever the Old Russian uses Short-Form indefinites, as expected under the ModP analysis. We will return to the word order differences below).

(27) a.OR Vъpade vъ nedugъ krěpъkъ
fell-3sg into ailment strong-SHORT
"He fell into a serious sickness."

b.MR Vpal on v tjažkij nedug
fell-3sg he into severe-LONG ailment
"He fell into a serious sickness.'

(28) a.OR Synъ byxъ otьcju poslušьlivъ
son was father obedient-SHORT
i ljubimъ predъ licьmъ matere svoeja.
and loved-SHORT before face mother self's
"I was a son obedient to my father and loved by my mother."

b.MR byl syn otcu poslušnyj
was son father obedient-LONG
i ljubimyj mater'ju svoeju.
and loved-LONG mother self's
"I was a son obedient to my father and loved by my mother."

(29) a.OR ...i iměnija mnoga, i dani,
and riches many-SHORT and gifts
i čьsti beščislьny ...
and honors countless-SHORT
"...and many riches, and gifts, and countless honors..."

b. MR i bogatstva mnogie, i dani
and riches many-LONG and gifts
i počesti besčislennye...
and honors countless-LONG
"...and many riches, and gifts, and countless honors..."

(30) a.OR I jako uslyša šръtъ zъlъ
and when heard whisper evil-SHORT
okrьstъ šatьra...
around tent
"And when [he] heard an evil whisper near the tent..."

b.MR I kogda uslyšal on zloveščij šepot okolo šatra...
and when heard he evil-LONG whisper around tent
"And when he heard an evil whisper near the tent..."

Long-Form adjectives in Old Russian, on the other hand, were always associated with definiteness, as Jakubinskij summarizes:

"The relation of short and long forms expressed the category of definiteness and indefiniteness with respect to the nouns that the adjective modified" (quoted in Borkovskij (1978)). Examples are given in (31-34):

(31) OR A velikyi kъnjazъ...
and great-LONG prince
"And **the** great prince . . ."

(32) OR ...plakaašesja o dobrorodьněmь tělě
cried-3sg about noble-LONG body
i čъstьněmь razumě vъzdrasta ego...
and pure-LONG mind age his
"...[he] cried about **the** noble body and pure mind of his youth..."

(33) OR Iže pogubiti dušju svoju mene radi i
he-who loses soul his me for and
moixъ slovesъ, obrjaščeti ju vъ životě věčьněmь
my words will find it in life eternal-LONG
"He who loses his soul for the sake of me and of my teachings will find it in **the** eternal life..."

(34) OR Bě že vъ svjatuju nedělju.
was emph. on holy-LONG Sunday
"[It] was on **the** Holy Sunday."

The distribution of adjectival forms for Old Russian is summarized as (35):[17]

(35) Distribution of Old Russian Adjectives:

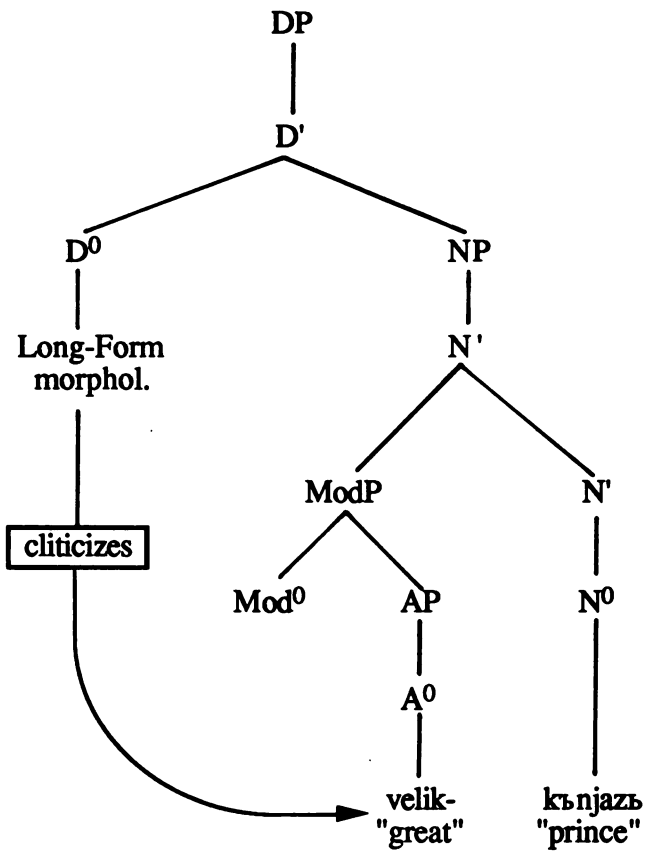
	Long Form	Short Form
copular:	**no**[18]	yes
attributive:	yes (=def)	yes (=indef)

Thus assuming the structure of modification itself to be consistent, the proposal for Old Russian is that the Long-Form morphology headed a determiner phrase that cliticized to the adjectival modifier.

In the absence of such morphology, an indefinite reading obtained. Thus the structure of (31) is given in (36) below:

(36) The structure of a definite DP in Old Russian[19]

The structure of (31):

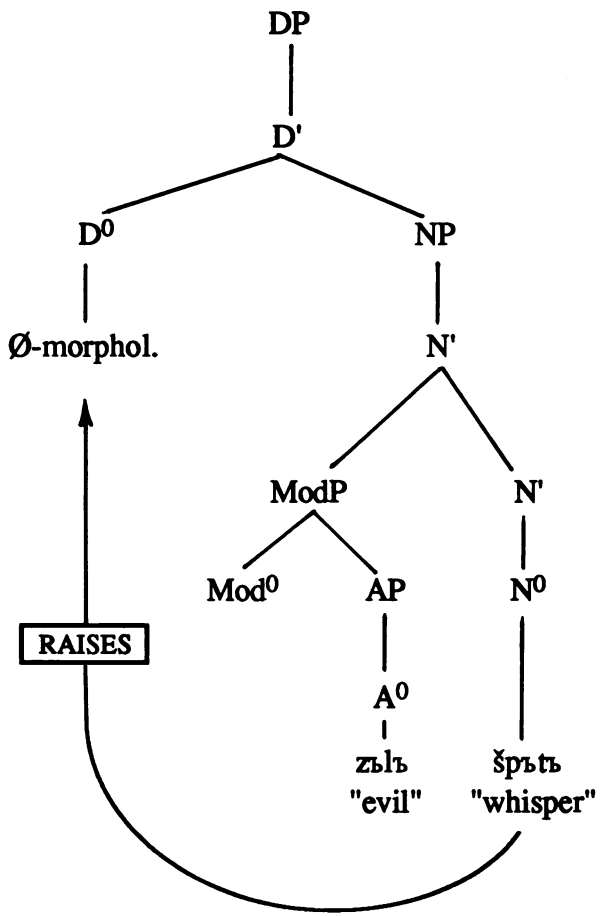


Old Russian is therefore claimed to have an active DP system for showing definiteness. However, the head of D^0 was Ø for indefinites and thus D^0 had to be supported. Assuming that this could be achived in Old Russian by moving the head noun up into D to support this morphology, we allow for the D-system to be morpho-

logically active (driving raising operations when null), and also account for the canonical post-nominal opposition of Old Russian Short Forms. Such a DP is given in (37):

(37) The structure of an indefinite DP in Old Russian

The structure of (30a):



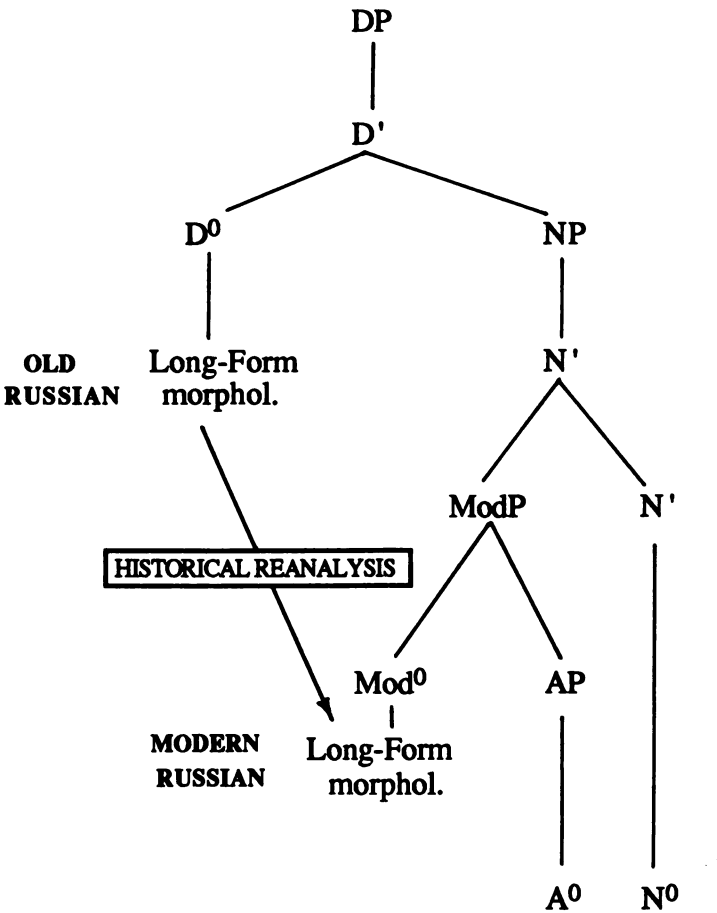
Assuming $N^0 \rightarrow D^0$ raising occurs when D^0 is empty (indefinites), the word order facts fall out of the account.

To summarize: In Old Russian, Long-Form adjectives only occur with definite DPs. Indefinite DPs have post-nominal short form adjectives. However as Borkovskij (1978) quotes J. Kurz as pointing out, "in OCS [same as Old Russian in this] there was no [full] category of definiteness/indefiniteness since this category was marked only on nouns with attributive modifiers and all other nouns remained without this category....It is well known that in those languages where there are articles, the article encompasses all nouns." Thus because of the inherent instability of such an incomplete D system, the stage was set for the diachronic change.

4 The Diachronic Change

We are now in a position to characterize the diachronic change that led to the Modern Russian distribution. Traditionally, it is acknowledged that the Long-Form morphology ceased to be associated with definiteness. Under the tight syntactic/semantic mapping proposed in this paper, such a change must be associated with a categorial change. Given the analysis of Modern Russian, we can assume that the categorial status of the Long-Form morphology found with attributive adjectives was reinterpreted as heading a Modification Phrase rather than a DP. Recall that both functional heads are present in an Old Russian structure like (36), as they will be in any DP with an attributive adjective. Because of the rareness of Long-Form adjectives in predicative position (only definite substantives), the Long-Form morphology was easily reinterpreted as heading a Modification Phrase rather than a DP. It would therefore be expected that as soon as this reanalysis occurred, Short Form in attributive uses should have fallen out of the language, since the very presence of an attributive adjective (and hence a Modification Phrase) was what now provided the Long-Form morphology. And this is exactly what happened between the 12th and 14th centuries. (38) shows the structure of the change:

(38) Diachronic Reanalysis of Long-Form Morphology in the History of Russian:



Shortly thereafter the substantive use of the Long-Form form, formerly a definite DP, now just an attributive adjective, began to appear as the primary predicate in structures like (11b/16) above. The analysis given in this paper in addition to this diachronic change explains the distribution of Long-Form and Short-Form adjectives in both Old and Modern Russian. That distribution is repeated in (39):

(39) a. Distribution of Old Russian Adjectives:

	Long Form	Short Form
copular:	**no**	yes
attributive:	yes (=def)	**yes** (=indef)

b. Distribution of Modern Russian Adjectives:

	Long Form	Short Form
copular:	**yes** (attrib)	yes
attributive:	yes	**no**

It should be clear how the change in distribution shown in bold in (39) follows from the reanalysis given in (38). When Long-Form adjectives ceased to be necessarily definite, the Long-Form morphology was reassociated with all modification rather than only definiteness, became associated with attributive position itself, and Short Forms dropped out of use in attributive position. Having lost any association with definiteness, Long Forms could appear as substantives in predicate position.

The diachronic analysis adds to the general theory of modification in that the presence of Modification Phrase in attributive constructions, in addition to providing an explanation for the modern Russian distribution of forms, is the only logical site for historical reanalysis of the Long-Form morphology that can predict, or indeed have anything to say, about the development of the modern distribution.

5 An Extension

This analysis provides the possibility for the first useful understanding of why Russian is able to systematically violate the typologically strong Adjacency Requirement on adjectival modification given in (40):

(40) Adjacency Filter
An adjective can not be separated from the noun it modifies by anything other than a closer AP modifier, including its own complement.

(40) accounts for the English paradigm given in (41):

(41) a. [the *satisifed president*]$_{NP}$
b. [the *president satisfied* with the elections]$_{NP}$
c. *[the *satisfied* with the elections *president*]$_{NP}$

Russian allows systematic violations of the typologically strong restriction. This is shown in (42):

(42) dovol'nyj vyborami prezident
[[satisfied elections$_{INSTR}$]$_{AP}$ president]$_{NP}$
"the satisfied-with-the-elections president"

Under the analysis given in this paper, we can see why Russian should be able to violate Adjacency, considering that Russian shows *overt* manifestation of the configurational operation of modification —the Long-Form morphology heading ModP. Because the very process of modification is marked morphologically, adjacency is redundant. This is similar to relaxed adjacency requirements between the verb and its direct object in languages with rich case systems.

6 Conclusion

We have seen in this paper how certain advances in compositional semantics can be maintained in conjunction with an articulated phrase-structure grammar, allowing a tighter realization of the semantic/syntax mapping. The independently motivated functional category Modification Phrase was introduced to correct for a problem in compositional semantics and to allow primary categories such as AP to maintain a uniform semantic interpretation. Morphological evidence from Russian in favor of the existence of such a category shows that the Modification Phrase is vital to a proper syntactic characterization as well as a semantic characterization of the Russian adjectival forms. Finally, it was shown how the structure posited for Modern Russian explains the change in distribution that occurred among adjectival forms in the development of Modern Russian from Old Russian.

Notes

* I would like to thank Leonard Babby, Wayles Browne, Edward Rubin, Jindřich Toman, John Whitman and participants of the Second Workshop on Formal Approaches to Slavic Linguistics for invaluable suggestions and discussion. All mistakes are, of course, my own.

1 In this view, there arises a natural constraint on the positing of functional heads, which has been attacked in the syntactic literature as being too flexible a system that loses explanatory adequacy in light of its near endless applicability to unexplained structures.

2 Bailyn and Rubin (1991) extend this analysis to Russian, where secondary instances of PredP are united in that they assign instrumental case to their complement, which explains various occurrences of instrumental case under one syntactic/semantic account. They show, in essence, that a semantic type shifter necessary to maintain the compositional semantics envisioned by categorial grammarians and other semanticists in the Montague tradition has a real morphological realization in Russian (instrumental case marking), and strong evidence is thus provided for the existence of a tight syntactic/semantic mapping.

3 (1) shows the structure of a proposition in the Bowers (1993) framework of Predication. The exact nature of the functional category selecting the primary predicate is not crucial to my syntactic analysis, and is maintained only for consistency. In verbal sentences (non-copular), the Pr^0 head selects a VP rather than an AP complement. It can also select an NP complement in copular sentences with NP predicates such as "John is a doctor."

4 This problem and its possible solutions was first raised by John Bowers and Ed Rubin.

5 I assume in this paper that adjectival modification is to N', although this attachment site is in no way crucial to the analysis.

6 In Rubin (in progress), it is argued that the Specifier of this functional category is always filled, and therefore this template of Mod^0 is actually <X, <e, <Y,Y>>>, requiring saturation by the element in SpecMod before giving out the <Y,Y> type. For further details of this category, see Rubin (1993, in progress). Here, I will refer to the combined template, although it should be understood that this notational simplification in no way affects the analysis given.

7 Other possible manifestations of $Modification^0$ include Spanish adverbial *-mente*, Tagalog *ng*, and German weak adjectival morphology. See Rubin (forthcoming) for details.

8 It is important to note, however, that there need not be an overt manifestation of this functional category in all its uses. Romanian appears to have overt morphology when the modifier is a prepositional phrase, whereas Spanish only does so when the element being modified is a [+V] category. This is no more surprising than the fact that any morphological paradigms have zero-morphemes, a fact well attested in many languages including Russian. In fact, because the purpose of Modification Phrase is to allow for the semantics of modification, it can adjoin to any of various categories and its head can select for various complements. This allows a range of contexts in which Modification Phrase appears, each allowing (but not forcing) distinct morphology to be present.

9 The convergence of morphology in cases other than the nominative (and inanimate accusative) does not preclude the possibility that the Short Form/Long Form distinction exists in those NPs. In fact, as we shall see, Old Russian allowed for Short Forms in all cases, whereas Modern Russian does not. The analysis in this paper will account for this distribution.

10 The dash in the Russian sentence appears commonly in the orthography with predicative sentences like (11) that have a null-copula.

11 Notice that the Long-Form morphology in (13) is attached to the adjective by cliticization. It may also be the case that the Long-Form morphology is attached after the adjective raises into Modification^0. This is similar to the kind of merging that must occur between tense morphology and the verb in languages that show tense, and languages have been shown to differ in this respect, some showing surface raising, and others affix hopping or LF raising. In (13) and what follows, I assume cliticization. If it turns out that that Russian adjectives raise into Modification^0, my analysis will be in no way compromised.

12 Note that in the Bowers (1993) account, the category NP is of two possible types, **e** or π. As an argument that saturates functions (subject, object etc.), it is seen as an entity, whereas in predicate position it is some kind of property predicated of the subject of the clause or sentence. It is sufficient here to mention that the present analysis will use both types for NP where appropriate. This will not alter the analysis in its essence, which is that the purpose of Modification Phrase is to allow a category of any type to be shifted into a modifier whose semantic role is to modify *without* shifting the type of the element modified.

13 Siegel (1976) comes to the identical conclusion in the Montague grammar framework. In particular, she concludes that *studentka - umnaja* (Long-Form) 'the student is young' will always be 'studentka umnaja Δ' where "Δ is a free variable that ranges over CNs [common nouns]." Her syntactic/semantic tree of the sentence 'grandpa - sad (LF)' on p. 40 is identical in all relevant respects to my tree (16) except that (16) includes the functional node that produces the

Long-Form morphology, allowing APs to still be characterized in a consistent fashion.

14 It seems that demonstrative pronouns can not introduce these NPs with null heads as shown in (i):

(i) * Nataša — ta umnaja, o kotoroj ja govoril.
Natasha is that smart about whom I spoke
"Natasha is that smart one I was talking about."

This is presumably the result of a selectional restriction on what kind of predicate a Russian sentence may have, possible being limited to lexical categories. I leave the question of how to capture this restriction to further study.

15 Past passive participles are identical in form to Short-Form adjectives. When used predicatively, as with passive sentences, they are Short-Form as expected. The relevant example is given in (i):

(i) Ivan byl ubit
Ivan_{NOM} was killed (Short Form) (masc.sg.)

They can be transformed into attributive adjectives, and the Long-Form morphology appears as expected:

(ii) Ubityj soldat ležal na zemle.
[killed (Long Form) $\text{soldier}]_{\text{NOM}}$ lay on ground
"A dead soldier lay on the ground."

16 For discussion, see Borkovskij (1978). Originally, the Long-Form ending was a cliticized occurrence of the appropriate 3rd sg. pronoun which came to be interpreted as a bound determiner by the time of Old Russian. For similar examples in Old Church Slavonic see Lunt (1974). Examples here are from original texts found in Lixačev (1981a,b). Russian translations are also taken from Lixačev.

17 This distribution is maintained in modern Serbo-Croatian, but only in the masculine nominative. The distinction is lost for most speakers in other cases and definiteness is determined by context. (i) gives an example where definiteness is found in the form of the adjective:

(i) dobri čovek (ii) dobar čovek
good (Long-Form) person good (Short-Form) person
"the good person" "a good person"

18 At least not in the generic sense shown from Modern Russian above. There are, of course, examples of definite substantivized adjectives: "the holy one" etc., appearing in predicate position. This is as expected under the analysis in this paper.

19 I will not take a stand on how (and where) the cliticization occurs. It should, however, be noted that this kind of cliticization of a definite article is found in other languages such as Romanian, Bulgarian and Macedonian. In those languages, the definite article cliticizes to the first element of the NP whether it is an adjective or not. In Old Russian, the ability to cliticize was more restricted.

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The Functional Structure of Russian Numeral Phrases*

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This paper addresses the morphosyntax of certain numerically quantified expressions in Russian, which, for the purposes of exposition, I shall refer to using the neutral term "numeral phrase."[1] Although the properties of numeral phrases are complex and idiosyncratic, it is argued that the major problems which they pose can be overcome by adopting an explicit analysis within recent conceptions of X-bar syntax. In developing such an analysis two related questions are considered: (i) What is the nature of case assignment in Russian numeral phrases? and (ii) What is the phrase structure of Russian numeral phrases? An investigation of the first question leads to the conclusion in section 1 that the genitive case assigned by numerals in Russian is structural rather than inherent, which in turn helps to shed light on the status of this case contrast in general. The solution to the second question involves the idea in section 2 that Russian numeral phrases may be headed either by the quantifier or the noun, hence that they are maximally either QPs or NPs. Section 3 briefly addresses the parametric value of these notions for describing the kinds of variation in numeral phrases found in Slavic. Section 4 deals with the curious case government behavior of the distributive preposition *po* in terms of the general analysis of numeral phrases.

Section 4 constitutes the conceptual core of the paper. In it is shown how the case feature characterization of the structural vs. inherent dichotomy, motivated in section 1, extends naturally to

accommodate Russian *po*-phrases. The assumption that distributive *po* is simply and invariably a preposition, but that it assigns a structural dative case to its object, allows for a completely uniform and straightforward treatment of its unusual government properties. Such an analysis has defied all alternative accounts. Finally, a careful consideration of the government patterns displayed by *po* reveals the true functional structure of Russian numeral phrases, and leads to radical revisions of the phrase structure for numeral phrases suggested in section 2. Quantifier Phrases are analyzed similarly to other functional operator phrases, such as [+WH] CPs and Neg Phrases in various languages. This means that agreement necessarily obtains between the specifier and the head of the QP. Given this obligatory SPEC-head agreement, the possibility that numerals may be specifiers rather than heads of QPs arises. It turns out that exactly this structure is needed to explain why *po* can assign case under ECM. The correct analysis of this little word thus offers both strong support and important refinements for the treatment of Russian numeral phrases put forward in this paper.

1 The Genitive of Quantification

This section introduces the problem of case assignment to numeral phrases in Russian, and develops a solution in terms of the opposition between structural and inherent cases. This effort leads to a reconsideration of the nature of this case theoretic opposition, and to the conclusion that whether a particular case is structural or inherent is a relatively superficial matter, having to do more with its formal feature content than with substantive aspects of its meaning.

1.1 A case conflict problem

In Russian, numerals above *odin* 'one' (except for compound numerals ending in forms of *odin*) assign some form of the genitive (GEN) case to the nominal material following them. I shall refer to this case phenomenon as the "genitive of quantification" (GEN-Q) throughout this article. The precise form of GEN-Q is a notoriously complex matter, one which presents long-standing descriptive, analytic and pedagogical problems. Generally speaking, *pjat'* 'five'

and above assign the genitive plural and *dva* 'two', *tri* 'three' and *četyre* 'four' , as well as compound numerals ending in *dva*, *tri* and *četyre*, assign the genitive singular. Some typical examples, where the numeral phrase is the object of an ordinary transitive verb, are given in (1).

(1) a. Ivan kupil odnu mašinu
NOM bought one-ACC.SG car-ACC.SG
'Ivan bought one car'

b. Ivan kupil tri mašiny
NOM bought three cars-GEN.SG
'Ivan bought three cars'

c. Ivan kupil pjat' mašin
NOM bought five car-GEN.SG
'Ivan bought five cars'

The verb *kupit'* 'to buy' assigns accusative (ACC) to its object NP. This case is realized in (1a), but is somehow blocked by the GEN-Q assigning numerals in (1b, c). A similar pattern exists for numeral phrase objects of prepositions that assign accusative, as shown in (2).

(2) a. čerez odnu minutu
in one-ACC.SG minute-ACC.SG

b. čerez dve minuty
in two minute-GEN.SG

c. čerez pjat' minut
in five minute-GEN.PL

The preposition *čerez* 'across' governs ACC, as in (2a), but this is overridden in (2b, c), and the head noun of its complement is marked GEN-Q.

As is well-known, this pattern is not exhibited in oblique case positions.[2] Instead, the appropriate oblique case permeates throughout the numeral phase, as shown in (3) and (4).

(3) a. Ivan vladeet odnoj mašinoj
NOM owns one-INST.SG car-INST.SG
'Ivan owns one car'

b. Ivan vladeet tremja mašinami
NOM owns three-INST cars-INST.PL
'Ivan owns three cars'

c. Ivan vladeet pjat'ju mašinami
NOM owns five-INST cars-INST.PL
'Ivan owns five car'

(4) a. ob odnoj knige
about one-LOC.SG book-LOC.SG

b. o trëx knigax
about three-LOC books-LOC.PL

c. o pjati knigax
about five-LOC books-LOC.PL

The verb *vladet'* 'to possess' governs the instrumental (INST) and the preposition *o* 'about' (with variant *ob* before vowels) governs the locative (LOC). Crucially, these quirky case requirements cannot be overridden by the GEN-Q assigned by the numerals in (3b, c) and (4b, c). Following Babby (1987), I shall refer to the paradigm in (1) and (2) as "heterogenous" case assignment and the paradigm in (3) and (4) as "homogenous" case assignment. The contrast between these two patterns constitutes a fundamental problem for any description of Russian case.

1.2 Characterizing the structural/inherent dichotomy

Babby, among others, accounts for the contrast between the heterogenous paradigm in (1) and (2), on the one hand, and the homogenous paradigm in (3) and (4), on the other, by treating the accusative case assigned by *kupit'* and *čerez* as fundamentally different from the instrumental and locative cases assigned by *vladet'* and *ob*, respectively. The accusative is a more superficial case, assigned at S-structure and referred to as "direct," "structural," or "configurational" in the frameworks of Jakobson (1958/71),

Chomsky (1981,1986a) and Babby (1987), respectively. The instrumental and locative, on the other hand, are more invariant, assigned at D-structure and referred to as "oblique," "inherent," or "lexical" in these frameworks. In this paper I shall adopt the Jakobsonian feature distinction [±oblique] for reasons to become apparent shortly; cf. fn. 2. Assuming, then, that ACC is [-oblique], which means it is assigned at S-structure, and INST and LOC are [+oblique], which means they are assigned at D-structure, one can ask how these two kinds of cases interact with the genitive of quantification.

The answer, as the facts in section 1.1 reveal, is that whereas the [+oblique] cases permeate throughout the quantified NP before the genitive of quantification has a chance to apply, the [-oblique] accusative is blocked by the genitive of quantification. Relevant underlying and surface structures for (2c) and (4c) are given in (5):

(5) a. D-STRUCTURE:
   i. [$_{PP}$ čerez [$_{NP}$ pjat' minut]]
   ii. [$_{PP}$ o [$_{NP:LOC}$ pjati knigax]]

b. S-STRUCTURE:
   i. [$_{PP}$ čerez [$_{NP:ACC}$ pjat' [$_{N':GEN-Q}$ minut]]][3]
   ii. [$_{PP}$ o [$_{NP:LOC}$ pjati knigax]]

These representations reflect the claim that neither ACC or GEN-Q are assigned at D-structure, whereas oblique cases such as LOC are. Assuming percolation to take place automatically as soon as possible, LOC in (5a-i) percolates throughout the NP before GEN-Q has a chance to be assigned. In order for this system to work, these cases must therefore have the feature specifications in (6).

(6) a. accusative (ACC) [-oblique]
   b. genitive of quantification (GEN-Q) is [-oblique]
   c. locative (LOC) is [+oblique]

While the statements in (6a, c) are hardly controversial, the inclusion of GEN-Q among the structural cases is a somewhat unorthodox, if necessary, move. Babby's essential insight into the heteroge-

nous/homogenous contrast is that if the Russian genitive of quantification is regarded as a [-oblique] case—in his terminology "configurational"—then the fact that it is overridden by a [+oblique] case, but it itself blocks another [-oblique] case, follows immediately. The operative principle here is one of minimality: at D-structure in (5a) *o* is the only case assigner, whereas at S-structure in (5b) both *čerez* 'in' and *pjat'* 'five' compete for *minut* 'minutes', but *pjat'* 'five' wins out since it is the closer governor.

One might at this point wonder whether the need to posit a special [-oblique] genitive to handle the idiosyncracies of numeral phrases is really warranted, and what role exactly this feature plays. First of all, consider what it means for the so-called genitive of quantification to be dubbed "direct" and opposed in this regard to the ordinary genitive, which is unequivocally oblique. It means, put simply, that there are in fact two genitives, which share all case features except [±oblique]. This is perfectly admissible so long as this feature does not already distinguish the genitive from some other case, and it is certainly a straightforward matter to construct a case feature system along these lines.[4] It is less obvious why GEN-Q should contrast with the regular genitive in terms of obliqueness.

I think the answer will have to do with the fact that GEN-Q is essentially quantificational in nature. As such, it marks scope of quantification rather than the sort of thing cases usually mark, i.e., theta-role. Of course, cases do not always indicate a specific theta-role or set of roles, but even when they do not, they are still inextricably related to theta-theory. That is, all NPs must be associated with some case in order for their theta-roles to be visible, so we can say that case-assignment generally serves the purpose of rendering the chain visible for theta-role assignment. Crucially, this is never true of GEN-Q, which is always completely divorced from theta-theory. As will be shown in section 4, where I develop an analysis of case-assigning numerals as functional heads, the NP which the numeral case-marks is internal to the phrase which is actually assigned the theta-role. In that section I also extend the idea of a [±oblique] genitive to the dative case, arguing that the dative case displays a similar contrast in that the distributive preposition *po* in Russian assigns a

special [-oblique] dative case. This claim supports the idea that the quantificational cases in Russian are direct cases, essentially that non-obliqueness is their hallmark.

It is easy to show that the genitive of quantification differs from the regular genitive in precisely this regard. Consider what happens when an NP that is marked genitive of quantification by virtue of being in the scope of a numeric quantifier appears in a regular genitive position, as in (7).

(7) a. opisanie trëx gorodov
description three-GEN cities-GEN.PL

b. ja izbegaju trëx ljudej
I-NOM avoid three-GEN people-GEN.PL

It is of course necessary to examine NPs quantified by one of the paucal numerals *dva, tri, četyre* 'two, three, four' in order to see any difference in case marking on the head noun, since if *pjat'* and above are used the noun will be in the genitive plural regardless. In (7), the adnominal genitive assigned in the configuration "sister to N" and the lexically required genitive assigned to complements of *izbegat'* 'to avoid' overrides the quantificational genitive. Crucially, once the regular genitive is assigned to the quantified NP, this case does not stop on the numeral with the ungrammatical result in (8), but percolates instead throughout the NP.

(8) a. *opisanie trëx goroda
description three-GEN city-GEN.SG

b. *ja izbegaju trëx čeloveka
I-NOM avoid three-GEN person-GEN.SG

Notice that the regular genitive, whether determined purely structurally, as in (8a), or determined as a lexical property of the governor, as in (8b), behaves exactly the same way with respect to the genitive of quantification.

In his 1987 *NLLT* paper, Babby suggested that the interaction between the genitive of quantification and other cases can be understood according to the hierarchical principle in (9).

(9) LEXICAL CASE > CONFIGURATIONAL CASE

This hierarchy means nothing more than that in a conflict between what Babby calls "lexical" and "configurational" case, the lexical case must win out. In more derivational terms, one can say that once a case is assigned it cannot be altered in the course of the derivation—essentially, Babby's "Principle of Inertness." Certain cases—what, following Jakobson, I am calling the "oblique" ones—are assigned at D-structure and so cannot be affected by conflicting case marking rules, whereas others—the "direct" ones—are assigned at S-structure and therefore can be so affected. Babby further observes that the genitive of quantification can be regarded as patterning as a configurational case in Russian, which explains its curious behavior, being overridden by lexical cases but not by other configurational ones.

Note that this kind of analysis emphasizes the vagaries of individual cases with respect to the structural/inherent dichotomy, and relies crucially on the assumption that this difference between case types is a much more superficial phenomenon than previously thought. As is well-known, the standard view espoused by proponents of Government and Binding theory is that inherent cases are intimately connected with particular semantic roles, whereas structural ones are not.[5] But the situation, I maintain, cannot be that simple, since by this criterion things like the genitive after nouns, as in (7a), should be as structural as the accusative after verbs, which is clearly not true. The same is true if one contrasts the adjunct instrumental, as in (10a), with true complement instrumentals, as in (10b).

(10) a. *Adjunct Instrumental*
Ivan el ikru ložkoj
NOM ate caviar-ACC spoon-INST
b. *Complement Instrumental*
Ivan upravljal fabrikoj
NOM managed factory-INST

The adjunct instrumental in (10a) is of the type drawn attention to by Jakobson in arguing for the peripheral status of this case. Fowler (1987) and Franks (1985) have independently suggested that such instrumentals are assigned to NPs adjoined to VP; Bailyn and Rubin (1991) claim that they are objects of a null Pr(edicate) node that assigns INST. Either way, such adjunct instrumentals are structurally and semantically distinct from the kind of quirky instrumental exhibited in (10b). For Fowler and myself the latter is simply governed by the V; although Bailyn and Rubin are unclear about how argument instrumentals should be analyzed, they readily admit that this phenomenon lies outside the system of Predicate Phrase instrumentals they espouse. However, just like the genitives in (7)/(8) above, neither type of INST can be overridden by the genitive of quantification, as shown in (11):

(11) a. Ivan el ikru dvumja ložkami/*ložki
NOM ate caviar-ACC two-INST spoon-INST.PL/GEN.SG

b. Ivan upravljal dvumja fabrikami/*fabriki
NOM managed two-INST factory-INST.PL/GEN.SG

There is no way for the GEN-Q assigned by the numeral to be realized on the following noun, which instead can only be marked with the instrumental. The point is thus that a genitive or instrumental assigned to a complement because it is lexically required by a particular verb—presumably, in connection with the semantic role borne by that complement—behaves the same with respect to the genitive of quantification as one that is assigned to an adjunct on purely configurational grounds: both necessarily override the genitive of quantification. This kind of fact, I believe, lends credence to my claim that whether a case is assigned at D-structure or S-structure is simply a property of the individual case—in particular whether it is [±oblique]—so that positing an [-oblique] genitive becomes a realistic option. Additionally, once this move is made, it becomes a relatively small step to the idea which I develop in section 4 that the other quantificational case, namely the dative assigned by *po*, is also [-oblique].

2 The QP Hypothesis

In the previous section I argued that Russian GEN-Q is in reality a direct (or "structural") case, comparable in this respect to the nominative or accusative. This property explained its curious interaction with external case assigners, resulting in a heterogenous pattern in direct case contexts and a homogenous one in oblique case contexts. In this section I turn briefly to another well-studied dichotomy in the behavior of Russian numeral phrases. Following Pesetsky (1982), I will assume that these phrases are in fact of two distinct categorial types, NPs and QPs. I will then argue that these occupy distinct positions at S-structure. I assume, as is now pretty much standard practice, that subjects originate as the highest argument *internal to VP*, and that they raise in search of case to the specifier position of some higher functional projection—either IP or, in a more finely articulated theory of functional categories, AgrP. Within this approach, I argue that QPs should not undergo this movement, since they do not bear case. QPs thus differ from their NP counterparts in being able to remain in their D-structure positions, thereby explaining a host of differences between the two types of superficially identical phrases.

2.1. Two kinds of numeral phrase

For Pesetsky (1982), the puzzling problem of subject-verb agreement constitutes the core mystery posed by Russian quantificational structures. It is well known that both so-called "syntactic" and "semantic" subject-verb agreement can take place with quantified subjects, as in (12).

(12) a. pjat' krasivyx devušek prišli
five beautiful-GEN.PL girls-GEN.PL arrived-PL

b. prišlo pjat' krasivyx devušek
arrived.N.SG five beautiful-GEN.PL girls-GEN.PL

Pesetsky contends that when plural agreement obtains, as (12a), the quantified phrase is a subject NP, but when the default neuter singular form appears, the quantified phrase is actually a QP internal

to the verb phrase. For him, then, the S-Structures of (12) would thus be roughly as in (13).

(13) a. [$_{CP}$ [$_{NP:NOM}$ pjat' krasivyx devušek] [$_{VP}$ prišli [$_{NP}$ e]]]
b. [$_{CP}$ [$_{NP}$ e] [$_{VP}$ prišlo [$_{QP}$ pjat' krasivyx devušek]]]

Assuming that the verb *prijti* 'to arrive' is unaccusative, the surface subject originates in object position. When it is an NP, as in (13a), it must move to subject position to receive case, but when it is a QP, which does not require case, it remains in situ within VP. This explains why the unmarked word-order is subject-verb in (12a), but verb-subject in (12b).

Pesetsky then argues that QPs can only be underlyingly VP-internal, which he calls "the D-Structure [XP, VP] restriction." While this is indeed true for the genitive of negation, the facts are hardly conclusive for the quantificational QPs I are concerned with here, since, contrary to Pesetsky's claims, speakers do fairly readily accept non-agreeing verbs with quantified subjects of both unergative and transitive verbs. Moreover, as we shall see in the next section, his analysis will fail to carry over when the internal subject hypothesis of Koopman-Sportiche (1988, 1990) is adopted. Nevertheless, at this point I adhere to Pesetsky's presentation, since other aspects of his theory will remain relevant to my eventual analysis. He claims that QPs cannot be true subjects, (falsely) predicting the following paradigms:

(14) a. dvadcat' migov peresekli/(*)pereseklo granicu
twenty MIGs-GEN crossed-PL/N.SG border-ACC
b. neskol'ko studentov pročitali/(*)pročitalo ètu knjigu
several students-GEN read-PL/N.SG this book-ACC
c. pjat' čelovek rabotali/(*)rabotalo na ètom zavode
five people-GEN worked-PL/N.SG at this factory

I have placed the asterisks in these examples in parentheses since speakers do not actually reject non-agreement in such constructions. However, the alleged impossibility of non-agreement with transitive

verbs (14a, b) and unergative verbs (14c) leads Pesetsky to conclude that QPs cannot be subjects.[6]

One problem posed by the QP-hypothesis which Pesetsky did not address is that of the internal structure of quantified phrases; he simply represented the two possibilities as in (15).

(15) a. [$_{QP}$ [$_{Q}$ pjat'] [$_{N}$ rublej]]
b. [$_{NP}$ [$_{Q}$ pjat'] [$_{N}$ rublej]]

This inexplicitness leaves unexplained just how GEN-Q is assigned and, more importantly, raises the question of why numerically quantified NPs and QPs exhibit identical internal case properties. Indeed, the observation that GEN-Q is assigned in both might be taken as a compelling reason for rejecting the QP/NP dichotomy. There are, however, good arguments that Russian countenances two kinds of quantified phrases, those that are headed by a noun and are fundamentally NPs, and those that are headed by a quantifier and are fundamentally QPs. There are a host of factors distinguishing these two as subjects, including that NP subjects, but crucially not QP subjects, (i) induce plural subject-verb agreement, (ii) control infinitives and (iii) gerunds, (iv) antecede reflexives, and (v) cannot long-distance move. Examples of these contrasts are given in the next section; reasons for these contrasts are complex, and may have as much to do with the position of NP vs. QP "subjects" as with their respective categories. In terms of part-of-speech features, *pjat'* in (15) is presumably [+N, -V, +Q] and *rublej* is presumably [+N, -V, -Q]. According to standard view of feature percolation, a dominating node gets all the features of its daughters, except that in a feature conflict the feature of the head wins. Thus, *rublej* must be specified as [-Q], otherwise the [+Q] on *pjat'* would always percolate up. So, if *pjat'* is taken as the head, as in (15a), you get a QP, and if *rublej* is, as in (15b), you get an NP.

It is nonetheless clear that an analysis as in (15) is suggestive at best, since it avoids the question of the details of the internal structure of these phrases. In particular, it does not respect the principles of X-bar syntax, which require that each head X project up a phrasal maximal projection XP. Thus, in (15a) the noun *rublej*

should project an NP, and in (15b) the numeral *pjat'* should project up a QP. Perhaps, then, (15) can be fleshed out by assuming that each word heads a phrase—in accordance with general principles of phrase structure—and then treating the difference as a matter of whether the NP is adjoined to the QP, creating a QP^{max}, or the QP is adjoined to the NP, creating an NP^{max}. This is indicated in (16).

(16) a. $[_{QP^{max}}$ $[_{QP}$ pjat'] $[_{NP:GEN\text{-}Q}$ rublej]]
b. $[_{NP^{max}}$ $[_{QP}$ pjat'] $[_{NP:GEN\text{-}Q}$ rublej]]

In both (16a) and (16b), the QP assigns the genitive of quantification to the NP. I assume that both the QP^{max} and the NP^{max} can appear in structural case positions, and that whereas NPs are cased, QPs are not. That is, structural case need not be assigned, since things such as clauses and prepositional phrases, which do not bear case, can be objects of transitive verbs, as in (17), where the object of *znaju* 'I know' can be realized by a case-marked NP or a caseless clause.

(17) a. ja znaju $[_{NP}$ otvet na vaš vopros]
'I know the answer to your question'
b. ja znaju, $[_{CP}$ čto net otveta na vaš vopros]
'I know that there is no answer to your question'

On the other hand, only NPs can appear in oblique case positions, since these must be realized. If a clause is used, it must in Russian be embedded in a nominal *to*-phrase, as in (18b).

(18) a. ja dumaju ob $[_{NP}$ otvete na vaš vopros]
'I am thinking about the answer to your question'
b. ja dumaju $[_{NP}$ o tom, $[_{CP}$ čto net otveta na vaš vopros]]
'I am thinking about the fact that there is no answer to your question'

The adjunction approach in (16) accurately accounts for the fact that both display the same case properties and, in addition, allows for the

material following the quantifier to constitute a full NP. This is necessary in order to accommodate the behavior of demonstratives, as in (19).

(19) a. èti pjat' krasivyx devušek
these-NOM.PL five beautiful-GEN.PL girls-GEN.PL
prišli/*prišlo
arrived-PL/N.SG

b. pjat' ètix krasivyx devušek
five these-GEN.PL beautiful-GEN.PL girls-GEN.PL
prišli/prišlo
arrived-PL/N.SG

In (19a) agreement is obligatory whereas in (19b) it is optional, implying that the subject must be an NP in (19a) but can be either an NP or a QP in (19b). To explain this all we need to assume is that the demonstrative can adjoin only to NP, not QP; when it remains in situ, as in (19b), both NP^{max} and QP^{max} are possible. Thus, given the existence of the string "QP NP," these can conceivably be combined in two distinct ways: either QP is adjoined to NP or NP is adjoined to QP. Nonetheless, the structure (16) still suffers from certain conceptual inadequacies within the X-bar theory of phrase structure, and raises the question of why the phrase QP rather than the head Q assigns case. It is an interim solution, which will be remedied in section 4 when the structure of *po*-phrases is considered.

Before concluding this section, let us consider the mechanism by which the verb appears in the neuter singular with QP "subjects." Since these are in fact VP-internal, subject position must actually be occupied by a null expletive element. Therefore, given an S-structure such as (13b), one could claim that the verb is actually agreeing with the empty NP subject. That is, the neuter third person singular is not a "default" form, but rather the result of syntactic agreement with an empty subject. Indeed, this is the form one always finds in Russian with empty expletive subjects. I would therefore like to claim that verbs may only agree with NP subjects, and that there is technically

no such thing as a "non-agreeing" verb form. This analysis, based on Pesetsky's account of QP "subjects" as unaccusative objects, will extend naturally to my revision of Pesetsky's dichotomy in terms of the idea that all subjects are VP-internal, to which I now turn.

2.2 Two kinds of subject position

In this section, I consider what import recent proposals about the underlying position of subjects might have for Pesetsky's analysis of QPs. According to Koopman and Sportiche (1988, 1990), among others, the canonical position of D-Structure subjects is the specifier of VP, as in (20).[7]

(20) $[_{CP}\ [_{IP}\ [_{NP^{\wedge}}\ e]\ [_{I'}\ I(NFL)\ [_{VP}\ [_{NP^{*}}$ SUBJECT] $[_{V'}$ ...]]]]]

Following Koopman and Sportiche, I shall refer to this analysis where I(NFL) is treated as a raising category as the "Internal Subject Hypothesis" (ISH). In many languages, including English and Russian, the subject undergoes NP movement from NP* to NP^ position in order to receive nominative case at S-structure. This analysis raises an interesting dilemma: if quantified "subjects" may be QPs in Russian, then they do not need case and hence nothing prevents them from remaining in NP* position. In fact, since QPs lack case and pronominal features, they ought never to raise to NP^.

With this idea in mind, let us return to the Russian agreement facts and see how they might follow. First of all, it seems that nothing in principle prevents a QP from occupying the VP-specifier position, NP*—it is just that it is not expected to raise to the IP-specifier position, NP^. The result is that in Russian the S-Structure possibilities are more explicitly represented as in (21) and (22).

(21) a. $[_{CP}\ [_{IP}\ [_{NP^{\wedge}}\ e]\ [_{VP}\ [_{QP^{*}}$ pjat' čelovek] $[_{V'}$ V-o ...]]]]
b. $[_{CP}\ [_{IP}\ [_{NP^{\wedge}}$ pjat' čelovek$]_i\ [_{VP}\ [_{NP^{*}}\ e]_i\ [_{V'}$ V-i ...]]]]

(22) a. $[_{CP}\ [_{IP}\ [_{NP^{\wedge}}\ e]\ [_{VP}\ [_{NP^{*}}\ e]\ [_{V'}$ V-o $[_{QP}$ pjat' čelovek] ...]]]]
b. $[_{CP}\ [_{IP}\ [_{NP^{\wedge}}$ pjat' čelovek$]_i\ [_{VP}\ [_{NP^{*}}\ e]\ [_{V'}$ V-i $[_{NP}\ e]_i$ ...]]]]

Structure (21a) contains a QP with an unergative verb and (21b) an NP with an unergative verb, while structure (22a) contains a QP

with an unaccusative verb and (22b) an NP with an unaccusative verb. When NP^ is occupied by the plural NP *pjat' čelovek* 'five people', the verb takes the (past tense) plural ending *-i*, and when NP^ contains a null expletive the verb takes the neuter singular ending *-o*. Both variants thus reflect true subject-verb agreement.

Notice, however, that the possibility of (21a) does not depend on the transitivity of the verb, and in particular one ought to encounter QP subjects so long as they are not actually in NP^ position. Indeed, as pointed out earlier in connection with the examples in (14), non-agreement is in fact acceptable even with unergative and transitive verbs. They will thus have the schematic structure in (21a), with a QP appearing and remaining as a VP-specifier, and the verb agreeing with the expletive subject NP.

I turn now to some further discrepancies between Russian QPs and NPs that support this analysis. I have argued that QPs do not induce agreement because they are not IP-specifiers. They also fail to bind reflexives and control gerunds (cf. Pesetsky (1982) and Neidle (1988)), two other important subject-oriented diagnostics. Consider the following examples:

(23) a. pjat' ženščin smotreli/smotrelo na Ivana
five women looked-PL/N.SG at Ivan

b. pjat' ženščin smotreli/*smotrelo na sebja
five women looked-PL/N.SG at themselves

(24) a. po doroge domoj, pjat' mal'čikov
on way home, five boys
zašli/zašlo v magazin
dropped-in-PL/N.SG to store

b. vozvraščajas' domoj, pjat' mal'čikov
returning home, five boys
zašli/*zašlo v magazin
dropped-in-PL/N.SG to store

The presence of the reflexive pronoun in (23b) or the gerund clause in (24b) forces plural agreement. Otherwise, both options are viable. I conclude that in the (a) examples the quantified phrases are either

NPs in NP^ position or QPs in NP* position, but in the (b) examples they can only be NPs in NP^ position. This follows under the assumption that only IP-specifiers can bind reflexives or control gerunds in Russian.

Obligatory control constitutes another potential diagnostic and, indeed, in unequivocal structures of obligatory control (as defined in e.g. Williams (1980), Franks and Hornstein (1993)) the plural is required in Russian (25).

(25) pjat' ženščin staralis'/*staralos' [PRO kupit' ètu knigu]
five women-GEN.PL tried-PL/*N.SG to-buy this book-ACC

Only when *pjat' ženščin* 'five women' is an NP can it control the PRO subject of the complement clause. It should, however, be pointed out that these facts do not necessarily demonstrate that what is crucial is the position of the quantified phrase, rather than its category. One potential test that might distinguish between these two possibilities would be to see whether the effect in (23b) disappears when the Russian reciprocal *drug druga* 'each other' is considered, since the reciprocal, unlike the reflexive, is not subject-oriented. Interestingly, the same result obtains, as shown in (26), suggesting that categorial-mismatch is indeed relevant.

(26) pjat' studentov pomogali/*pomogalo drug drugu
five students-GEN.PL helped-PL/N.SG each other-DAT
na èkzamene
on exam

These facts, although suggestive, thus do not provide conclusive evidence that NPs and QPs differ in terms of their structural positions.

Consider one final consequence of the QP/NP dichotomy. According to Koopman and Sportiche, movement from NP^ should show ECP effects and movement from NP* should not. Hence, there should be a contrast in long-distance movement, corresponding to agreement morphology on the verb. This prediction appears to be borne out:

(27) skol'ko čelovek$_i$ [Ivan dumaet [[čto [e$_i$ pročitalo/
how-many people-GEN.PL Ivan thinks that read-N.SG/
*pročitali ètu knigu]]]
read-PL this book-ACC

The conclusion once again is that when *skol'ko čelovek* 'how many people' is a QP it is a VP-specifier, and when it is an NP it is an IP-specifier.

3 Elements of Variation

In this section I consider Serbo-Croatian from the perspective of the two claims made above to handle the unusual behavior of numeral phrases in Russian.[8] I will argue that whereas Russian GEN-Q is a structural case and numeral phrases can be either QPs or NPs in Russian, Serbo-Croatian GEN-Q is an inherent case and numeral phrases are invariably NPs in Serbo-Croatian. This is summarized in (28).

(28) a. 1. GEN-Q is a structural case in Russian.
2. GEN-Q is an inherent case in Serbo-Croatian.
b. 1. Numeral phrases are either NPs or QPs in Russian.
2. Numeral phrases are only NPs in Serbo-Croatian.

There are thus two intersecting parametric constrasts between quantified phrases in Russian and Serbo-Croatian. These oppositions extend proposals due to Babby (1987) and Pesetsky (1982), thereby accounting for a range of differences between the two languages. The parametric approach thus provides strong support for their original analyses of Russian.

In Serbo-Croatian, most numeral phrases only exhibit the heterogenous case pattern, regardless of syntactic context. This is illustrated in (29), assuming for the time being the adjunction phrase structure:[9]

(29) a. kupili smo [$_{NP}$ ^{max} [$_{QP}$ pet] [$_{NP}$ knjiga]]
bought-M.PL AUX-1.PL five books-GEN.PL

b. za [$_{NP^{max}}$ [$_{QP}$ osam] [$_{NP}$ dana]]
in eight days-GEN.PL

c. sa [$_{NP}^{max}$ [$_{QP}$ pet] [$_{NP}$ djevojaka]]
with five girls-GEN.PL

d. izmedju [$_{NP}^{max}$ [$_{QP}$ dva] [$_{NP}$ zla]]
between two evils-GEN.SG

e. bojao sam se [$_{NP}^{max}$ [$_{QP}$ pet] [$_{NP}$ ljudi]]
feared-M.SG AUX-1.SG REFL five people-GEN.PL

f. u toku [$_{NP}^{max}$ [$_{QP}$ tri] [$_{NP}$ poslednje godine]]
in course three last-GEN.SG years-GEN.SG

Quantified NPs in Serbo-Croatian therefore appear to be inconsistent with Babby's would-be universal principles, since the QP assigns case not only after items that assign ACC, as in (29a-b), but also after those that inherently assign specific oblique cases, as in (29c-f).

A closer consideration reveals, however, that this problem can be resolved if the hierarchical account of NP-internal case distribution is rejected and the theta-theoretic one properly understood. Since the prepositions *sa* 'with' and *izmedju* 'between' in (29) require INST and GEN, respectively, the verb *bojati se* 'to fear' requires GEN, and nouns take GEN objects, I contend that the quantified phrases must be in these cases. This follows from the theta-theoretic view that such prepositions impose as an absolute requirement on their complements that they bear specific inherent cases. Moreover, the fact that these quantified phrases are cased—even if no element within them actually shows it morphologically—implies that the bracketted phrases must also be NPs rather than QPs.

Secondly, the quantifier in Serbo-Croatian must be inherently assigning GEN-Q to the NP to its right, otherwise it would be overridden by percolation of the inherent oblique case on NP^{max}. Thus, in (29c-f) there is a conflict of inherent case assigners, with the external governor requiring one case and the internal one another. Since these are inherent cases, both requirements must be met at D-Structure. I conclude therefore that at D-Structure, when NP^{max} is

assigned its oblique case, the lower NP is already GEN-Q. It is only in this way that the Theta-Criterion can be satisfied. This parametric difference between the two languages, stated descriptively in (28a) above, thus constitutes a fundamental source of variation between numerically quantified structures in Russian and Serbo-Croatian.

In other words, quantifiers in Russian are structural case assigners on a par with verbs and prepositions taking accusative complements; quantifiers in Serbo-Croatian, on the other hand, are inherent case assigners on a par with verbs and prepositions taking oblique complements. Serbo-Croatian (29b, c) then will have roughly the D-Structures in (30), with ACC in (30a) not being assigned until S-structure.

(30) a. $[_{PP}$ za $[_{NP}{}^{max}$ $[_{QP}$ osam] $[_{NP:GEN}$ dana]]

b. $[_{PP}$ sa $[_{NP}{}^{max}{}_{:INST}$ $[_{QP}$ pet] $[_{NP:GEN}$ devojaka]]]

Note that (30) contrasts crucially with Russian (5), since in Serbo-Croatian percolation of case down into NP, whether oblique or not, is impossible. Recall that I assume that percolation is the result of coindexation among members of a projection, so that case percolates down as an automatic and immediate consequence of case assignment. A node already assigned case by a more local governor will, however, prevent further percolation. Thus, it is invariably blocked by the D-structure presence of GEN-Q on NP in Serbo-Croatian. In Russian, on the other hand, the heterogenous/homogenous pattern arises because NP is not assigned case until S-structure and consequently only blocks other less locally assigned structural cases.

I now turn to the issues of how the categorial status and distribution of quantified phrases differ in Serbo-Croatian and Russian. These questions are intimately related to the agreement of verbs predicated of quantified subjects. It turns out that none of the evidence that Russian numeral phrases may be maximally QPs is forthcoming in Serbo-Croatian. That is, Serbo-Croatian displays none of the contrasts observed in the previous section for Russian. First of all, in Serbo-Croatian, both agreement patterns are in fact acceptable (although the neuter singular is considered standard and preferred by most speakers):

(31) a. dvadeset "migova" prešlo je/
twenty MIGs-GEN.PL crossed-N.SG AUX-3.SG/
prešli su granicu
crossed-M.PL AUX-3.PL border-ACC

b. ovaj kontinent je napustilo/
this continent-ACC AUX-3.SG left-N.SG/
su napustili preko 70 miliona lica
AUX-3.PL left-M.PL over 70 million people-GEN.PL

c. nekoliko ljudi je kupilo/
several people-GEN.PL AUX-3.SG bought-N.SG/
su kupili imanja u Tetovu
AUX-3.PL bought-M.PL properties-ACC.PL in Tetovo

Recall that in Russian non-agreement is also possible in comparable constructions. The surprising thing is that it is the norm in Serbo-Croatian. If quantified phrases in Serbo-Croatian differ from those in Russian in that they are able to bear case, and are consequently categorially NPs, then we must conclude that the neuter singular verb form in Serbo-Croatian actually represents agreement with a quantified NP subject. This raises the interesting problem of why quantified NPs are neuter singular in Serbo-Croatian, but plural in Russian.

A possible solution to this problem can be found in the mechanics of number percolation and its interaction with the inherent/structural case dichotomy assumed above. Recall that case is assigned to NP and percolates downwards throughout the N projection. Pronominal features, however, are lexical properties of heads, and must therefore percolate upwards. Ordinarily, nothing prevents percolation of pronominal features all the way up to NP^{max}, but something appears to be inhibiting this percolation in quantified NPs in Serbo-Croatian, although not in Russian. Recall that the essential difference between these categories in the two languages is in the level at which GEN-Q is assigned, as shown in the D-structure contrast between Russian (32a) and Serbo-Croatian (32b).

(32) a. $[_{NP}{}^{max}$ pjat' $[_{NP}$ krasiv- devuš/k-]]

b. $[_{NP}{}^{max}$ pet $[_{NP:GEN}$ lepih devojaka]]

Presumably, the fact that NP is GEN-Q in Serbo-Croatian inhibits percolation of pronominal features up to NP^{max}. Even though the phrase *pet lepih devojaka* 'five beautiful girls' is semantically plural, upwards percolation of this feature is blocked by the oblique status of NP. Consequently, the pronominal features of the NP are set as neuter singular in the absence of any further specification. In Russian, on the other hand, GEN-Q is not assigned until S-structure, so it does not block percolation, which is induced at D-structure by virtue of all members of the projection bearing the same index. The plural option in Serbo-Croatian is thus a marked variant, in which the verb appears to exhibit semantic agreement. This might be understood as agreement with the head N, rather than with the NP itself, so that verb shows number (and gender) features of the subject noun.

Be that as it may, the contrast in agreement forms in Serbo-Croatian has no bearing the tests adduced above for Russian. Consider the examples in (33) and (34).

(33) pet žena je kupilo/ su kupile
five women AUX-3.SG bought-N.SG/ AUX-3.PL bought-F.PL
ovu knjigu za sebe
this book-ACC for themselves

(34) pet žena je to diskutovalo/
five women AUX-3.SG that-ACC discussed-N.SG/
su to diskutovale, idući kući
AUX-3.PL that-ACC discussed-F.PL going home

Either agreement option is possible, despite the presence of the reflexive pronoun in (33) or the gerundive clause in (34). The failure of forced subject-orientation to have any impact on agreement demonstrates that agreement is not a function of the status of the quantified phrase in Serbo-Croatian. Unlike Russian, it is always an NP and as such must invariably raise to IP-specifier position. The

ISH thus has no effect on our analysis of Serbo-Croatian. Quantified phrases are always NPs, hence they must always undergo NP movement from NP* to NP^ position. Whether or not they subsequently undergo QR is not dictated by any principles of UG, beyond those deriving the intended reading in accordance with the semantic requirements of the predicate.

4 Distributive *po*-phrases

This section examines the curious government paradigm of distributive *po* in Russian. The behavior of this element poses a host of problems for standard views of case assignment. It is argued that the properties of *po* follow immediately if *po* is treated as a preposition assigning a structural dative case DAT-Q, comparable to the structural GEN-Q, and if Russian numerals are structurally assimilated to other more familiar types of quantificational elements. Once QPs are regarded as functional categories, with obligatory specifier-head agreement, and treated like other phrases headed by operators, their unusual interaction with the special preposition *po* becomes clear.

4.1 A po-*puzzle*

Russian *po* applies to a numerically quantified phrase to induce a distributive meaning roughly corresponding to 'each'. The range of relevant examples is given in (35):

(35) a. každyj učenik polučil po odnomu rublju
each student received DIST one-DAT.SG ruble-DAT.SG

b. každyj učenik polučil po rublju
each student received DIST ruble-DAT.SG

c. každyj učenik polučil po dva rublja
each student received DIST two ruble-GEN.SG

d. každyj učenik polučil po pjat' rublej
each student received DIST five ruble-GEN.PL

e. každyj učenik polučil po pjati rublej
each student received DIST five-DAT ruble-GEN.PL

The argument NP following *po* is distributed over some other individuated argument NP in the sentence; this argument is often designated by an explicit quantifier, typically *každyj* 'each'.[10] *Po* implies an iteration of the action, but does not affect the predicate-argument structure of the clause. The NP in the *po*-phrase thus receives whatever theta-role the verb assigns to the position occupied by the *po*-phrase, *po* itself assigning no theta-role. In this sense, *po* is different from other prepositions in Russian, since it bears no thematic properties of its own.[11] Its government properties are also baffling, since, as a consideration of the examples in (35) reveals, distributive *po* appears to be able to assign several different cases.[12] Existing accounts of *po*, such as Crockett (1976), Mel'čuk (1985) or Babby (1985), generally assume a mixed analysis of its case government properties, such that the particular cases it governs depend to some extent on the cardinality of its object NP. Cases proposed ordinarily include the dative and accusative to handle examples like (35a, b) and (35c, d), respectively. Some scholars, such as Mel'čuk (1985) and Neidle (1988), add the genitive to this list in discussing examples such as (35e), although the form of the numeral here could also be dative, or even locative.

Superficially, *po* appears to be a preposition governing the dative. The basic puzzle posed by *po,* however, is that it defies a uniform analysis as a simple preposition. As a point of departure, consider the fact in (36) that *po* governs the dative on singular NP objects:[13]

(36) po odnomu rublju
DIST one-DAT.SG ruble-DAT.SG

Based on this kind of example, the null hypothesis would be to claim that *po* governs the dative, and is thus analogous to other prepositions that do so, such as *k* 'to'.

(37) [PP k [NP:DAT odnomu rublju]]
to one-DAT.SG ruble-DAT.SG

The structure in (37) represents an ordinary transitive preposition and its nominal complement. The only reasonable conclusion, it

seems to me, is that the same structure should be ascribed also to the *po*-phrase in (36). That is, whatever else it may be, distributive *po* must at some level be analyzed as a preposition assigning the dative case—*po* is necessarily transitive and there is no other available source for the dative.

The problem with this conclusion is that, unlike other prepositions which govern the dative, when the distributed NP contains a numeral higher than one, this NP does not similarly appear in the dative. To see that this is so, compare (38) with (39):[14]

(38) a. po dva rublja
DIST two ruble-GEN.SG

b. po pjat' rublej
DIST five ruble-GEN.PL

(39) a. k dvum rubljam
DIST two-DAT ruble-DAT.PL

b. k pjati rubljam
to five-DAT ruble-DAT.PL

Crucially, even though *po* assigns the dative case in (36), it is somehow prevented from assigning this same case in (38). In this respect, it contrasts markedly with other prepositions that govern the dative, as in (39). In (38), the dative cannot be realized, whereas in (39) it must percolate throughout the entire numeral phrase. Converse application is clearly ungrammatical in both instances:

(40) a. *po dvum rubljam
DIST two-DAT ruble-DAT.PL

b. *po pjati rubljam
DIST five-DAT ruble-DAT.PL

(41) a. *k dva rublja
DIST two ruble-GEN.SG

b. *k pjat' rublej
to five ruble-GEN.PL

Since examples like (36) demonstrate that distributive *po* is able to govern the dative, blocking its assignment in (40) is a serious problem, one which has not been fully appreciated in the existing literature on *po*. To my mind, this is the fundamental mystery posed by *po*-phrases.

4.2 Russian DAT-Q is a structural case

There is a simple solution to the paradox of how *po* manages not to govern the same case on phrases containing numerals higher than 'one' as on those containing (an explicit or implicit) 'one'. The answer is that this discrepancy is only apparent and that it indeed does govern a single case in both instances. The observed pattern is a consequence of the same kind of interaction between case and quantification as discussed in section 1 of this paper. In order to see that this is so, it is necessary to compare distributive *po* with a preposition governing the accusative. Such a preposition, it will be recalled, exhibits the exact same government pattern as does *po* —it assigns case (here, accusative) to its object NP, but this is blocked when the NP contains a numeric quantifier greater than 'one'. This is shown in (42) and (43):

(42)		čerez	odnu	minutu
		in	one-ACC.SG	minute-ACC.SG
(43)	a.	čerez	dve	minuty
		in	two	minute-GEN.SG
	b.	čerez	pjat'	minut
		in	five	minute-GEN.PL

The relationship between (36) and (37) with *po* is parallel to that between (42) and (43) with *čerez*. Thus, whatever mechanisms were invoked to explain the latter contrast should be equally applicable to the former one. In both instances the case assigned by the preposition—dative for *po* and accusative for *čerez* —is unable to percolate into the numeral phrase. The reason for this kind of pattern, it was argued in section 1, is that the quantifier provides a more local governor *at the same level of representation*. Since the accusative

assigned by *čerez* and Russian GEN-Q both apply at S-structure, minimality blocks accusative from percolating into the GEN-Q domain of the quantifier. We saw in section 3 that this kind of effect can also obtain at D-structure, where Serbo-Croatian GEN-Q blocks even oblique cases from percolating down.

It is easy to see that the proper solution to our *po* puzzle should capitalize on the same case conflict mechanisms. The quirky government pattern of dative-assigning *po* will result if it is analyzed on a par with an accusative-assigning preposition such as *čerez*. In particular, following my account of the structural/inherent dichotomy, let us assume that *po* assigns a [-oblique] dative case. That is, the dative case assigned by *po* is not the regular [+oblique] dative, but rather differs from it precisely in being [-oblique]. This case, which for the sake of concreteness I shall call the "dative of quantification" (DAT-Q), shares its nonobliqueness with GEN-Q. The following statement about the feature content of DAT-Q can thus be be added to the feature characterizations of other cases given earlier:

(44) Russian dative of quantification (DAT-Q) is [-oblique]

The crucial point here is that the [-oblique] dative of quantification differs from the regular dative in that it is assigned at S-structure. Therefore, just like the accusative, it is blocked by another closer [-oblique] case assigner, such as the genitive of quantification, which is structural in Russian. This accounts for the ungrammaticality of (45a) and (45b) in a parallel manner.[15]

(45) a. *po [$_{NP:DAT}$ pjati rubljam]
DIST five-DAT ruble-DAT.PL

b. *čerez [$_{NP:ACC}$ pjat' minuty]
in five-ACC minute-ACC.PL

Distributive *po* is no more able to assign dative uniformly to a quantified object as *čerez* is to assign accusative. Both are similarly blocked by the genitive of quantification, under minimality of government at S-structure.

4.3 Another po*-puzzle*

The ungrammaticality of the examples in (45) is due to the unmotivated case on the nouns *rubljam* and *minuty*, which have no source for dative and accusative, respectively. They cannot be assigned these cases since the quantifiers *pjati* and *pjat'* in (45) assign GEN-Q more locally, requiring the nouns to appear in their genitive plural forms *rublej* and *minut*. This raises an interesting question: Why can't the numeral appear in the case governed by the preposition and the noun in the case governed by the numeral? I have up to this point not indicated the case of the numeral when it itself governs, tacitly assuming the numeral to be a caseless, frozen form, since in non-oblique contexts it is generally impossible to determine whether the numeral is nominative, accusative or caseless. This is, however, not true of the structural dative assigned by *po*. And indeed, it turns out that in more literary styles of Russian it is also possible for *po* to assign its case exclusively to the numeral, as illustrated in (35e) and repeated below:

(46) po pjati rublej
DIST five-DAT ruble-GEN.PL

This property of Russian distributive *po* is usually analyzed as idiosyncratic, since (46) looks quite unlike any other case phenomenon in Russian. I shall however argue in the next section that the possibility of (46) is predicted by the analysis of DAT–Q as a structural case, and that this case pattern is in fact far from unique in the Russian language. Before doing so, however, let us briefly consider one common alternative analysis of (46).

In this kind of example, *po* appears to be assigning dative to *pjati,* with the quantifier nonetheless still assigning genitive to the nominal material following it. This is in fact how I believe the construction in (46) should be analyzed; the problem lies in figuring out an appropriate structure that will have the effect of allowing *po* to assign one case to the numeral and simultaneously allow the numeral to assign another case to *rublej*. One fairly standard kind of approach to this problem, following arguments in Babby (1985), is to claim

that what is involved in examples like (46) is a "prepositional quantifier," in the sense that *po* and *pjati* form a quantificational Preposition Phrase that itself assigns the genitive of quantification. In other words, (46) could be given a structure roughly as in (47):

(47) [NP [PP po [NP:DAT-Q pjati]] [N':GEN-Q rublej]]

This kind of analysis seems reasonable to me on both morphosyntactic and semantic grounds—indeed, I had adopted it all my previous work on *po*.

It is however worth pointing out that I differ from Babby with regard to the possibility of extending this structure to other putative "prepositional quantifiers," such as approximative *okolo* 'about'. Babby's reason for connecting the two is that both distributive *po* and approximative *okolo* semantically restrict the numeral only, rather than the entire NP. Nonetheless, as Neidle (1988) observed, the two display strikingly different case government patterns. In particular, note that *po* never assigns its dative case to the paucal numerals, although *okolo* does assign its genitive to them.[16] This contrast is shown in (48):

(48) a. po dva/*dvum rublja
DIST two/two-DAT ruble-GEN.SG

b. okolo dvux rublej/*rublja
about two-GEN ruble-GEN.PL/-GEN.SG

The facts in (48) illustrate two related points: (i) distributive *po* is not able to assign dative to the paucal numerals, only to *pjat'* and above, and (ii) other prepositions with quantificational force, such as *okolo*, invariably behave as ordinary prepositions taking an NP object, regardless of their interpretation. The first observation follows from the reasonable assumption that the paucal numerals are opposed to the higher numerals in being essentially adjectival rather than nominal. That is, in terms of syntactic features, *dva* 'two' is [+Qu, +N, +V] whereas *pjat'* 'five' is [+Qu, +N, -V]. Assuming that case can only be directly assigned ("directly" as opposed to "by virtue of agreement") to NPs, and not APs, the impossibility of as-

signing dative to the adjectival numeral *dvum* in (48a) immediately follows. Note that this conclusion holds regardless of the structure of *po*-phrases, so long as the case of the numeral is ascribed to government by the preposition. The second observation—that *po* is the only realistic candidate for a "prepositional quantifier," in the sense that it enters into a structure such is (47)—suggests that maybe even *po* can be assimilated to the standard structure of a preposition simply taking an NP complement, if its case properties are properly understood. That is, although the structure in (47) is credible in that it captures the fact that *po* exclusively governs the numeral, it is not otherwise motivated. One wonders, therefore, whether there may be a simpler analysis that makes use of independent properties of *po,* one that conforms to the general PP schema used to analyzed *po* so far. In the remainder of this paper, just such an analysis is explored.

4.4 ECM into QPs

The solution is, as before, to see that the proper analogy to make is not with other prepositions that semantically apply to the numeral, such as *okolo* 'about', but rather with other prepositions that assign a structural case. Once such a move is made, it becomes possible to treat *po* just like any other structural case-assigning preposition. That is, *po* just heads a PP and assigns case to its NP complement, like any garden variety preposition. This makes sense for the canonical instances of distributive *po,* where I have argued above that if *po* assigns a structural dative, then *po odnomu rublju* 'one ruble each' and *po pjat' rublej* 'five rubles each' can be analyzed as follows:[17]

(49) a.[$_{PP}$ [$_{P}$ po] [$_{NP:DAT-Q}$ odnomu rublju]]

b.[$_{PP}$ [$_{P}$ po] [$_{NP^{max}:DAT-Q}$ [$_{QP}$ pjat'] [$_{NP:GEN-Q}$ rublej]]]

In (49a) *po* assigns structural dative to NP, which percolates down the phrase to the head N *rublju* and, eventually, by agreement, to the modifier *odnomu.* In (49b), on the other hand, although *po* again assigns structural dative to NP^{max}, it cannot percolate down to NP, since this is marked GEN-Q under sisterhood to the numeral phrase

headed by *pjat'*. Now, the question is whether the type in (46) can be assimilated to this standard structure, instead of invoking a construction specific analysis along the lines of (47). I will claim that it can if we allow *po* directly to assign its dative to the numeral phrase, rather than to the phrase containing the numeral, and if the structure of numeral phrases is modified accordingly. That is, (46) results if *po* is able exceptionally to assign its case to the specifier of its complement rather than to the complement itself.

This phenomenon is comparable to the mechanism of Exceptional Case Marking (ECM) often discussed in the syntax literature to explain what happens after *believe*-type verbs in English, as in (50).

(50) John believes [$_{IP}$ [$_{NP}$ me [$_{I'}$ to have written the letter]]]

The complement clause is an IP, since it contains no COMP material. *Believe* assigns the appropriate theta-role to this complement IP—the role of the proposition which is 'believed'—but cannot assign it case since clauses, unlike NPs, do not bear case. Instead, the verb *believe* exceptionally assigns its objective case to the specifier of the IP, namely, to the subject NP *me* of that complement clause. It is standardly argued that this kind of ECM only occurs with structural cases, never with inherent ones; cf. for example Chomsky (1981) or Speas (1990). The reason is presumably because only structural cases can be divorced from assignment of semantic roles, so that in (50) *believe* is assigning its theta-role to one thing (the IP complement), but its case to another (the NP specifier of that IP). Be that as it may, the important observation is that what is going on in Russian *po*-phrases is entirely comparable—*po* is assigning its case to what looks like the specifier of its complement rather than the complement per se, this case assignment occurs independently of assignment of a semantic role, and this possibility arises precisely because the case *po* assigns is a structural one (albeit somewhat idiosyncrastically so). The existence of the type of *po*-phrase in (46) thus provides striking support for my claim that distributive *po* assigns a *structural* dative case, since the possibility of ECM only

exists when structural case (i.e., a case with the feature [-oblique]) is being assigned.

Other motivation for ECM within Russian is, admittedly, not overwhelming, although one reasonably likely candidate is the verb *sčitat'*, as in (51).

(51) ja sčitaju [SC Veru krasavicej]
I consider Vera-ACC beauty-INST
'I consider Vera a beauty.'

In this example, the proposition *Veru krasavicej* is a kind of "small clause," corresponding as it does to the full clause *(čto) Vera krasavica* '(that) Vera (is a) beauty'.[18] It is this small clause that is the object of the verb *sčitaju* 'I-consider,' which takes two arguments—a 'believer' entity and a 'believed' proposition. *Veru* is thus interpreted as the subject of the predicate NP *krasavicej,* but nonetheless receives its case from the verb, even though it is not assigned a theta-role by this verb. Note that this possibility once again is connected to the fact that the accusative case assigned by *sčitat'* 'to-consider' and most other verbs is structural. ECM does not occur with oblique cases. For example, if (51) were negated the genitive would not be acceptable, as shown in (52):

(52) ja ne sčitaju [SC Veru/*Very krasavicej]
I NEG consider Vera-ACC/GEN beauty-INST
'I don't consider Vera a beauty.'

The reason is simply that the genitive of negation is [+oblique] and so cannot be directly assigned to the specifier of the verb's complement. In this respect, as argued above, the genitive of negation is clearly an instance of the regular oblique genitive rather than structural genitive of quantification. Correspondingly, it can override GEN-Q, as illustrated by (53).[19]

(53) ja ne ponjal ètix pjati zadač
I NEG understood these-GEN.PL five-GEN problems-GEN.PL
'I didn't understand these five problems.'

The ECM hypothesis thus extends to *po*-phrases to accommodate the otherwise mysterious case pattern in (46).

4.5 The QP hypothesis revisited

My claim that (46) is an instance of ECM still leaves several important questions unresolved. One might for example wonder what it is about the object of *po* that allows the preposition to assign case to the specifier of that object rather than to the object itself. The answer to this question, I believe, can be found in a proper treatment of the ECM phenomenon in general. That is, by exploiting the parallelism with English ECM constructions, we may better be able to understand the case-assignment mechanisms involved in Russian *po*-phrases. The hallmarks of English ECM, as displayed in (50), are listed in (54):

(54) (i) the case assigned by V is structural, rather than inherent;
(ii) the complement is an IP, rather than an NP, and as such cannot be assigned case;
(iii) the specifier of the complement is an NP which would otherwise have no source for case.

Now, is it possible to recreate all these characteristics for the Russian construction? We have already seen that the first claim is necessary in order to explain the impossibility of dative homogeneously percolating throughout the quantified NP, as in the infelicitous (45a). That the second and third claims also apply to Russian is somewhat more difficult to see, since we have up to now been referring to the phrase after *po* as a "quantified NP." If the structures in (16) were to be extended to *po*-phrases, one would have to argue that when an NP^{max} follows *po* structural dative is assigned to that NP^{max}, but its percolation down to the NP is blocked by the more local QP governor. However, when a QP^{max} follows *po* structural dative cannot be assigned to the QP^{max}, but may instead be assigned to the QP inside of it.

This approach is, however, not without serious conceptual problems. Most obviously, it makes little sense to claim that, given a structure such as in (16a), QP can be a target of case assignment if QP^{max} cannot. Moreover, although structurally comparable to English ECM, this QP is not the specifier but rather a projection of the head of the complement phrase. To remedy the situation one would have to change the QP in (16a) to an NP, thereby allowing—in fact requiring—it to receive case. This interim proposal is given in (55).

(55) a. $[_{QP^{max}}\ [_{NP}$ pjat'$]\ [_{NP}$ rublej$]]$

b. $[_{NP^{max}}\ [_{QP}$ pjat'$]\ [_{NP}$ rublej$]]$

In (55) the numeral will be assigned case if it is an NP and the entire NP^{max} will be otherwise. In [+oblique] case positions only the NP^{max} option is viable, since oblique cases cannot be assigned under ECM. In [-oblique] case positions both options should be possible.

Still, the structure in (55a) is highly suspect, since it involves a maximal QP projection with no Q head. I would, therefore, like to suggest a radical alternative solution to the problem of the internal structure of numeral phrases. Case is standardly argued to be assigned by heads of various categories to noun phrases that they govern. Assimilating numerals to this model, one would ideally like the numeral to be a head Q that takes an NP complement, as in (56):

(56) $[_{QP}\ [_{Q'}\ [_{Q}$ pjat'$]\ [_{NP}$ rublej$]]]$

The relationship between the Q and the NP is thus parallel to that between any verb or preposition and its object. In other words, I am claiming that QP is a functional category along the lines of much similar current work with the theory of phrase structure,[20] and that quantified NPs are properly regarded as complements to Qs.

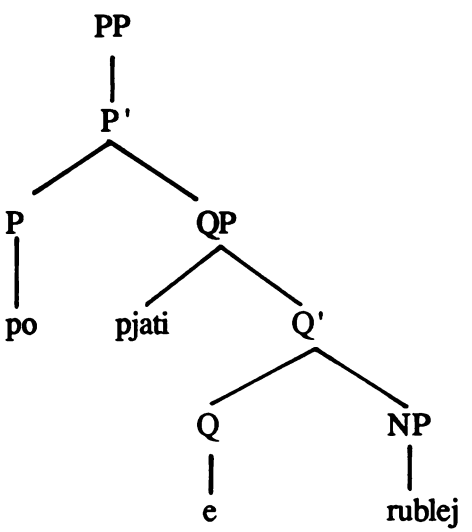
There are, however, two reasons why the precise structure in (56) is inadequate for Russian numeral phrases, although both have solutions that follow straightforwardly from recent proposals about phrase structure. First, notice that structure (56) does not help very

much in dealing with *po* —in particular, it sheds no light on why *po* is able to govern the numeral as the specifier of its complement—since *pjat'* is not only not a specifier, but not even a phrase. To remedy this situation, I suggest that (56) be revised so that *pjat'* is in fact the specifier of the QP, as in (57):

(57) [$_{QP}$ pjat' [$_{Q'}$ [$_{Q}$ e] [$_{NP}$ rublej]]]

In other words, the QP is headed by an empty quantifier and the numeral is actually its specifier. Hence, putting (57) after *po*, as in (58), results in *po* being able to assign its structural DAT-Q to *pjati* and the null quantifier [$_{Q}$ e] in turn to assign its structural GEN-Q to the NP *rublej*.

(58) [$_{PP}$ [$_{P'}$ po [$_{QP}$ [$_{NP:DAT-Q}$ pjati] [$_{Q'}$ [$_{Q}$ e] [$_{NP:GEN-Q}$ rublej]]]]]



The idea that the numeral could be the specifier rather than the head of the QP is not as outlandish as it might at first blush seem. A QP is a kind of operator phrase, and much work since Chomsky (1986a) contends that it is generally true that the lexical material in an operator phrase can be either in the specifier or head position, or some-

times in both, with obligatory SPEC-head agreement. For example, consider the fact that interrogative sentences, analyzed as CPs, typically have the overt [+WH] material in the specifier of CP position, as in (59).

(59) a. [$_{CP}$ when [$_{C'}$ did [$_{IP}$ John leave]]]
b. I wonder [$_{CP}$ when [$_{C'}$ [$_{C[+WH]}$ e] [$_{IP}$ John left]]]

In English, WH-movement is movement to the specifier of CP, but in order for a clause to be interpreted as interrogative its head must be [+WH]. In (59b), for example, *wonder* selects for a [+WH] complement, but CP will be [+WH] only if its head C is also [+WH], even if that head is lexically empty. This is a standard example of so-called "SPEC-head agreement." More recently, Ouhalla (1990, 1991) has argued that in negation phrases the negation element can be either the head or the specifier of the negation phrase, with the other position being lexically empty. He uses this to account for variation in the position of the negation element in different languages. In some languages, in fact, both positions are occupied, as in the French *ne pas* construction. So, adapting these ideas to the analysis of Russian QPs, the structure in (57), with the consequence for *po*-phrases as in (58), makes perfect sense.[21]

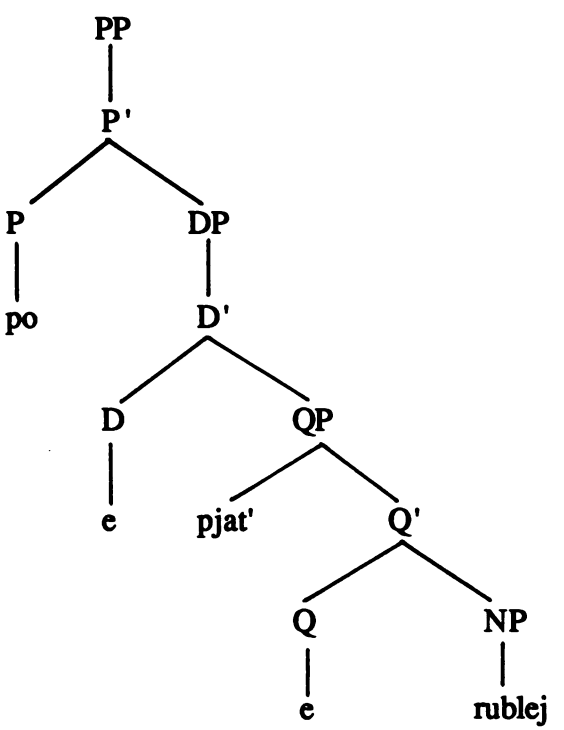
The other problem with (56) is that now we have lost Pesetsky's contrast between numeral phrases that are maximally QPs versus those that are NPs. Since we want the relation between Q and its NP complement to be constant, regardless of whether maximal QP or NP behavior is exhibited, the solution must lie in building up some additional structure above the QP. This can, however, be easily accomplished within the current conception of a nominal phrase as projecting up higher functional categories, following Abney (1987). It is now generally accepted that NPs are actually embedded in determiner phrases (DPs), with the head D taking an NP complement. In Russian, where evidence for overt determiners is to my mind minimal, the DP might be replaced by a kind of case (or "Kasus") phrase, known as a KP.[22] Since, however, whether the highest phrase in Russian is treated as a DP or KP is irrelevant to the analysis at hand, I adopt the DP hypothesis for purposes of exposi-

tion. In line with this hypothesis, I propose that QPs may be embedded in DPs. That is, in addition to the structure in (57), the structure in (60) also exists:

(60) [DP [D' [D e] [QP pjat' [Q' [Q e] [NP rublej]]]]]

Numeral phrases that I have been analyzing as QPs have the structure in (57), but those that I have been analyzing as NPs actually have the structure in (60). Assuming this distinction, it is easy to see that placing a DP rather than a QP after the preposition *po* protects the numeral from ECM by the preposition, since the numeral is no longer the specifier of the complement. This final structure is given in (61):

(61) [PP [P' po [DP:DAT-Q [D' [D e] [QP pjat' [Q' [Q e] [NP:GEN-Q rublej]]]]]]]



One might then ask what case *pjat'* 'five' in (61) is, if this involves a DP complement to a preposition. Given standard assumptions about case assignment, *pjat'* should in fact have no source for case. We are therefore led to the not unreasonable conclusion that it is caseless, i.e., it is a frozen form. Note that this runs contrary to the traditional wisdom that it is accusative, although caseless quantifiers have occasionally been argued for in the Slavic literature; cf. for example Fowler (1987) and Neidle (1988). However, if this *were* an accusative position, there would be no way to explain why unambiguously accusative numerals cannot appear here. I have in mind the behavior of *tysjača* 'thousand,' as shown in (62).

(62) po tysjače/*tysjaču rublej

The dative is the only viable form in (62), suggesting that here *po* can only take a QP complement, never a DP one. The reason, I suggest, is simply that Russian does not countenance a caseless form of *tysjača*, so that the DP option is necessarily suppressed.

In light of the functional analysis of QPs, consider finally the agreement possibilities exhibited by subject *po*-phrases. As shown by the examples in (63), the plural verb form is unacceptable, the neuter singular being the only viable option.

(63)a. každuju knjigu *pročitali/(*)pročitalo
each book-ACC read-PL/N.SG
po pjat' studentov
DIST five students-GEN.PL
'Five students read each book.'

b. na každom zavode *rabotali/(*)rabotalo
at each factory worked-PL/N.SG
po sto čelovek
DIST hundred people-GEN.PL
'a hundred people worked at each factory'

As before, the asterisk in front of the neuter forms is in parentheses since Pesetsky (again, erroneously) considered the neuter impossible for the same ECP reason as with other QP subjects. Here,

however, the plural option is (this time correctly) also unavailable. This result follows from my analysis that *po*-phrases in Russian are only PPs, never NPs or QPs. As such, they behave just like PP subjects do in general. The actual position occupied by PPs is immaterial to the analysis; whether they are true subjects in IP-specifier position or not, the point remains that *po*-phrases can function as semantic subjects and, as such, they exhibit the subject-verb agreement behavior expected of PP subjects.[23]

5 Conclusion

In this paper I have discussed the syntax of Slavic numeral phrases, arguing that in Russian the genitive of quantification must be analyzed as a structural case. I additionally maintained that Russian numeral phrases may be either QPs or NPs/DPs. I showed that Serbo-Croatian differs from Russian in that comparable phrases in this language are only DPs, and that the case assigned by Serbo-Croatian numerals is inherent. Given these contrasts, it was then argued that the QP/DP dichotomy should be recast in terms of the Internal Subject Hypothesis. Finally, an in-depth treatment of distributive *po*-phrases in Russian led to the proposal that Qs take NP complements, with the QP optionally embedded in a higher DP. It turned out that in order to unify the government properties of *po* under a unique case requirement, however, it proved necessary to analyze the numeral as occupying the specifier rather than head position of that QP. This analysis allowed the puzzling properties of distributive *po* to follow directly from the assumption that it displays a uniform—albeit unusual—case requirement, namely that *po* in Russian assigns a structural dative. In sum, then, the Russian numeral phrase *pjat' rublej* 'five rubles' can have either structure indicated in (64).[24]

(64) a. $[_{DP}\ [_{D'}\ [_{D}\ e]\ [_{QP}\ pjat'\ [_{Q'}\ [_{Q}\ e]\ [_{NP}\ rublej]]]]]]$

b. $[_{QP}\ pjat'\ [_{Q'}\ [_{Q}\ e]\ [_{NP}\ rublej]]]]$

In both instances the null Q assigns GEN-Q to the NP *rublej*. I maintain that such an approach to numeral phrases and *po* is supe-

rior because it (i) eschews case selection by *po* as a function of NP cardinality, (ii) solidifies the correspondence between meaning and case selected, (iii) explains the apparently "mixed" behavior of complements to *po* in terms of its quantificational import, (iv) extends naturally to handle numeral phrases in other Slavic languages and (v) leads to a more insightful understanding of obliqueness in general.

Although I have only discussed numeral phrases in Russian and, to a much lesser extent, Serbo-Croatian, a proper analysis should extend to numeral phrases in the other Slavic languages as well. In Franks (in press, forthcoming), I show how Polish can be assimilated to the general scheme presented in this paper so long as Polish GEN-Q, which is standardly inherent although in older styles also exhibits a structural option, is only assigned in *accusative* DPs in that language. In general, it should be noted that the tests in section 2 indicate that numeral phrases are never maximally QPs outside of East Slavic. The question of how this relates to the syntax of *po*-phrases in other Slavic languages, in particular, needs to be further explored. It is, however, worth pointing out that, as expected, the possibility of *po* assigning its case exclusively to the numeral, as in Russian (46), does not exist beyond East Slavic, since in South and West Slavic the numeral is necessarily protected from ECM by the higher DP.

Notes

1 There exists a large body of literature dealing with Russian numeral phrases from a variety of perspectives; the present analysis relies in part on such important studies as Babby (1985, 1987), Corbett (1979), Mel'čuk (1985), Neidle (1982, 1988), Pesetsky (1982), and Suprun (1959). Much of the material in sections 1-3, which evolved largely in an attempt to generalize Babby's and Pesetsky's ideas to numeral phrases in other Slavic languages, is also reported in Franks (1990, forthcoming). The analysis of Russian *po*-phrases in section 4, was initially presented at the 1991 annual meeting of AATSEEL and also appears in Franks (in press).

1 Here I follow the terminology of Jakobson (1956/1971), in which "oblique" refers to all cases except nominative and accusative. This usage differs from the traditional one in grouping accusative with nominative, but is standard among Slavists for the obvious reason that rules of grammar (such as the GEN-Q rule) need to distinguish oblique cases from non-oblique ones.

3 I adopt these structures for expositional purposes only. My representation of the internal structure of these numeral phrases will be considerably revised during the course of this paper.

4 See Franks (1985, forthcoming), as well as Neidle (1988), for discussion of a possible feature system and comparison with that of Jakobson (1936/1971, 1958/1971).

5 Consider, for example, the statement in Speas (1990, 180) that "inherent Cases are theta-related in the sense that they are linked to an argument bearing a *specific theta role*."

6 He rules this option out by means of a complex interaction between the ECP and categorial selection, which Pesetsky claims must be satisfied at LF.

7 Various alternative related approaches exist. Here I adopt the instantiation in Speas (1990), in which the subject *is* the specifier of VP rather than an element base-generated as adjoined to VP.

8 For further discussion of parametric variation in the properties of numeral phrases in Slavic, and especially for extension of the system described in this section to Polish, see Franks (1990, in press).

9 I have glossed the quantified forms in (35d, f), which involve the paucal numerals *dva, oba, tri, četiri* 'two, both, three, four', as GEN.SG, although they might also be analyzed as NOM.PL.

10 Although the syntactic analysis in this paper does not depend upon a complete understanding of the semantics of *po*, this is a complex issue worthy of further investigation. Although the *po* argument must distribute over some other argument of the verb, as Dickey (1992) observes in discussing various types of *po*-phrases in Serbo-Croatian, it is also possible for the *po*-phrase to distribute over the verb's event argument, resulting in a *jeden po jeden* 'one by one' reading. The syntax of *po*-phrases in Serbo-Croatian is also unique in that the *po* seems to be transparent to case, much like the *za* 'for' discussed in the next footnote.

11 One exception is *za*, in the *čto za* 'what for' construction, which is a calque on German *was für*. Interestingly, as mentioned in fn. 10, Serbo-Croatian *po* has this same property of being transparent to case assignment. Consider for example the following, from Dickey (1992):

(i) razgovaramo sa jednim po jednim kandidatom
we-speak with one-INST DIST one-INST candidate-INST
"We are speaking with each candidate, one after the other."

(ii) kupio sam tri knjige po učeniku
bought AUX-1.SG three books DIST student-DAT.SG
"I bought three books for each each student."

(iii) dobijali smo municiju od jednog po jednog vojnika
got AUX-1.PL ammunition from one-GEN DIST one-GEN soldier-GEN
"We received ammunition from each soldier, one at a time'

(iv) sjećam se po jednog dogadjaja iz svakog grada
I-remember REFL DIST one-GEN event-GEN from each town
u kome sam živio
in which AUX-1.SG lived
"I remember an event from every town I have lived in."

The case after *po* is invariably the case independently required, which can be any case at all.

12 To be fair, *po* is exceptional in this regard in other usages as well—even though it assigns dative to a complement NP, as in (i), it take locative pronominal complements, as in (ii):

(i) Vera skučaet po otcu
Vera longs for father-DAT

(ii) Vera skučaet po něm
Vera longs for him-LOC

I have no explanation for this further mysterious idiosyncracy.

13 In this and all subsequent examples in this section only disembodied *po*-phrases are cited, since I am concerned with the internal structure of these phrases rather than their relationship to the rest of the clause. Note that *odnomu* 'one' in (36) can be left out with no loss in meaning or grammaticality.

14 In the glosses in (38) no case is indicated for the numerals. They are traditionally regarded as accusative in this environment, although they could equally well be nominative or caseless. I shall argue that the latter is correct.

15 *Pjat'* 'five' in (45b) is glossed as accusative for the sake of consistency, the essential point being that the nominal head of the object of the preposition fails to receive the case governed by that preposition.

16 Recall that the 'paucal' numerals in Russian are *dva, tri, četyre* 'two, three, four'. Owing in part to their adjectival origins, they differ from other numerals in several important respects, most significant of which is that the paucal numerals assign the genitive singular rather than plural.

17 Structure (49b) is based on (16), which was introduced as a composite of Babby's idea that the QP is internal to the quantified NP and Pesetsky's idea that Russian countenances numeral phrases which are maximally either NPs or QPs. The structure will be revised in line with the idea that Q is a functional category in the next section.

18 Of course, such small clauses are only viable in Russian when the predicate is an AP, NP or PP, but never a full VP. This suggests that this construction necessarily lacks tense and agreement features. However, regardless of these restrictions, the point remains that the complement of *sčitat'* is a semantic constituent, the subject of which is externally accessible for the purposes of case-assignment.

19 The genitive of negation does not interact with the structural dative assigned by *po* since this heads a PP rather than an NP.

20 Cf. for example Abney (1987) or Ouhalla (1990, 1991).

21 Shlonsky (1991), extending ideas due to Abney (1987), proposes that the Hebrew quantifier *kol* 'all' heads its own functional category QP. Ritter (1991) similarly argues that numerals and other quantifiers in Hebrew head NumPs. From this it is a small step to assimilate variation in QPs to other types of functional phrases involving operators, so that the lexical item may be analyzed either as the specifier or head of the phrase.

22 See Toman (this volume) for discussion of how this issue should be resolved.

23 Under certain circumstances plural agreement with PP subjects is admissible, as discussed by e.g. Babby (1985) and Neidle (1988). *Po*-phrase subjects behave similarly to other PP subjects in this regard, supporting my claim that they are simply PPs.

24 The idea that the number is the specifier of the QP does not preclude the possibility that it may also be able to occur as the head. Following the approach to negation in Ouhalla (1990), this is perhaps an additional element of variation in Slavic numeral phrases. I do not, however, pursue the implications of this possibility here.

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The Functional Structure of Slavic Clauses*

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0 Introduction

In this paper we address the general problem of how to characterize Slavic clause structure from the perspective of the theory of functional categories. We begin by laying the conceptual groundwork and reviewing some theoretical issues relating to this theory. Next, we present relevant morphological data from Russian and Polish. Finally, we discuss various conceivable analyses of the range of phenomena encountered, concentrating on the Russian facts. We consider three distinct sets of possibilities, and argue that although Russian predicates exhibit both gender/number and person/number agreement, only the latter actually corresponds to clausal AGR. This allows us to conclude that Slavic can be accommodated by a phrase structure system of the type proposed in Ouhalla (1991), in which AGR may take a TP complement, and heads never move to hierarchically lower positions in the syntax.

1 Functional and Substantive Categories

1.1 Grammatical Features as Heads

Lexical categories, such as N and V, typically have associated with them discrete sets of grammatical properties. For nouns, these properties include such things as gender, number and case. The first two

are traditionally regarded as inherent properties of the noun, in that they are generally inalienable from the lexical item per se. They are purely paradigmatic, determined solely by the head noun and without reference to external factors such as the syntactic position of the NP.[1] These, together with person, are often referred to as "pronominal" or ϕ-features. Case, on the other hand, is determined syntagmatically and functions independently of these ϕ-features. It is assigned to an NP on the basis of the NP's syntactic context. For verbs, on the other hand, the distinction between inherent and assigned features is not as obvious. One might regard features like aspect, mood, voice and tense as inherent to the verb in the sense that they generally[2] do not depend on VP-external factors, and ϕ-features marked on the verb are assigned to the verb in the sense that they clearly result from agreement with arguments of V (typically but not exclusively with its subject). The status of these grammatical features of V is the focus of the present paper. In particular, we will be concerned with how they might become associated with verbal heads in Slavic.

In associating a feature such as tense with a specific verb one might either (i) draw the verb from the lexicon complete with its appropriate tense features or (ii) represent those features in some independent way in the syntax and then unify the verb with its tense features through movement processes. This latter approach is taken within the theory of functional categories, which argues that functional elements are syntactic categories and head phrases in their own right. The theory distinguishes substantive categories such as V and N from functional categories such as tense (T) and determiner (D), where the latter are regarded as functional projections of substantive parts-of-speech. Although the current trend is for each functional category to head its own phrase at D-structure, it does not seem to us that this is a necessary assumption. A reasonable alternative might be to follow earlier instantiations of extended X-bar syntax in which various functional elements could be generated under a single node, such as INFL. This solution represents a compromise between the lexical and syntactic approaches mentioned above.

Deciding whether a given functional feature set heads its own syntactic projection seems to us to depend on how morphologically active it really is. Motivation for positing functional categories typically comes from two sometimes conflicting sources—they are either morphologically or semantically driven. That is, a feature set F can be ascribed to a syntactic head position either if F corresponds to an identifiable morphological entity or if the features contained in F are required for interpretation. We do not, however, believe that semantic presence is sufficient motivation for postulating an independent phrasal projection, since allowing purely semantic considerations to drive selection of functional categories potentially proliferates them indefinitely.[3] Once, however, it is established that F heads its own projection, there are at least two obvious ways in which F can combine with the substantive head H below it—the features of F can either amalgamate (unify) with those of H or F can adjoin to H as a separate morpheme. This distinction roughly corresponds to synthetic versus agglutinative morphology.

1.2 Tense and Agreement Projections

We now turn to the particular functional categories with which we shall be concerned in this paper. A view which by now has become standard is that the IP of Chomsky (1986) needs to be broken down into (at least) Agr and Tns as independent heads. We shall share this assumption. There are, however, many different ways to represent and recombine Agr, Tns, and V, depending on (i) the relative scope of Agr and Tns, (ii) whether movement results in adjunction, amalgamation, or is blocked from applying and (iii) whether each movement step is a raising or lowering operation. In restricting these possibilities somewhat, we shall follow Ouhalla (1991) and assume that there is no syntactic head lowering, only raising.[4] We adopt Ouhalla's model since it seems to us to be most complete and consistent system available, although we do not think very much of what we shall have to say about Slavic hinges on the specifics of his system.

In addition to assuming raising exclusively, Ouhalla argues that every functional head must specify what phrases it may take as a

complement syntactically and what elements it may attach to morphologically. He sees these requirements, which are more traditionally termed "subcategorization," as c(ategorial)-selection and m(orphological)-selection, respectively. In this way, variation can consist in whether Agr, for example, is outside Tns or vice versa. That is, Ouhalla derives a significant amount of parametric variation from the relative positions of various functional categories.[5] He seems, however, to be assuming that all languages will have all the same functional categories, at least with respect to the functional projections of V at issue here, and that the axis of variation lies in how they are put together. This idea, which strikes us as unlikely, is implicitly based more on the semantic motivation for functional categories than on the morphological one. Thus, for example, any clause which is understood as tensed must have a Tns node, even if it lacks an explicit marking for tense. Ouhalla claims that all clauses have Tns, since even infinitives bear the feature [-tns], but not all clause have AGR, under the assumption that infinitives regularly lack agreement. Although lack of AGR is by no means universal (cf. the treatment of Portuguese in Raposo (1987)), the point remains that Ouhalla admits some variation in what functional categories a given substantive head projects. And, just as Vs do not necessarily project an AgrP, Ouhalla doesn't have them projecting e.g., a PassP when they are active or a NegP when affirmative. That is, instead of implicitly adopting a VoiceP and PolarityP, in these instances he posits just what the morphology needs. The assumption, however, that an active verb is not embedded in an appropriate VoicePhrase raises an interesting problem, since the verb presumably still must have the feature [+active] marked on it. If so, one wonders why this feature does not constitute an independent syntactic head, given that e.g., Tns does even when not morphologically marked.

1.3 General Assumptions for the Analysis

We thus adopt the following working principles in approaching the Slavic data. These general assumptions will help in narrowing down the range of possible analyses:

a. IP needs to be broken down into at least TNS and some kind of AGR elements. Whether or not these constitute independent heads is an empirical matter.

b. Nominative case is assigned to subjects in the Specifier of AgrP position and is due to SPEC-head agreement with Agr.

c. Functional categories are able to c-select and/or m-select for other categories.

d. There is no lowering of elements.

In the remainder of this paper we compare specific analyses of the Slavic data consistent with the above criteria.

2 Slavic Clauses

Despite all the recent discussion of functional categories in the general linguistic literature, there has been little investigation of the functional structure of Russian (and/or Slavic) clauses.[6] In this section we present Slavic data that any adequate analysis should capture and which our analysis in Section 3 attempts to explain. We begin with a sketch of Russian verbal morphology, paying particular attention to certain crucial facts, and then proceed to a presentation of similar relevant facts from Polish.

2.1 Russian Verbal Morphology

In this section we present the core properties of Russian which our analysis must cover. These are familiar to all students of Russian. Verbs typically come in two aspects: imperfective (I) and perfective (P). Aspect may be marked in any of three different ways, namely, via prefixation, suffixation, or suppletion:

(1) a. Prefixation: *čitat'* (I) / *pročitat'* (P); *pisat'* (I) / *napisat'* (P); *delat'* (I) / *sdelat'* (P)

b. Suffixation: *rasskazat'*(P) / *rasskazyvat'* (I); *perečitat'* (P) / *perečityvat'* (I)

c. Suppletion: *klast'* (I) / *položit'* (P); *govorit'* (I) / *skazat'* (P)

These two aspects cut across three different tenses (past, present, and future) and provide a contrast between semantic and grammatical categories. This system is illustrated in (2) for the verb *čitat'*.[7]

(2) *Tense*

Tense	Imperfective	Perfective
Past	*čitaj-l-#/a/o/i*	*pročitaj-l-#/a/o/i*
Present	*čitaj-u/oš'/ot/om/ote/ut*	—
Future	*bud-u/oš'/ot/om/ote/ut čitat'*	*pročitaj-u/oš'/ot/om/ote/ut*

As can be seen from (2), the past tense form (both imperfective and perfective) consists of the verb's basic stem, followed by *-l*, which represents the past tense, and one of four endings *-#/-a/-o/-i*, which are said to "agree" with the nominative subject of the sentence and reflect the subject's gender and number, but notably not its person:

(3) BASIC STEM	Past	Masc. Sg.	Fem. Sg.	Neut. Sg.	Pl.
čitaj	*l*	*#*	*a*	*o*	*i*
pročitaj	*l*	*#*	*a*	*o*	*i*

Similarly, in (2) the imperfective present and perfective future consist of the verb's basic stem, followed by any one of six endings *-u/-oš'/-ot/-om/-ote/-ut*. These are sometimes referred to as the "non-past" endings. Once again, these endings are said to "agree" with the nominative subject of the sentence, but—in contrast to the endings in the past tense—these endings indicate the person and number of the subject:

(4) BASIC STEM	1sg	2sg	3sg	1pl	2pl	3pl
čitaj	*u*	*oš'*	*ot*	*om*	*ote*	*ut*
pročitaj	*u*	*oš'*	*ot*	*om*	*ote*	*ut*

The one remaining category in (2) is the imperfective future.[8] This category is synthetically composed from a conjugated form of the copula *byt'* (i.e., the stem *bud-* followed by one of the six non-past endings) followed by the imperfective infinitive:

(5) BASIC STEM	1sg	2sg	3sg	1pl	2pl	3pl	INFINITIVE
bud	*u*	*os'*	*ot*	*om*	*ote*	*ut*	*čitat'*

The infinitive may be further broken down into the basic stem of a verb followed by an infinitive marker *-t'*:

(6) BASIC STEM	INFINITIVE
čitaj	*t'*

We now briefly summarize some observations that should be kept in mind in developing an analysis of the facts. First, Russian has only one explicit marker of tense, i.e. *-l*, which marks [+past]. This tense marker freely attaches to verb stems of either aspect and is followed by endings that match the gender of the subject rather than its person.[9] Second, aspect can be formally represented on the verb stem in a variety of ways, i.e., via suffixes, prefixes, or suppletive stems. Third, the non-past endings are actually person endings, i.e., they invariably mark the person of the subject. The non-past endings result in different tense readings depending on the aspect of the stem: imperfective conjugated verbs have present tense meaning and perfective conjugated verbs have future tense meaning. Fourth, the imperfective future is periphrastic, consisting of an auxiliary verb with person endings followed by the imperfective infinitive. Finally, the infinitive consists of a verb stem followed by the infinitival ending, which should perhaps be regarded as a [-tense] marker.

From these observations, one might conclude that a verb may show either overt tense marking, or overt person marking, but never both at one time. In other words, tense marking and person marking seem to be in complementary distribution. The only place that this might not hold is in the periphrastic imperfective future, assuming that the infinitive has a [-tense] ending. However, the person marker and the tense marker still do not appear on the same verb, i.e., the former appears on the copula, and the latter appears on the lexical verb.

Note that Agr has traditionally been used to represent two types of agreement: gender agreement and person agreement. When referring to "gender" agreement, which is instantiated by the nominal endings *-#/-a/-o/-i*, we mean agreement in gender and number together. This type of agreement is used to represent various NP-NP relations, e.g., the relationship nominal predicates and anaphors with their antecedents, as well as to represent these subject-verb relations. By "person agreement" we mean the set of endings that mark agreement of the subject of S in person together with number features.

Before turning to the other Slavic languages, we should briefly examine the properties of the copula *byt'*. The copula in Russian has traditionally been described as having "no present tense," as can be seen in (7).

(7) *Copular constructions*

TENSE	NP PREDICATE	AP PREDICATE	PP PREDICATE
Past	*Ivan byl student*	*Ivan byl umnyj*	*Ivan byl v lesu*
Present	*Ivan — student*	*Ivan — umnyj*	*Ivan — v lesu*
Future	*Ivan budet student*	*Ivan budet umnyj*	*Ivan budet v lesu*

Notice further, that *byt'* does not distinguish aspect and is morphologically perfective.[10] It is this property that gives the imperfective "future" its future interpretation. In addition, since *byt'* exists only as a perfective form, the following two facts emerge: (i) there can be no auxiliary marked for person with past tense verbs and (ii) there is no present tense copula marked for person. Thus, person is not overt in past tense copular constructions.

2.2 Polish Verbal Morphology

The clause structure of South and West Slavic languages differs from that of Russian in several significant ways that any analysis of functional categories should capture. In this paper we limit the comparison to one of these languages; ultimately, of course, we hope to extend the eventual analysis to the complete range of Slavic

languages. Below are stated the major relevant differences between Polish and Russian.

Polish, like the other Slavic languages, is morphologically uniform in marking person.[11] As can be seen in (8) and (9), person is realized in the past tense (8), as well as in the non-past forms (9). It is also realized in the past tense of copular constructions, (10).

(8) *Polish verb morphology (past)*

VERB STEM	PAST	GENDER	PERSON	PERSON
czytaj-	/-ł/	-# (masc) -a (fem) -o (neut)	-m	1st sg
(imperf.)	/-ł/	-# (masc) -a (fem) -o (neut)	-ś	2nd sg
	/-ł/	-# (masc) -a (fem) -o (neut)	-#	3rd sg
przeczytaj-	/-ł/ /-ł/	-i (virile) -y (pl)	-śmy	1st pl
(perfective)	/-ł/ /-ł/	-i (virile) -y (pl)	-ście	2nd pl
	/-ł/ /-ł/	-i (virile) -y(pl)	-#	3rd pl

(The -# marker for masculine shows up as the fill vowel /e/ when a non-zero person marker follows the Past tense marker)

(9) *Polish verb morphology (non-past)*

VERB STEM	MORPHEME	MEANING
czytaj-	/-m/	1st sg
(imperf. = present)	/-sz/	2nd sg (informal)
	/-#/[12]	3rd sg
przeczytaj-	/-my/	1st pl
(perfective = future)	/-cie/	2nd sg (formal) and pl
	/-ą/	3rd pl

(10) *Copular constructions*

TENSE	NP PREDICATE	AP PREDICATE	PP PREDICATE
Past	(Czy) byłeś studentom?	(Czy) byłeś młodym?	(Czy) byłeś w lesie?
Pres.	(Czy) jesteś studentom?	(Czy) jesteś młodym?	(Czy) jesteś w lesie?

Fut.	(Czy) będzieś studentom?	(Czy) będzieś młodym?	(Czy) będzieś w lesie?

It is also important to take note of the fact that in the Polish imperfective future, the *-ł* participle may be used in place of the infinitive, with no non-stylistic difference in meaning; cf. (11).

(11) *Polish imperfective future*

COPULA	MORPHEME	IMPERFECTIVE VERB
	/-ę/	
	/-esz/	infinitive in /-ć/
będ- ~ będź-	/-e/	**or**
	/-emy/	complete past tense
	/-ecie/	
	/-ą/	

(The /e/ in the copula here is really a fill vowel and also shows up in other verbs of a particular class, e.g., *pisać* [*pisze, piszesz, pisze, piszemy, piszecie, piszą*]... In some verbs you find /i/~/y/ in this position, e.g., *mówić* [*mówisz*, etc.] or *tańczyć* [*tańczysz*, etc.].)

3 An Analysis

The fundamental question that we are attempting to answer in this section is: What is the functional structure of *all* the clause types represented in Section 2? We shall begin by criticizing several reasonable analyses that encounter significant difficulties, and conclude with our final proposal in Section 3.3. Throughout this discussion, it might help to keep in mind the possible feature content of the various Russian verbal morphemes, repeated in (12).

(12) *-t'* = [-tns]
-l = [+past] ([+tns] implied)
-u/-oš'/-ot/-om/-ote/-ut = [+person] ([+tns] implied)
-#/-a/-o/-i = masc/fem/neut/pl

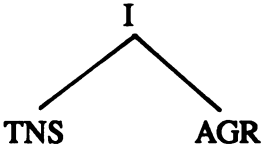
We intentionally do not address the issue of aspect as a functional category in this paper. It is clearly necessary to rely on aspect in determining time reference, but we eschew specific discussion of the syntactic status of aspect. Ultimately, we believe that VP will be immediately dominated by an AspPhrase, and that V moves through Asp on its way up the tree. Here, however, we make the (probably simplistic) assumption that aspect can be incorporated into any of the analyses considered with minimal modifications.

3.1 AGR is Person Agreement

At this point we examine the notion of "agreement" in more detail. Recall that in section 2.1 we described two types of agreement on verbs: (i) gender agreement after the past tense suffix *-l* (i.e., *-#/-a/-o/-i*) and (ii) person agreement elsewhere (*-u/-oš'/-ot/-om/-ote/-ut*). One central question we shall return to is that of how these two types of agreement should be differentiated from one another.

On the basis of the Russian data alone, and assuming the CP-IP theory of functional categories presented in Chomsky (1986), one might want to claim that I(nfl) branches to TNS and AGR, as in (13).[13]

(13)



Both AGR and TNS are generated under the same node, i.e., INFL. Within this structure, AGR might be thought of as taking person features as arguments (values) and TNS as taking the feature [±past] as an argument. How, then, might this lead to the complementary distribution of these features that we noted above?

Under standard assumptions about headedness in X'-theory, only one of these categories can be the head of I at any given time. We suggest that an X^0 with further feature specifications must be a

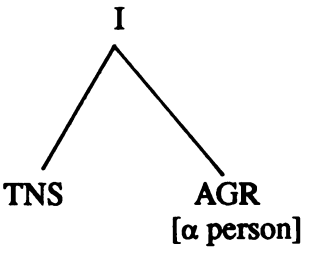
head. Hence, only one of TNS and AGR can be further specified under a given I; this one will be the head of IP. TNS and AGR never both take arguments, since only one of them can be a head. Thus, such an analysis provides for the apparent complementary distribution noted above. Furthermore, it is the presence of AGR which causes the subject of the sentence to appear in the nominative case. Note, however, that with the imperfective future (e.g., *budu čitat'*) this analysis forces the assumption of two distinct heads, hence there must be two separate maximal projections. In other words, one IP has AGR [person] (*budu*) as its head and this takes another IP that has TNS[-past] (*čitat'*) as its head.

This approach is not without its problems, however. For one thing, it requires that the infinitive ending be regarded as TNS [-past]. This implication is, we feel, somewhat disturbing, since it raises the question of why the infinitive should be [-past] when the past tense *čital* is TNS[+past] and the imperfective-present (and perfective-future) tense is TNS[-past]. The infinitive ending and the non-past endings should probably not be both [-past]. This seems to us to force a diacritic use of these features, and divorces TNS from [-past] in an odd manner.

This difficulty could perhaps be solved by claiming that [±past] is not the correct feature to use. Instead, perhaps *-l* marks something like "designated tense," while *-t'* marks "no designated tense" (i.e., "anaphoric" tense). While this would take care of the situation in Russian, it would not explain the free variation between past-tense and infinitive forms in the Polish imperfective future, mentioned above. As a way to save this kind of analysis, let us then consider a third option under INFL: in addition to TNS and AGR, I is also able exhaustively to expand to INFINITIVE. Invoking the INFINITIVE option solves the [-past] feature problem.

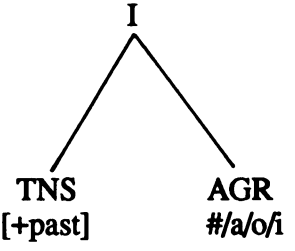
Consider what structures this set of assumptions leads to for the various tenses. In (14), in which the imperfective present (or perfective future) is generated, AGR takes person features and is consequently the head of I.

(14)



In (15), which represents the past tense (again of either aspect), TNS takes the feature [+past] and is the head of I.

(15)

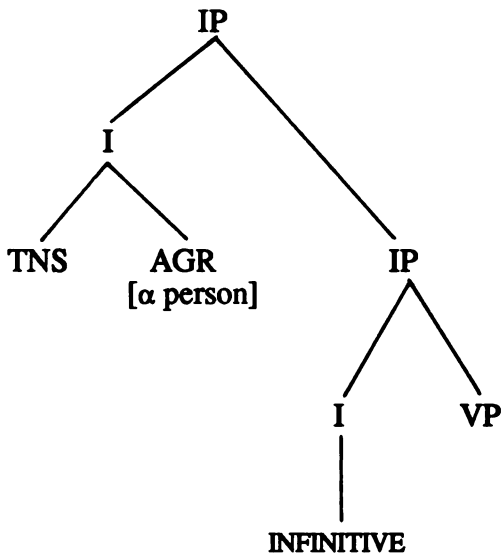


An infinitive, such as *čitat'*, is generated simply by allowing the feature INFINITIVE to head the IP, as in (16).

(16)

All that remains to explain is the source of the imperfective future. As before—except now the infinitive is explicitly indicated as such—an AGR[person]-type IP takes an INFINITIVE-type IP as its complement. This is shown in (17).

(17)



While this accounts for all of the relevant Russian forms, the biclausal structure of (17) suggests that other forms of the copula should also be able appear with infinitival complements, such as **byl čitat'* or perhaps **som čitat'*. What is it that keeps these potential forms from occurring?

The fact that there is no present form of the auxiliary in Russian is an accidental consequence of *byt'* being perfective.[14] After all, this is why the collocation **som čital* does not occur in Russian. In order to explain why there is no **byl čitat'*, however, it will probably be necessary to stipulate that the head of I must be AGR, and not TNS, when I takes an INFINITIVE IP complement. Clearly, this is not a particularly insightful solution.

We now turn to the other Slavic languages to see how this analysis might be adjusted to account for their properties. For example, one might wonder whether the analyis needs to be parameterized and what kinds of relations it might have to other aspects of UG, e.g., pro-drop. One obvious conclusion is that,

since AGR and TNS both show up on the same form in the South and West Slavic languages, it is reasonable to suppose that both these categories take feature arguments and consequently head their own phrases in these languages. This does not account, however, for the fact that in some languages (cf. (8) above), person AGR is distinct from gender AGR, since both exist independently.

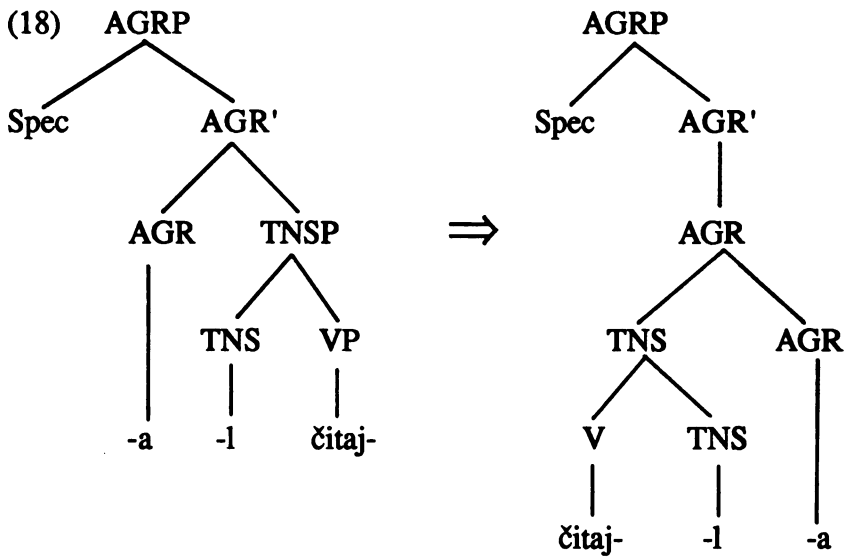
Theory internal problems also exist with this analysis. On the one hand, we need AGR to be higher than TNS, rather than on the same level, so that person AGR can assign nominative case to the subject under SPEC-head agreement. On the other hand, since we have been assuming that I dominates both TNS and AGR, TNS must precede AGR in Russian to give past tense forms such as *čitala*, but TNS must follow AGR in the imperfective future *budu čitat'*.

It thus seems to us that this analysis is untenable for the following reasons: (i) person features cannot be an argument of AGR since they exist independently outside of East Slavic and (ii) it gives rise to a an ordering paradox for TNS and AGR, i.e., TNS+AGR for past, but AGR+TNS for imperfective future. We therefore turn to a second possible analysis that does not share these difficulties.

3.2 AGR and Person Are Distinct Heads

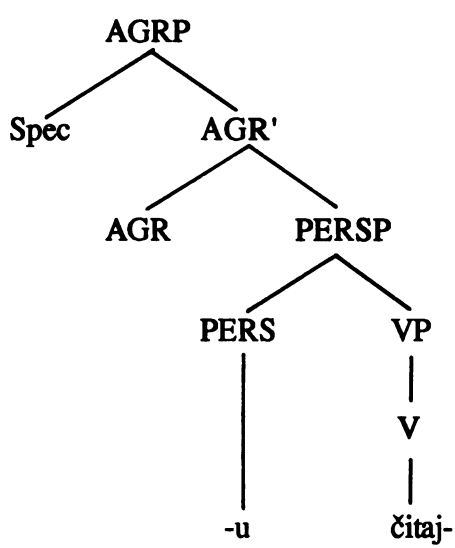
3.2.1 A First Attempt: TNSP and PERSP Are in Complementary Distribution. Since we need both person and AGR to be independent in order to account for languages like Polish, perhaps they should be separated into distinct heads in Russian as well. If AGR is necessary to account for the assignment of nominative case, then all finite clauses necessarily start out with AGRP as the highest functional node. Next, we suggest that AGRP can take either TNSP or PERSP as a complement, thus accounting for the "complementary distribution" effect discussed above. In other words, if AGR takes TNSP, as in (18), *čitala* obtains. V moves up first to TNS and then to AGR.

(18)



If, on the other hand, AGR takes PERSP as its complement, as in (19), then the non-past *čitaju* obtains, since V goes up to receive person first, and afterwards agreement.

(19)

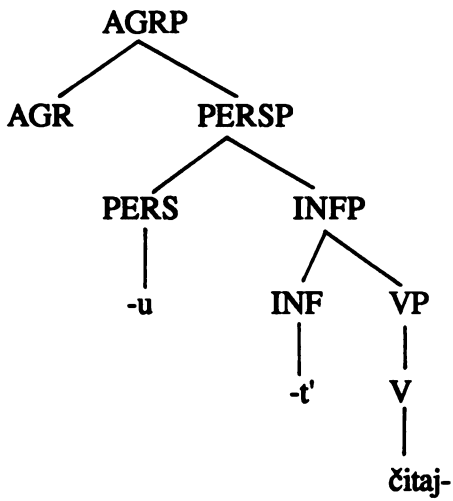


Note that whereas V adjoins to the left of PERS, the V+PERS complex simply amalgamates with the AGR features, since AGR does not constitute a distinct morpheme. While this approach makes some sense, it is not clear how it can handle the imperfective future, *budu čitat'*. If the infinitive is taken as some kind of TNSP as described above, the system breaks down, since PERS can then also take TNSP as a complement just in case it is headed by whatever the infinitive is (perhaps [-tns] or maybe [+tns] with no [±past] specification).[15]

This analysis has the additional problem that it does not provide an exact correspondence between the morphology and the assumed functional structure. For example, the feature [+tns] is not present in the non-past forms. If it is located under PERS or AGR, one wonders why it doesn't correspond to a specific morpheme, the way feature [-tns] does in the infinitive. One could, of course, always maintain that morphemic correspondences are accidental or stipulated. Along these lines, perhaps the infinitive is [+tns] and the non-past forms are [+tns, -past], and morphemes only arise if they contain some plus features. These problems, although not insurmountable, are troublesome enough to suggest a second, related approach.

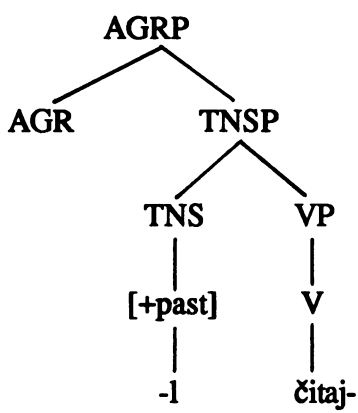
3.2.2 A Second Attempt: INF and TNS Are Separate Heads. Let us therefore return to the possibility that INF should be separated from TNS, with the infinitival ending some type of bound morpheme, perhaps of a prepositional/postpositional nature, following the approach of Emonds (1985). Now, in an analysis of the imperfective future *budu čitat'*, we assume a structure as in (20). V raises to adjoin to INF and stops there, resulting in V-stem+INF. AGR still selects PERSP or TNSP as before, but PERSP selects INF in addition to VP.

(20)



AGR can only attach to (i.e., m-selects for) TNS in the past (*čital*), as in (21), but it can amalgamate with PERS as in the non-past *čitaju*. One might alternatively want to claim that AGR is stranded when PERS is present. This situation could then conceivably be resolved in two ways: either AGR deletes or it is supported at LF. Regardless of how it is eliminated, AGR must be present underlyingly, since we assume, as always, that it is the source of nominative case marking on the subject.

(21)



One possible problem with this kind of approach is that it makes "tense" totally interpretive. That is, the feature tense is not necessarily present in the syntatic structure, even if the sentence has specific temporal reference. In (19), for example, there is no tense feature, but we understand *čitaju* to be "present" because it is imperfective or *pročitaju* to be "future" because it is perfective. "Tense" information is thus derivative from the interaction of AGR, PERSP, and aspect. There is no tense in the imperfective future either; see (20). This mode of analysis leads to the conclusion that semantics does not in fact drive the Phrase Structure and that the use of semantics in the theory of functional categories, as it is standardly practiced (cf. Ouhalla 1991, Valois 1991), has been misguided.

There is another reason to reject the previous two proposals. When PERS and AGR are separated, PERS is higher than AGR in the tree structure. It appears as the outermost part of the verb forms in Polish, for example. This implies that PERS, rather than AGR, is true agreement and that it is PERS, in fact, that assigns nominative case to the subject NP.

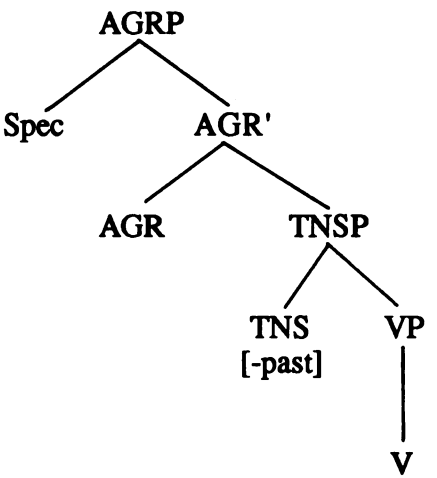
This problem leads to the conclusion that AGR should actually refer only to what we have been calling "person" agreement and that "gender" agreement as a verbal category should be discarded altogether. After all, gender matching is related to predication and is something necessary for relations between nominal elements exclusively. For example, gender matching occurs on nouns and adjectives even when predicated of a PRO subject, applies independently of person agreement, and only occurs with nominal-type predicates such as *l*-participles, Short Form adjectives, past passive participles, NPs and APs. In *čitala*, therefore, we claim that the gender marker *-a* is not a consequence of clausal AGR and that there must be a covert, (person) AGR dominating TNS. This AGR is overt in the South and West Slavic languages, but not in Russian. It must be syntactically present, however, assuming that AGR is required to assign nominative case to the subject. In the next section, where our final analysis is presented, we flesh this proposal out.

3.3 AGRP and TNSP in Russian Clauses

In developing a fully-fledged functional analysis our point of departure is what might be considered the "standard" theory of functional categories. In this theory, as found in analyses of other languages, finite Russian sentences have AGR projecting to AGRP and taking TNSP as a complement. We will continue to assume that AGR represents person agreement only. We also adopt the idea that TNS can be either [+tns, ±past] or infinitival. The infinitive is either [+tns], as in Stowell (1983), or [-tns] as in Ouhalla (1991); the choice will be immaterial for our analysis. We will also need rules to specify when features unify (i.e., amalgamate) and when they appear as distinct morphemes. Adopting this restrictive set of assumptions as our starting point, how can the empirical facts of Russian and Polish be made to follow?

We can start with the case of the non-past verb forms in Russian, e.g., *čitaju, pročitaju.* These verbs are conjugated for person, but they also have tense, i.e., [-past]. Let us say that person needs tense in order to be realized. The structure for conjugated verbs is given in (22).

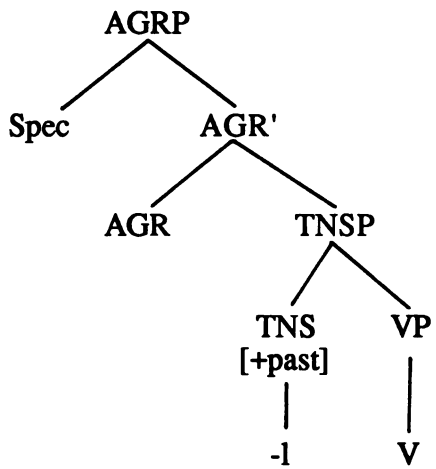
(22)



The V starts in VP and moves to TNS. The V picks up TNS, which is [-past], and then moves up to AGR. At this point, it is not obvious whether the [+tns] V adjoins to AGR or whether the two simply unify. We assume that it adjoins and that AGR in fact may only appear on a tensed V. Thus, we end up with a V that has [-past] and person features.

The past tense forms, like *čitala* and *pročital*, will have the structure given in (23).

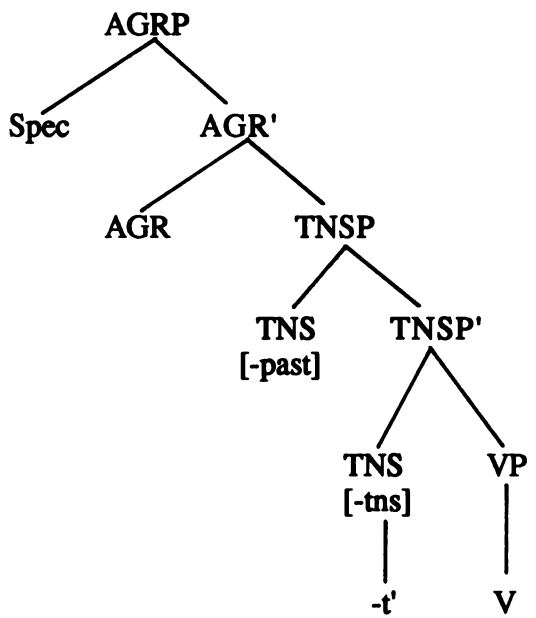
(23)



The [+past] TNS corresponds to the *-l* morpheme. V raises and adjoins to TNS. There are now two possibilities with regard to AGR. First of all, V could stop at TNS, under the assumption that AGR cannot attach to the [$_{TNS}$ V+TNS] complex, since it is no longer a V (unlike in the non-past, where the [-past] feature simply unifies with V). Presumably, at this point AGR is stranded and subsequently either deletes or requires LF support. Alternatively, if AGRP is always present in any predication structure, so that the nominal agreement endings *-#/-a/-o/-i* are also realizations of AGR, the V+TNS complex could raise up to AGR, with the result: [$_{AGR}$ [$_{TNS}$ [$_{V}$ *čitaj-*] *-l*] *-a*]. This approach requires a more carefully articulated theory of m-selection than we can provide here.

We now turn to the imperfective future, which created several problems in the analyses considered in previous sections. The structure required to handle an imperfective future clause is given in (24).

(24)

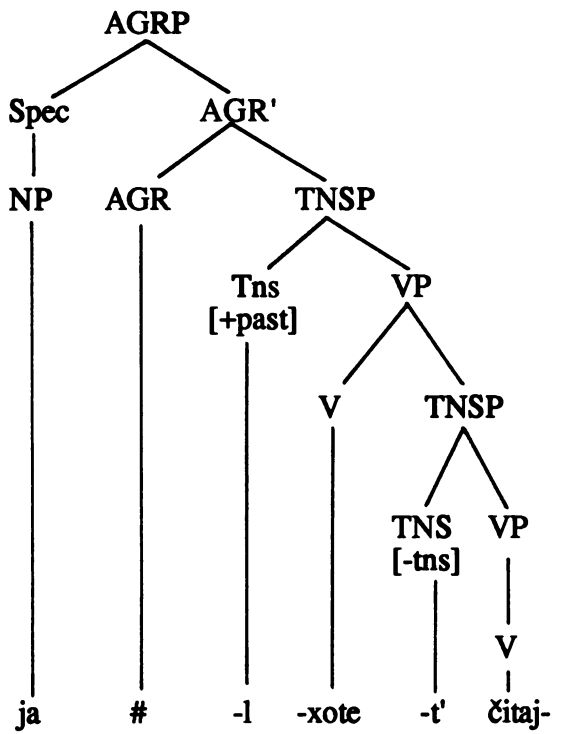


In order to accommodate the periphrastic future we need two distinct realizations of tense. As before, we build this directly into our phrase structure. Note that one really needs to allow for this possibility anyway, independently of the issue of whether *-t'* should be analyzed as the head of some kind of TNSP, since Polish freely allows the *-ł* morpheme in this position in its imperfective future (e.g., *będe czytał* alongside *będe czytać*). Since the forms of the auxiliary in this construction are conjugated verb forms, they must be TNS [-past]. Thus, V starts in VP and moves up to adjoin to the TNS [-tns] morpheme-*t'*. M-selection prohibits the infinitive form from further adjunction. Next, we assume that the copula *byt'* in

Russian is an expletive verb (cf. Ouhalla approach to *be* in English), which means it can be inserted into a TNS slot to support it, much the same way that expletive *it* is inserted into subject position in English to discharge nominative case. Once *byt'* has been inserted into the TNS [-past] slot, it moves up and adjoins to AGR, resulting in the conjugated forms *budu*, etc. Note that this construction has a future meaning simply because *byt'* is a perfective verb. Additionally, in order for this approach to work, we need to specify which types of complement a category selects. For example, AGR selects [+tns, ±past]. Also, to account for the periphrastic future we will need to allow [-past] to select a [-tns] complement in addition to a VP. As we shall see shortly, in Polish [-past] has the additional option of selecting [+tns, +past].

It is important that the posited structures not overgenerate. For example, consider how this analysis might rule out non-occurring forms such as **ja byl čitat'* ? This form would instantiate AGR-[+past]TNS-[-tns]-V. In order to handle this problem, then, we simply state that only [-past] may select another TNSP. While this is admittedly stipulative, we may in fact need this option in order to account for the range of possibilities in other languages. Compare also the unacceptable **ja byl čitat'* with a standard infinitival complement such as *ja xotel čitat'* 'I want to read', where an infinitive follows a lexical verb (that just happens to be in the past tense). The structure of the latter is given in (25).

(25)



Comparing (25) with (24) we see that in (25) there is a lexical verb appearing after the higher TNS, which is [+past]. On the other hand, we need to stipulate that a [-past] TNS may take a VP complement, but not a [-tns] TNS one.

Why does this analysis not generate **ja čitat'* (or equivalents in Slavic languages that have a realized AGR)? Such a form would require a structure in which AGR had a [-tns] TNSP as its complement. In the Slavic languages, however, AGR only takes [+tns] complements. Once again, this is simply stipulated for these languages. We believe that this is the right kind of approach, since inflected infinitivals are elsewhere possible.[16]

It should be noted that the Russian copula facts described in Section 2.1 are also accounted for by the present system. Forms of *byt'* take two different types of NP complement: a nominative NP or an instrumental NP. Additionally, the present tense does not actually

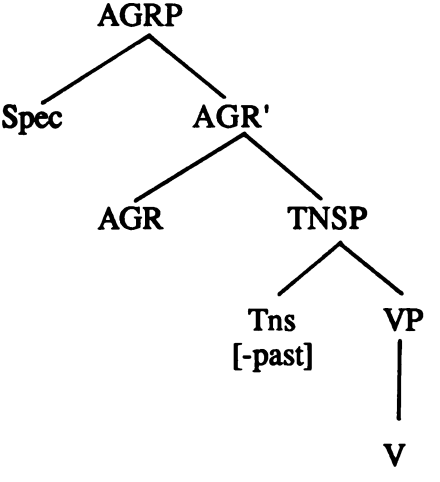
show a form of *byt'* at all, and in this instance the NP complement must be nominative. How can these different cases be accounted for? We suggest that if no V is present in a given structure, then the expletive verb *byt'* gets inserted, eventually resulting in *budu*, etc. if TNS is [-past] and *byl*, etc. if it is [+past]. This occurs with the nominative NP complement. If there is no TNS[17] (as in the present), then AGR is stranded, and no form of the copula appears, yielding a nominative NP complement. The instrumental case, on the other hand, appears whenever *byt'* is a true verb originating in the V slot, under the assumption that it governs the instrumental case.[18] Since the verb *byt'* is perfective, it can never have present tense meaning.

3.5 The Realization of AGR in Polish

Finally, we consider Polish in light of the structures just proposed for Russian. We argue that this system can account for facts that differ significantly from those found in Russian.

Polish non-past clauses are similar to those of Russian. They can be represented using the same structure we invoked in Russian, (22), which we reproduce here for convenience.

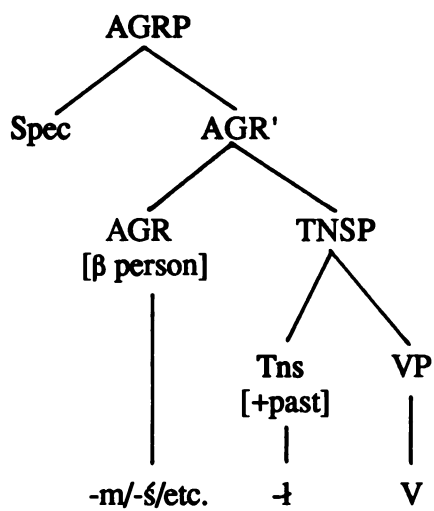
(26)= (22)



In this structure, V moves up to TNS, which is [-past], and picks up this feature. The tensed V then raises and adjoins to AGR, giving non-past forms like *czytam* and *przeczytam*.

The past tense in Polish differs from the past tense in Russian, however, in that AGR may be realized independently when stranded. When this happens, AGR simply becomes a clitic. Nevertheless, we may still use the same structure for Polish as we did for Russian, (23), although here we need to fill in a person morpheme, which Russian does not have.

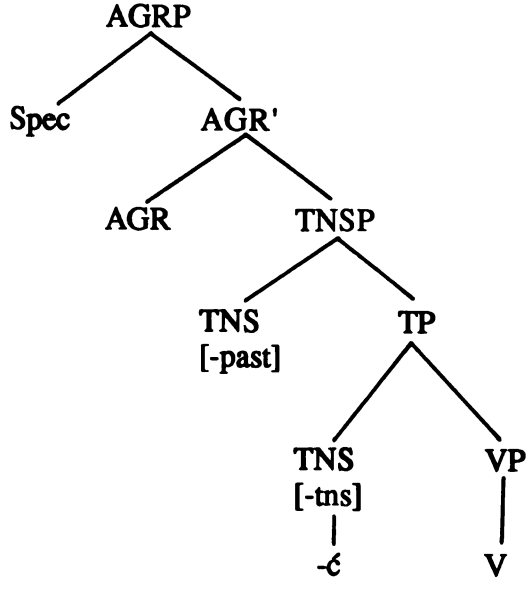
(27)



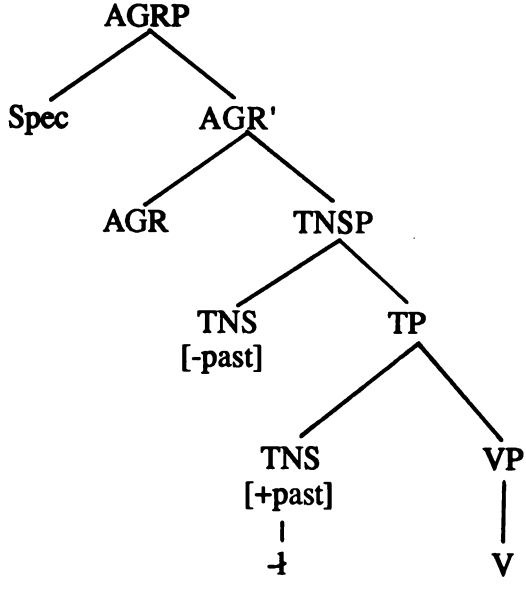
In this structure, V moves up and adjoins to the [+past] TNS, resulting in $[_{TNS}\ [_{V}$ czytaj-] ł]. At this point, AGR may be stranded or the V + TNS complex may move up to it. Unlike in Russian, AGR in Polish has the ability to be realized as a clitic, and therefore it appears independently. It may now attach to anything except a verb (which may only take the non-past verbal endings).[19]

The remaining Polish construction to consider is the imperfective future. As in Russian, in this construction there must be two separate realizations of TNS. In Polish, however, there are two distinct possibilities for the lower TNSP: it may either be [-tns], as in (28), or [+past], as in (29).

(28)



(29)



Interestingly, the derivation in both structures is the same, with the only difference being the morpheme that ends up on the imperfective verb (*-ć* in (28) and *-ł* in (29)). The V starts off in VP and moves up to TNS, where it picks up either *-ć* or *-ł*, and then stops. At this point, the verb *być* is inserted as the expletive verb in Polish, just as *byt'* is in Russian. We also believe that in Polish, as in Russian, the perfective nature of the copula gives this construction its future meaning. Once inserted, the copula moves up to AGR, giving the non-past forms *będę, będzie*, etc.[20]

4 Conclusion

In this paper we considered a variety of different functional approaches to Russian clause structure. After evaluating the relative assets and liabilities of several preliminary approaches, we argued that a straightforward theory of functional categories, in combination with standard principles governing the behavior of AGR and TNS, can account for the basic clausal structures found in Russian and Polish. While it is possible that other systems may also be able to account for these data—for example, those that allow for lowering as well as raising of heads—we feel that the system adopted in this paper is maximally restrictive. However, many issues about the nature of an adequate analysis of Slavic clauses remain open. Most problematic are perhaps the more elegant aspects of the preliminary analyses, which the AGRP-TNSP account fails to express and the proper role of aspect in Slavic clause structure. Our intent has been to raise the question of how well Slavic structures conform to existing models of functional categories and, in attempting to answer that, to draw attention to a broad range of relevant problems of analysis. It is our hope that this paper will serve as a point of departure for subsequent reevaluation of the issues addressed.

Notes

1 A number of linguists have recently proposed that various nominal properties be treated as functional projections of N. In addition to the relatively standard Determiner Phrase developed in Abney (1986), extended projections may include such categories as Gender Phrase, Number Phrase, Quantifier Phrase and Kase Phrase; cf. Bernstein (1991), Picallo (1991), Valois (1991), Toman (this volume), Franks (this volume) and Szabolcsi (1991). Such functional projections may be analyzed as categorially non-distinct from N along the lines explored in Grimshaw (1991), who also considers PP a functional projection of N (parallel to CP for verbs).

2 Functional projections of a VP complement, such as tense, mood and aspect are, however, sometimes selected by the higher V. This problem is addressed briefly in Grimshaw (1991).

3 We regard restricting the number and content of functional categories as a serious problem for current analyses, which are often disturbingly reminiscent of generative semantics; cf. Sadock (1990) for discussion of this and related points.

4 The reason is that lowering rules must be undone at LF, otherwise the antecedent-trace relation will violate the ECP. Following the program outlined in Chomsky (1992), we feel that such LF operations should be avoided.

5 See Speas (1991) for an alternative approach in which the arrangement of functional categories is universal.

6 See, however, Schoorlemmer (this volume) and Rivero (1991).

7 We will follow the usual convention of representing verbs in their "basic" stems, followed by the appropriate suffixes and endings. We are assuming the kind of approach in Jakobson (1948), as developed in Townsend (1975), in which affixes beginning with consonants cause preceding consonants to truncate, and similarly for vowels; thus, *čitaj* + *l* → *čital*. The symbol "#" here represents the underspecified vowel that alternates with [e] or [o].

8 Recall that there are no present tense perfective forms.

9 The past tense endings also indicate number, but we shall treat the plural ending as a "fourth gender" in that it is part of a single paradigm with the masculine, feminine and neuter endings. Similarly, we regard the person endings as a six member paradigm.

10 Of course, *byt'* seems to be semantically imperfective. Nonetheless, Jakobson (1957) refers to the imperfective future as the "perfectivized inceptive," suggesting that he too regarded *byt'* as formally perfective and therefore needed to endow it somehow with perfective meaning.

11 The Morphological Uniformity Hypothesis was suggested by Jaeggli and Hyams (1988) in order to account for the distribution of null subjects across languages. Their basic insight was that only morphologically uniform languages

were "pro-drop." Thus, whereas English is mixed in the sense that only some forms of verbs agree with subjects, Italian and Chinese are uniform in the sense that all forms either agree or fail to agree. Extending this dichotomy to Slavic, it seems reasonable to propose that Russian is also mixed since only non-past verb forms show person agreement, whereas South and West Slavic are uniform since in these languages past tense verbs also show person agreement. This correlates with the intuition that only South and West Slavic are truly null subject languages, as discussed in Franks (1990).

12 Notice that the third person ending in Polish (and South and West Slavic in general) must be regarded as an underspecified consonant rather than vowel (cf. fn. 7), since it causes the stem-final /j/ to truncate. The fact that Polish requires two distinct zero morphemes was originally observed in Feldstein (1987).

13 See Greenberg and Franks (1990) for an instantiation of this theory.

14 This actually turns out to be a useful idea, which we will adopt in our final analysis.

15 Of course, it is also possible that the infinitive is not a TNSP of any kind after all.

16 Portuguese is a familiar example; cf. Raposo (1987).

17 We must assume that there is no TNS, for if there were a TNS node and the expletive verb *byt'* simply failed to be inserted, then **ja čitat'* becomes possible. Moreover, *ja student* 'I am a student' and *ja budu student* 'I will be a student' would end up having identical D-structures. We cannot make use of aspect, since the existence of aspect implies the existence of a V, which is what case-marks the instrumental NP complement. Thus, we must conclude that *ja student* really has no TNSP, i.e., it is a matrix small clause. Notice that this leads to the conclusion that in Russian AGR occurs with NP, AP, and PP complements, but not with VP complements. Significantly, this is true of Russian small clauses in general: there is no TNS precisely where there is no V.

18 The situation is different in Polish, where the NP always appears in the instrumental. Thus, in Polish the copula is always a true verb. Furthermore, TNS is always present and there are no matrix small clauses in Polish; evidence for small clauses of any kind, in fact, is virtually non-existent.

19 For detailed discussion of Polish clitics see Rivero and Borsley (1991).

20 One does not get the *jestem* forms here, as they are present, while this construction is future.

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Binding Domains and Functional Categories: Negative Polarity in Serbo-Croatian and Russian*

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1 Introduction

The Binding Theory of Chomsky (1981, 1986) is based on the intuitive idea that the binding domain for an anaphoric (dependent) element closes off with the first potential binder (antecedent). For reflexives and reciprocals, this is incorporated in the notion of (big) SUBJECT in the following formulation of the Principle A, adapted from Chomsky (1981):

(1) Binding Principle A:
An anaphor must be bound in the minimal maximal domain which contains the anaphor, the governor for the anaphor, and the SUBJECT.

In the definition above, SUBJECT is either a sentential subject, [NP,IP], or an NP subject, [NP,NP][1], in other words, a potential binder for anaphors. Thus, locality conditions for syntactically and semantically dependent categories actually reduce to the question of what counts as a first potential antecedent.

The Binding theory has been primarily designed to cover locality conditions between reflexives and reciprocals and their antecedents. However, there is no reason why the same locality conditions should not apply to other dependent elements, e.g., to negative po-

larity items, which are dependent on negation for licensing. In fact, it has been argued that traces (both NP-traces, cf. Chomsky (1981), and WH-traces, cf. Aoun (1985, 1986)) are subject to Principle A of the Binding Theory. Indeed, given the constraints that any linguistic model must impose on Universal Grammar (UG), it would be a luxury to allow different dependent elements to be subject to different locality conditions.

In this paper I argue that negative and positive polarity items are subject to the same locality conditions that have been embodied in the Binding Theory. In particular, negative polarity items (NPIs) will be argued to obey Principle A, and positive polarity items (PPIs) to obey principle B of the Binding Theory.[2]

One potential obstacle for treating NPIs on a par with reflexives comes from the fact that the domain for the two rarely coincides in any given language. Thus English has local reflexives, but long-distance NPIs. On the other hand, as will be shown below, Russian has long-distance reflexives, but local NPIs. However, there is no reason to expect the same domain for reflexives and NPIs. While potential antecedents for reflexives in English are NPs in specifier positions, potential antecedents for NPIs are functional categories: negation in Infl or a truth-conditional operator in Comp (see section 4). In fact, there are many languages in which even different types of reflexives have different binding domains. In the following Chinese example, the moprhologically simple reflexive *ziji* (=*self*) has an unlimited domain, whereas the complex reflexive *ta ziji* (=*himself*) is strictly local (cf. Yang (1983)):

(2) Zhangsan$_i$ renwei [Lisi$_j$ zhidao [Wangwu$_k$
thinks knows
xihuan *ziji*$_{i/j/k}$ / *ta ziji*$_{*i/j*/k}$]]
likes self he-self

If potential antecedents for simple and complex reflexives are different, their domain will differ too. In Progovac (1991c), Progovac and Connell (1991), and Progovac and Franks (1991) we argue that simple (X^0) reflexives recognize only X^0 antecedents (heads) as their SUBJECTs (see footnote 1).[3] Since AGR is the

only salient (c-commanding) head with the relevant pronominal features, it is the only domain closer for simple reflexives. Since Chinese has no AGR, the domain for the simple reflexive is never closed. In a language with AGR, on the other hand, a simple reflexive can extend its domain only up to the first AGR, i.e., the first finite clause. This explains the long-distance binding effect in Russian infinitivals (3), and the lack thereof in finite clauses (4):

(3) Profesor$_i$ poprosil assistenta$_j$ [PROj [čitat' svoj$_{i/j}$ doklad]
professor-NOM asked assistant-ACC to-read self's report-ACC

(4) Vanja$_i$ znaet [[čto Volodja$_j$ ljubit svoju$*_{i/j}$ ženu]
Vanja-NOM knows that Volodja-NOM loves self's wife-ACC

In the light of these fact, I now turn to the discussion of polarity items in Serbo-Croatian and Russian. Section 2 introduces some basic facts about negative and positive polarity items, while section 3 outlines the binding approach to polarity in negative contexts (clausemate and superordinate negation). Section 4 extends the analysis to non-negative polarity contexts (questions, adversative predicates, etc.). All non-negative contexts are argued to have a polarity operator (Op) in the Comp position, which is responsible for NPI licensing. Three pieces of evidence are presented for the Comp involvement in NPI licensing, dealing with (i) complements to adversative predicates, (ii) complements to universal quantifiers and (iii) comparatives. In each case it is only in clausal (as opposed to phrasal) complements that NPIs are licensed.

2 Negative and Positive Polarity

Polarity Sensitive Items are those items whose distribution and interpretation is sensitive to negative vs. affirmative contexts. These include Negative Polarity Items (NPIs) and Positive Polarity Items (PPIs). NPIs, e.g., *any*, are licensed in negative, but not in the corresponding affirmative sentences:

(5) John did not see anyone.
(6) *John saw anyone.

They are also licensed in questions, complements of adversative predicates and universal quantifiers, comparatives, etc. (see Linebarger (1981) for a more complete list):

(7) Does Mary trust *anyone*?
(8) I doubt [that Mary trusts *anyone*]
(9) Every man [who owns *any* guns] must report to the police.
(10) Mary is smarter than *any* student in her class.

On the other hand, Positive Polarity Items (PPIs), e.g., *some*, cannot appear in the scope of clausemate negation, but are licit elsewhere:

(11) #Mary doesn't trust *someone*.
(12) Mary trusts *someone*.
(13) Does Mary trust *someone*?

The symbol # is used to indicate that the wide-scope reading of *some* is enforced. On the wide scope reading, (11) has the the interpretation as given in (14), while the narrow scope reading, unavailable in (11), would have the interpretation given in (15):

(14) There is a person X, such that Mary does not trust X.
(15) Mary does not trust a person (any person).

Serbo-Croatian and Russian show a clear need for imposing locality restrictions on negative and positive polarity. Both languages have NPIs which are strictly local, i.e., can only be licensed by clausemate negation. I argue that this distribution of NPIs can best be captured by proposing that NPIs are A'-anaphors, subject to Principle A of the Binding Theory. NPIs have to be bound in their governing category by an A'-operator, e.g., negation (see Progovac (1988, 1991a)).

Positive Polarity Items (PPIs) in Serbo-Croatian and English show pronominal-like behavior in that they have to be free from (i.e., outside the scope of) a local A'-binder, e.g., clausemate negation, but can be bound by (i.e., be in the scope of) a distant one, e.g., superordinate negation. I argue that this distribution follows if

we assume that PPIs are subject to Principle B of the Binding Theory (see Progovac (1988, 1991a)). Russian *-to* PPIs, however, show a different pattern. They have to be free from (i.e., outside the scope of) not only local negation, but any negation in the sentence. I assume that Russian *-to* PPIs are subject to Principle C of the Binding Theory, as proposed in Brown (1989).

3 A Binding Approach

3.1 The Outline

As argued in Progovac (1988, 1991a), the distribution and interpretation of NPIs and PPIs is governed by essentially the same principles as that of reflexives and pronouns. They are subject to the Binding Theory of Chomsky (1981), generalized to include A'-binding by Aoun (1985, 1986). The relevant principles are given below:

(16) Principle A
An NPI must be bound in its governing category.[4]

(17) Principle B
A PPI must be free in its governing category.

The potential binders for Polarity Items are functional categories in A'-positions: negation in Infl or a polarity operator in Comp (see section 4).

The binding account immediately captures the following general facts:

(i) NPIs (as anaphoric) need a licenser.
(ii) The licenser for NPIs has to be local. (In languages with long-distance NPI licensing, such as English, NPIs raise at LF in order to be bound locally.)[5]
(iii) PPIs (as pronominal) need no licenser.
(iv) PPIs cannot be bound to a local licenser.

The main theoretical motivation for a binding approach to polarity sensitivity rests on the following three advantages:

(i) It can account for crosslinguistic variation in polarity sensitivity;
(ii) It can capture the distribution and interpretation of PPIs and NPIs in unified terms.
(iii) The fact that NPIs take narrow scope, and PPIs wide scope, with respect to negation, follows directly from the analysis. In other approaches, it has to be stipulated.

The leading semantic approach to polarity (cf. Ladusaw (1980, 1982, 1983)) argues that an NPI is licensed iff in the scope of a D(ownward) E(ntailing) operator. An expression is downward-entailing iff it licenses inferences in its scope from supersets to subsets. Consider the following two propositions, P and Q:

(18) John ate a green vegetable. (P)
(19) John ate kale. (Q)

The direction of entailment is from the subset (*kale*) to the superset (*green vegetables*), that is, Q entails P. This is an instance of 'upward entailment'. Now compare the negated versions of (18) and (19):

(20) John didn't eat a green vegetable (P) ⇒
(21) John didn't eat kale (Q)

Here, the entailment relations are reversed: Q does not entail P, but rather P entails Q (P → Q). This is an instance of a downward entailment since the inference proceeds from the superset (*green vegetable*) to the subset (*kale*). Ladusaw (1980, 112) states the following principles to account for the distribution of both NPIs and APIs (Affirmative Polarity Items, his term for PPIs):

(22) a. A NPI must appear in the scope of a trigger (a downward-entailing element).
b. An API may not appear within the scope of a clause-mate negation.

Since it is only downward entailing environments that license NPIs, Ladusaw predicts, correctly, that an NPI will be licensed in (23) but not in (24) below:

(23) John did not eat *anything*.

(24) *John ate *anything*.

However, without recognizing locality conditions on polarity sensitivity this approach can capture neither the symmetry between NPIs and PPIs nor the local nature of NPIs in Serbo-Croatian, Russian, and other languages.[6] The Comp inovolvement in NPI licensing is likewise unexpected under a purely semantic analysis (see section 4). In addition, the scope properties of polarity items have to be stipulated in this approach, while they follow directly from a binding account.

3.2 Negative Polarity Items (NPIs) in Serbo-Croatian and Russian

The proposal that NPIs are subject to Principle A accounts for two facts. First of all, it explains why NPIs always need a licenser (e.g., negation), as illustrated by the following contrasts in Serbo-Croatian (SC) and Russian (R):

(25) Marija ne vidi nikoga. / *Marija vidi nikoga. (SC)
Mary not sees no-one

(26) Marija ne vidit nikogo. / *Marija vidit nikogo. (R)
Mary not sees no-one

Second, it explains why the relation between the NPI and its licenser (negation) has to be local, e.g., with *ni*-NPIs (NPIs beginning with the prefix *ni*) in Serbo-Croatian and Russian.[7] As the following examples illustrate, *ni*-NPIs are licensed only by clausemate negation:

Clausemate negation

(27) Marija ne vidi *nikoga*. (SC)
Mary not sees no-one

(28) Maria ne vidit *nikogo*. (R)
Mary not sees no-one

Superordinate negation[8]

(29) *Ne tvrdi-m [da Milan vidi *nikoga*] (SC)
not claim-1SG that Milan sees noone

(30) *Peter ne skazal, [čto Marija vidit *nikogo*] (R)
Peter not said that Mary sees no-one

Adversative predicates

(31) *Sumnja-m [da Milan vidi *nikoga*] (SC)
doubt-1SG that Milan sees no-one

(32) *Ja somnevajus', [čto Marija vidit *nikogo*] (R)
I doubt that Mary sees no-one

Morphologically, *ni*-NPIs are negative categories which consist of three elements: *n-i-ko* (= *neg-any-who*). Unlike English negative quantifiers (cf. *nobody*), they cannot express negation on their own, but are anaphorically dependent on a negative particle for their licensing, displaying the well-known phenomenon of negative concord (see Zanuttini (1991) on negative concord in Romance). One might argue that negative concord is a result of negative feature spreading onto unspecified categories. On this view too, locality conditions would be essential since superodinate negation cannot induce neg-spread.

The similarity of NPIs and local reflexives, A-anaphors, is immediately obvious. Local reflexives can only be bound in their own clause:

(33) Mary$_i$ respects *herself*$_i$

(34) *Mary$_i$ thinks that [Peter respects *herself*$_i$]

3.3 Positive Polarity Items (PPIs)

The proposal that PPIs in English and Serbo-Croatian are subject to Principle B accounts for the following two facts about their distribution and interpretation:

(i) PPIs need no licenser;
(ii) PPIs cannot be bound by (i.e., fall in the scope of) clausemate negation.

The similarity of PPIs with pronouns is striking. First of all, both PPIs (35-36) and pronouns (37) can occur independent of any licensers or binders:

(35) *Someone* saw Peter in the club.

(36) *Neko* je video Petra u klubu. (SC)
someone is seen Peter in club

(37) *She* saw John.

When PPIs occur with clausemate negation, as in (38) and (39) below, wide-scope interpretation is forced, as in (40). The narrow scope reading of (41) is unavailable:

(38) #John did not see *someone.*

(39) #Jovan nije video *nekoga.* (SC)
John neg-is seen someone

(40) There is a person X such that John did not see X.

(41) It is not the case that John saw a person (any person).

These facts follow automatically from the proposal that PPIs are subject to Principle B. If a PPI were in the scope of clausemate negation, it would be bound by it, thus violating its binding condition. The same is true of pronouns:

(42) Mary_i saw $\text{her}_{*i/j}$.

Her cannot be bound by *Mary* because it is in its domain. One might just as well say here that *her* cannot 'fall within the scope' of *Mary*. The only requirement imposed on pronominals is to be free in their domain. Nothing prevents them, however, from being bound outside of that domain, as illustrated below:

(43) Mary_i thinks [that Peter likes her_i]

Since superordinate negation is outside of the governing category for PPIs, PPIs can freely appear in its scope (see (44) and (45)), receiving a narrow scope interpretation (as in (46)):

(44) Mary does not claim that John saw *someone* in the club.

(45) Marija ne tvrdi da je Jovan video *nekoga* u klubu. (SC)

(46) It is not the case that Mary claims that John saw a person (any person) in the club.

On this reading, substituting an appropriate NPI for the PPI does not change the meaning:

(47) Mary does not claim that John saw *anyone* in the club.

The reading of *someone* equivalent to the reading of *anyone* is actually its bound reading, given that the NPI *anyone* is a bound anaphor. The reading where the PPI takes wider scope with respect to operators is its 'free reading'. Thus, analyzing PPIs as A'-pronominals gives us a means of predicting when they will have only wide-scope reading, and when they will also be compatible with the narrow-scope reading.

The parallelism between pronouns and PPIs also extends to the ECM (Exceptional Case Marking) environments:

(48) John$_i$ believes [$_{IP}$ *him*$_{*i}$ to be smart]

(49) #John does not believe [$_{IP}$ *someone* to be smart]

Neither *him* nor *someone* can be bound by the extraclausal binder in the above examples (see Chomsky (1981) for reasons). In other words, *someone* in (49) cannot have a narrow-scope reading, as in (50) below, but only a wide-scope reading, as in (51):

(50) John does not believe that there is a person who is smart.

(51) There is a person X such that John does not believe that X is smart.

As pointed out above, Russian PPIs show a different distribution. Given the binding approach to polarity, one additional option

for PPIs is allowed. By definition, PPIs (i.e., POSITIVE polarity items) are antitriggered by negation. One possibility is for them to be antitriggered by clausemate negation only, in which case they obey Principle B, as is the case with English and Serbo-Croatian PPIs. Another possibility is for PPIs to be subject to Principle C. Such PPIs would be disallowed by all the polarity licensers: clausemate negation, superordinate negation and the polarity operator (see section 4 for polarity operator). As shown in Brown (1989), Russian pronoun *kto-to* shows exactly these properties. Like English *someone* it is licit in non-polarity contexts (the examples are from Brown (1989)):

(52) *Kto-to* prišel segodnja utrom.
someone came today in-the-morning
"Someone came this morning."

In all the polarity contexts, however, *kto-to* can only receive a specific (wide-scope) interpretation. In this section only negative contexts are exemplified. For non-negative contexts, see section 4.

Clausemate negation:
(53) #Ja *kogo-to* ne videla.
I someone not saw
"I didn't see someone (a certain person)."

Superordinate negation:
(54) #Maria ne govorit, čto ona *čto-to* znaet
Mary not say that she something knows
o svojem druge.
about her (own) friend
"Mary doesn't say that she knows (that certain) something about her friend."

Thus, although the distribution of *-to* PPIs differs from that of PPIs in English and Serbo-Croatian, it is naturally captured under the binding approach. In fact, the option is expected as another logical possibility. I leave it for future research to determine what triggers the choice between the different binding principles.

4 Non-Negative Polarity Contexts

So far the discussion has concentrated on negative contexts. In this section I briefly discuss non-negative polarity contexts, such as, questions, adversative predicates, comparatives, etc. In Progovac (1988, 1990, 1992) I propose that all these contexts host a polarity operator (Op) in their Comp (see also Laka (1990) for adversative predicates). The relevant representations of polarity contexts are given below:[9]

Yes/no Questions:
(55) [$_{CP}$ Op Has [$_{IP}$ anyone come?]]

Adversative Predicates:
(56) I doubt [$_{CP}$ Op that [$_{IP}$ anyone has come]]

Comparatives:
(57) John is taller than [$_{CP}$ Op [$_{IP}$ anyone in his class (is)]]

The occurrence of an empty operator may be independently predicted either on the basis of downward entailment, or on the basis of unfixed truth-conditions. In the former case, Op would form a natural class with negation by virtue of inducing downward entailment, the way negation does (see examples 20-21). In the latter case, unfixed truth conditions (e.g., in questions) can signal the presence of a truth-functional operator. In fact, it was argued in Progovac (1988) that the polarity operator is negative, and in Laka that the Comp of adversative predicates is negative. Alternatively, one can assume that the operator involves a +/- switch, the negative value being responsible for polarity licensing. Either way, we would have a semantic unification of negation and operator.

The important syntactic fact is that the presence of an Operator in Comp is necessary to license negative polarity items. The governing category for polarity items is the local IP since it contains the first potential antecedent, Infl, which can host negation. Thus Op in Comp falls outside of this domain, which explains why questions, adversative predicates, etc., do not license local NPIs in Serbo-Croatian and Russian (cf. examples (31) to (32) above), and why

they do not anti-trigger PPIs in English and Serbo-Croatian, which are subject to Principle B:

Yes/No Questions:

(58) Has *someone* come?

(59) Da li je *neko* došao? (SC)
that Q is someone come

Adversative Predicates:

(60) I doubt that *someone* has come.

(61) Sumnjam da je *neko* došao. (SC)
doubt-1SG that is someone come

As predicted, the Op does anti-trigger Russian *-to* PPIs since they are subject to Principle C:

Yes/no Questions:

(62) #Ty kogo-to videl? (R)
you someone saw
"Did you see (that certain) someone?"

Adversative Predicates:

(63) #Ja somnevajus', čto ona čto-to znaet ob Ivane. (R)
I doubt that she something knows about Ivan
"I doubt that she knows (that certain) something about Ivan."

Under this analysis one can capture the symmetry between NPIs and PPIs in a principled way. Recall that in Ladusaw's Downward Entailment framework one has to stipulate that PPIs are antitriggered only by clausemate negation, and not by the whole set of downward entailing expressions which license NPIs. If the binding analysis is adopted, it can be maintained that all the NPI triggers are also PPI anti-triggers. If both NPIs and PPIs are allowed in certain contexts, it is because the licenser is outside of the governing category for PPIs, and because NPIs are allowed to raise at LF, thus extending their governing category (cf. Progovac (1988) for more discussion).

If an Operator in Comp is responsible for non-negative NPI licensing, then NPI licensing in such contexts must be a property of clauses, rather than phrases, since only clauses have Comp posi-

tions. This prediction seems borne out whenever it is possible to check it. Adversative predicates, for example, license NPIs only in their clausal, but not in their NP, complements (cf. Progovac (1988)):

(64) Mary forgot [$_{CP}$ Op that [$_{IP}$ *anyone* dropped by]]

(65) *Mary forgot *anything*.

This restriction is not imposed on overt negation:

(66) Mary did not remember *anything*.

Serbo-Croatian provides two additional arguments for an Op in Comp (cf. Progovac (1992)). Universal quantifiers license NPIs only in their clausal, but not prepositional complements:

(67)	Svaki	čovek	[$_{CP}$	koji	poseduje	*ikakvo*	oružje]
	every	man		who	owns	any-NPI	guns
	mora	se	javiti	u	policiju.		
	must	self	report	in	police		
(68)	*Svaki	čovek	[$_{PP}$	sa	*ikakvim*	oružjem]	
	every	man		with	any-NPI	guns	
	must	self	report	in	police		
	mora	se	javiti	u	policiju.		

This fact is hidden in English due to the homophony between free-choice and polarity *any*. In other words, I claim that *any* in (70) is not an NPI, but rather a free-choice item:

(69) Every man [$_{CP}$ who owns *any* guns] must report to the police.

(70) %Every man [$_{PP}$ with *any* guns] must report to the police.

Substituing *any* for an NPI which cannot have a free-choice reading in English (e.g., *ever, a single*) is only possible with clausal complements, on the relevant reading (cf. Laka (1990) for the test):[10]

(71) Every man [$_{CP}$ who owns *a single* gun] must report to the police station.

(72) %Every man [PP with *a single* gun] must report to the police station.

While in (71) the item has an existential reading equivalent to "at least one gun," no such reading is available in (72). In (72) *a single gun* implies "exactly one gun," which is not a polarity reading. The reason why NPIs are licensed in relative clauses, but not in PPs, follows from the fact that only the former have a Comp position.[11]

Further, Serbo-Croatian has two types of comparatives, clausal and prepositional:

(73) Marija je pametn-ija nego (što je) Jovan.
Mary is smart-er than what is John

(74) Marija je pametn-ija od Jovan-a.
Mary is smart-er from John-GEN

Only clausal comparatives license NPIs (see Hoeksema (1983) for comparable facts in Dutch):

(75) Marija je pametn-ija nego iko u razredu.
Mary is smart-er than anyone in class

(76) *Marija je pametn-ija od iko-ga u razredu.
Mary is smart-er from anyone-GEN in class

5 Concluding Remarks

Comp involvement in NPI licensing, as well as the local nature of NI-NPIs in Serbo-Croatian and Russian, would constitute surprizing facts in any theory of polarity which fails to recognize syntactic locality conditions in NPI licensing. From the economy point of view, it would also be surprizing if locality conditions for negative polarity items were different from those imposed on reflexives.

Notes

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1 Chomsky (1981) assumes that AGR also belongs to this set by virtue of having the relevant (for binding) pronominal features. In Progovac (1991) and Progovac and Franks (1991) we argue that this set should be split along the X^0/X^{max} dimension, so that X^{max} Specifiers ([NP,IP] and [NP,NP]) are SUBJECTs for morphologically complex (X^{max}) reflexives, while X^0 heads (AGR) are SUBJECTs only for moprhologically simple (X^0) reflexives. For clarification and examples, see the discussion below.

2 One might object that binding should only apply in case of referential dependencies: since negative polarity items are not referential, they cannot be subject to binding principles. However, locality conditions may have nothing to do with the referential status of dependent categories. Reflexives and negative polarity items can be dependent for different reasons: reflexives need an antecedent from which to draw their reference, while negative polarity items need to be in a local construal with negation, possibly in order for their referentiality to be negated. There is no reason, however, for locality conditions to differ in these two types of dependency relations. The fact that locality conditions were first formulated for reflexives should not prevent one from extracting the general pattern, abstracting away from the specific properties of reflexives.

3 See Pica (1987) and Huang and Tang (1989) for different movement analyses of long-distance reflexives, and Progovac (1991c) for a discussion.

4 The idea that NPIs can be treated as A'-anaphors was suggested in Milner (1979) and Aoun (1985) for *personne* in French, although only for negative contexts.

5 See Progovac (1988) for arguments for LF raising of English NPIs dealing with the Specificity Condition, the ECP, and Topicalization facts. That NPIs, being quantificational in nature, raise at LF has been assumed in Kroch (1979), May (1977), Linebarger (1981), Larson and Ladusaw (1986), Lasnik and Uriagereka (1988) and others.

6 The need for locality restrictions on polarity licensing has been recognized by many, e.g., by Baker (1970), Linebarger (1981) and Larson and Ladusaw (1986).

7 The same locality restrictions obtain for Czech NPIs (Sedivy 1990), Japanese NPIs (Hasegawa 1987) and the Chinese NPI *conglai* 'ever' (Progovac

1988). Even English has local NPIs. The so-called strict NPIs, such as *until*, are licensed only by clausemate negation, as pointed out in Linebarger (1981):

(i) John did not arrive until 7 o'clock.

(ii) *I am not saying that John arrived until 7 o'clock.

(iii) *Did John arrive until 7 o'clock?

(iv) *Peter denied that John arrived until 7 o'clock.

8 In contexts other than clausemate negation Russian uses a PPI *nibud*, which is nearly equivalent to the English *some* (cf. Brown (1989)). Serbo-Croatian uses an *i*-NPI (beginning with the prefix *i*), which appears in all the polarity contexts but clausemate negation. In Progovac (1991a) I assume that *i*-NPIs are subject to the binding Principle D since their distribution is parallel to that of the Greek reflexive *o-idhios*, argued by Iatridou (1986) to be subject to Principle D.

9 I leave open the question of whether Op is in the Spec of CP (as in Progovac (1988, 1991b)) or the Head of CP (as in Laka (1990)) since there seems to be no clear evidence to decide between the two options at this point. This decision would not affect arguments in this paper.

10 For a discussion of free-choice items, see Carlson (1981) and references cited there. For a binding analysis, and the reasons why usual tests for free-choice items fail in certain contexts, see Progovac (1990).

11 A potential problem for this view comes from negative prepositions:

(i) Mary left without any warning.

I will assume that negative prepositions introduce a clause with a Comp projection. As opposed to positive prepositional phrases, they can easily be extended into a clausal structure:

(ii) Mary left *without* saying a word.

(iii) *Mary left *with* saying a word.

That a Comp position is involved in such expansions is suggested by the corresponding Serbo-Croatian examples with the complementizers *da*:

(iv) Marija je otišla *bez* [CP *da* je rekla ijednu reč]
Mary is left without that is (pro) said any word
"Mary left without saying any word."

(v) *Marija je otišla *sa* *da* je rekla jednu reč.
Mary is left with that is (pro) said one word

Rizzi (1990) assumes that negation has to be in a scopal position, thus a negative preposition may require an Infl/Comp projection in order to realize its negative value.

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Dative Subjects in Russian*

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In this paper, I will propose a mechanism of dative assignment to account for the fact that some dative NPs in Russian behave like subjects. My proposal is that these dative NPs are in fact external arguments, and that they are assigned dative case in specVP, their D-structure subject position. I will argue that dative case is a combination of a morphological feature and lexical semantics, and that it is freely available if the theta-role assigned to the NP by the predicate is not in conflict with dative lexical semantics. The argumentation for the fact that some datives should be analyzed as subjects will be the subject of section 1. In section 2, I will discuss a proposal from the literature that argues for dative as a structural case, and I will present my alternative. In section 3, some problems with my dative proposal concerning psychological verbs will be raised. In section 4, the analysis will be applied to modal predicates, and it will be shown that there is no one-to-one relationship between modality and dative subjects. I will discuss the special properties of some individual modals in section 5. Section 6 will be devoted to an analysis of impersonal reflexives based on the dative analysis developed in the earlier sections. I will argue that, in such sentences, the dative NP is an adjunct in subject position.

I will end the paper with the main conclusions and the formulation of some remaining problems.

1 Dative Subjects

Many predicates in Russian do not occur with nominative subjects. Among these, there are many that select a dative NP which seems to

behave in a subject-like manner in some respects. I will first give some traditional arguments in favour of treating such datives as subjects, and then show that there are good reasons to make a structural distinction between such datives and 'ordinary' indirect objects.[1]

1.1 Dative NPs as Subjects

Grammatical (nominative) subjects in Russian have some properties that set them apart from other parts of the sentence. These are predicate agreement (1a), anaphoric binding (1b) and gerund binding (1c).

(1)[2] a. on čitaet/ čital knigu
he$_{3\ M}$ reads$_{3\ SG}$/read$_{M}$ book$_{ACC}$

b. on rasskazal otcu o svoej rabote
he$_i$ told father$_j$ about own$_{i/*j}$ work

c. pročitav gazetu, on dal ee Maše
PRO$_i$ having-read paper, he$_i$ gave it Masa$_{DAT}$

Dative subjects do not induce verbal agreement, but they do bind anaphors and gerunds. This is illustrated in (2a-b).

(2) a. emu bylo stydno pered mater'ju
him$_{i\text{-}DAT}$ was$_N$ ashamed$_N$ in-front-of mother$_j$
za svoe povedenie
of own$_{i/*j}$ behaviour

b. čitaja gazetu, emu bylo veselo
PRO$_i$ reading paper, him$_{i\text{-}DAT}$ was$_N$ merry$_N$
"Reading the paper, he felt quite merry."

The datives in (2) behave like grammatical subjects in all respects except case and agreement. The question is what grammatical subjects and these datives have in common that derives this subject-like behaviour. I will argue in this paper that it is the structural subject position. I will propose a theory of dative assignment that allows dative to be assigned directly to this position.

1.2 Datives as Non-Internal Arguments

I will now show that the dative NPs shown to have subject-like properties cannot be treated as internal arguments.

All adjectives have a theta-role that is involved in modification. If the adjective is used attributively, it is this theta-role that is linked to the noun's in order to establish the modificational relationship. (See Higginbotham 1985.) In most cases, this theta-role is an external role (see Cinque 1988, 1989). Some adjectives also have internal arguments (PP's or NPs in an oblique case).

The examples in (3) illustrate the difference between two classes of adjectives: *prijatnyj* "pleasant" has an internal dative argument, *veselyj* "merry" does not. (In Russian, an adjective's internal argument can occur with the adjective also when the adjective is used attributively.)

(3) a. prijatnoe mne delo
pleasant$_{N\ SG\ NOM}$ me$_{DAT}$ thing$_{N\ SG\ NOM}$

b. veseloe (*mne) delo
merry$_{N\ SG\ NOM}$ me$_{DAT}$ thing$_{N\ SG\ NOM}$

The same difference shows up when the adjective is used predicatively. I will assume that in a predicative adjective, the modificational role is assigned to a subject argument in specAP. This argument raises to specIP to receive nominative case and induce agreement (the copula has no arguments). Examples of predicative adjectives are given in (4).

(4) a. on byl prijaten materi
he$_{NOM}$ was$_{M}$ pleasant$_{M}$ mother$_{DAT}$

b. on byl vesel (*materi)
he$_{NOM}$ was$_{M}$ merry$_{M}$ (mother$_{DAT}$)

As in the attributive case, a dative complement is possible with *prijatnyj*, but not with *veselyj*.

The important fact is that despite the absence of an indirect object with *veselyj* in (3b-4b), this adjective can in fact be used with a dative NP, as illustrated in (5).

(5) mne bylo veselo
me$_{DAT}$ was$_{N}$ merry$_{N}$
"I was enjoying myself."

The predicate and the copula occur in the default (non-agreement) form.

What we see in (3-5) is that *veselyj* can only occur with a dative argument in the absence of a nominative; the dative is excluded if the modificational role is assigned either to a nominative subject or involved in attributive modification (3). If the dative NP in (5) were an indirect object, it would be impossible to explain why it could not occur in sentences like (3b-4b). In order to account for the data involving datives given so far, I will make the following assumption:

(6) In Russian, external arguments can carry dative case.

If the dative NP in (5) is assumed to be such an external argument, the facts concerning its distribution follow immediately. Every predicate can assign only one theta-role externally (by definition, see Williams 1981), therefore, if the adjective is used with a predicational subject, the dative, which is also an external argument, cannot be present too. Also, when the adjective is used prenominally this external theta-role is involved in modification, so that no external role can be assigned to a dative NP. In the absence of a nominative subject, however, i.e., if no theta-role has been assigned to an NP that will get nominative, a dative NP can occur. The assumption that the dative NP in (5) is a subject, i.e., an external argnment, accounts for the complementary distribution between datives and nominatives with adjectives like *veselyj*.

1.3 Dative Subjects with Verbs

Let me now turn to verbs. In Russian, not only adjectives can have dative subjects, verbs also show this nominative-dative alternation. Consider the examples in (8).

(7) a. ja splju (*emu)
I sleep$_{1\ SG}$ (him$_{DAT}$)

b. ja pomogaju emu
   I $help_{1\,SG}$ him_{DAT}

c. ja govorila emu pravdu
   I $told_{1\,SG}$ him_{DAT} $truth_{ACC}$

Both *pomogat'* and *skazat'* can have an indirect or quirky object in the dative case. A verb like *spat'* cannot. As in the case of adjectives like *veselyj*, however, a verb can exchange its nominative for a dative subject, as shown in (8).

(8) mne legko spitsja
   me_{DAT} easily $sleeps_{N}$-SJA

The reflexive suffix SJA is added to the verb, and its nominative subject changes into a dative subject. As with adjectives, we observe one type of verb in which both nominatives and datives cooccur, and another in which they are in complementary distribution. Again, these facts can be accounted for by assuming that the dative in (8) is a subject. Verbs like *spat'* can have either a nominative or a dative subject. If the dative in (8) were an internal argument, it should be able to surface in contexts other than (8) too.

So far, we have seen that external arguments in Russian can carry nominative or dative case. In both instances, they are base-generated in specVP, which accounts for their subject properties and for the complementary distribution between these two elements.

Of course, a number of questions need to be answered now. First of all, under what conditions can dative be assigned to arguments at all, and to external ones in particular. In the next section I will propose that dative is a semantic case.

2 Dative Case: Structural or Semantic?

In section 2.1, I will first briefly discuss a proposal from the literature to treat dative as a structural case. Partly on the basis of the problems involved, I will present an alternative in section 2.2.

2.1 Dative as a Structural Case

In section 1, we have seen that dative NPs can be both internal and external arguments. In the absence of any reasons to assume that dative is an S-structure structural case, this means that dative can be assigned to at least two structural positions: specVP and some internal argument position. Franks (1990) proposes that in Russian dative case (as all other cases, in his view) is a structural case in the sense that it is assigned to a particular position. Some structural cases are assigned at S-structure (nominative and accusative) and some at D-structure (the other ones, including dative). In his proposal, structural cases can be assigned to adjuncts and arguments alike, providing they occur in the right structural position. I will now argue that Franks's position that dative is structural case is untenable.

A structural case requires a definition of position. The first problem with Franks's theory is that it is impossible to formulate definitions of dative and accusative positions that do not clash, and that do not make the wrong distributional predictions. In a sentence like (9), dative case is assigned to "sister of V'", as it should be following Franks's definition of the dative position.

(9) Ivan [$_{VP}$[$_{V'}$ kupil [$_{NP}$ cvety]] [$_{NP}$ svoej podruge]
Ivan bought flowers$_{ACC}$ his friend$_{DAT}$
(Franks 1990, (9a))

Franks defines the accusative position as "sister of V^0", which leads to problems if two accusatives occur in the same sentence, as in (10).

(10) on čitaet knigu čas (Franks 1990, (17))
he reads book$_{ACC}$ hour$_{ACC}$

Franks gives such an example himself to illustrate his point that a structural case may be available for both an argument and an adjunct as long as both meet the configurational requirements set by the particular case. In a binary branching structure, however, the two accusative elements could never both be sisters to V. Probably, one

(the adjunct *čas*) would be sister to V', and receive dative by virtue of being in a dative position.[3]

Franks also gives evidence to show that there must be a structural position for an external dative, in other words, he must allow two dative positions: sister to V' and sister to I'. Of course, this in effect undermines the idea of structural case, and would in principle allow two dative arguments in the same sentence. I think the one case where this happens is a biclausal structure, which I will discuss in section 5.3.

Worse is to come, however, as there is a third class of datives: quirky datives. Some Russian verbs select dative case for their only internal argnment, which presumably projects as sister to V^0 just as an ordinary accusative object. Franks explicitly excludes quirky datives from his analysis, but he would be in serious trouble if he did not, since a third structural dative position would be necessary to incorporate them. I conclude that defining a structural dative position is not the answer when accounting for the distribution of dative NPs in Russian.

2.2 Dative as a Semantic Case

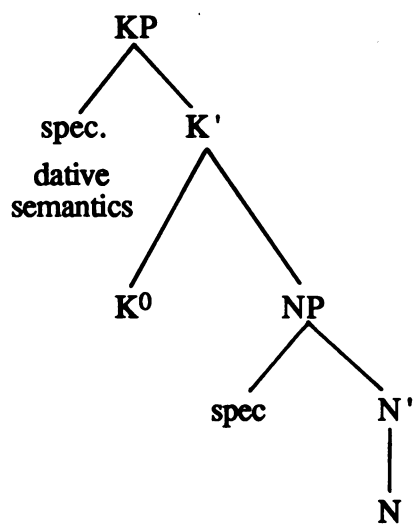
One aspect of dative Franks does not address at all is its semantics, and the fact that it is possible to generalize over almost all instances of dative case using cover terms like EXPERIENCER, RECIPIENT or GOAL.[4] It is an inherent case, but one that has some content to it, too. One option would be to treat dative as a kind of theta-role assigned along with a case. The first problem with this is that it removes the split between theta- and case-theory. In a system where arguments need lexical and syntactic licensing (i.e., theta-role and case), predicates that can provide both should be rare exceptions. Secondly, this approach leaves no room to distinguish between regular instances of dative with the group of theta-roles just mentioned, and quirky datives with verbs like *podražat'* 'imitate', *izmenit'* 'betray', *učit'* 'teach (someone$_{ACC}$ something$_{DAT}$) and *mešat'* 'disturb'. Under such an approach, in all instances of dative, whether 'regular' or quirky, the theta-role assigned to the object is

lexically marked as requiring dative, which is assigned accordingly by the verb.

In order to circumvent these problems, I will propose the following system. Dative case is a syntactic licenser freely available for any NP that needs it. It consists of a functional projection KP (as suggested by Toman, this volume) whose head carries the functional value "DAT," and whose specifier carries the semantics common to all 'regular' datives, which I will call directional (following Emonds 1987).

K^0 selects a complement NP with a theta-role that is compatible with Dative's directional semantics: RECIPIENT, GOAL or EXPERIENCER. It can also take a complement NP without a theta-role, which results in a dative adjunct. The structure of a nominal in the dative case is as in (11).

(11)



Let me elaborate a little on how a non-compatible theta-role is excluded in configuration (11).

In a DP system it is usually assumed that a theta-role is assigned to the *lexical* category dominated by the functional projection, i.e., to NP. I will assume the same to happen with an NP dominated by KP. NP is identical to N^0 except in bar-level, therefore, the head of NP is also marked as carrying a theta-role.

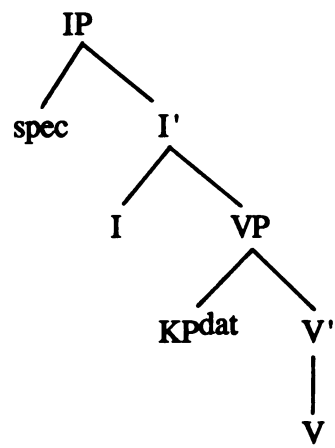
Since case marking in Russian occurs on the noun, I assume that N raises to K in the course of the derivation. I propose that establishing whether N carries the right theta-role is done by Spec-Head Agreement between specKP and N+K : N+K's semantic features are matched by Spec-Head Agreement with the semantic features in specKP. If N's theta-role contains any features that are incompatible with the ones in specKP the structure is ruled out. If the N does not carry a theta-role, Spec-Head Agreement will provide it with the dative semantics so that it will be an adjunct with the same dative semantics arguments have.[5]

This system has a number of interesting consequences. The first is that it is no longer necessary to define specific positions dative should be restricted to, which has proved itself a difficult task indeed. Secondly, the fact that predicates generally have only one dative complement follows from restrictions on the argument structures of predicates. Predicates do not combine, for instance, an EXPERIENCER and a GOAL in their argument structures. Thirdly, if dative case is not necessarily linked to a verb's theta-grid it is possible for adjuncts to carry this case too. This possibility, which is a feature of Franks's analysis I have retained, will turn out to have very interesting consequences in section 6. Finally, even though accounting for quirky dative assignment is still somewhat problematic, at least now a difference between 'regular' and 'quirky' dative can be defined. The discussion of dative assignment above applies to regular datives only.[6]

2.3 Dative assigned to Subject Position

For the sake of clarity, let me briefly go into dative assignment to subjects. It is generally assumed that external arguments are base-generated in specVP. I will follows this for Russian, and assume that both nominative and dative subjects are base-generated in the same position. Dative case is assigned at D-structure. The D-structure of a Russian sentence is given in (12).

(12)



If the predicate is adjectival, VP is replaced by AP. The copula is base-generated in I.

I will assume that a non-casemarked subject will move into specIP to get structural nominative and that this will induce agreement on the verb. Looking at the neutral word order of sentences with dative subjects it seems that dative subjects move into specIP too: they generally precede the verb (compare (5) and (8)). If the subject carries dative case, no verbal agreement occurs. I will assume that dative subjects may move into specIP on the basis of a requirement that (in order to derive neutral intonation) the position be filled with an argument that ranks high on the thematic hierarchy.

In fact, the most fruitful approach to Russian word order might be that nominative can be assigned to an NP in specVP too, which would account for cases where an oblique NP precedes the grammatical subject in the structure. Such word order would then be the result of theme-rheme structure interacting with hierarchical considerations concerning theta-roles (see King 1993 for a more detailed proposal along these lines). For my purposes, nothing hinges on which approach to nominative assignment is taken. What is crucial is that nominative case triggers verbal agreement (with the nominative assigned to either specIP or specVP), and dative does not. With a dative subject, the predicate occurs in its default form of 3rd person singular Neuter.

2.4 Psychological Adjectives

I will now illustrate dative assignment to external arguments on the basis of adjectives like *veselyj*.

Remember my claim that dative case cannot force an interpretation on arguments, that a compatible theta-role must have been assigned to the NP by the predicate. It now follows that in a pair like (4b) and (5), repeated here as (13a-b), the predicate must be of the kind that can assign either of two theta-roles: a modificational-/predicational one or an EXPERIENCER (psychological or physical). Only the latter is compatible with dative case, and can occur accordingly.[7]

(13) a. Vasja byl vesel
Vasja$_{NOM}$ was$_{M}$ merry$_{M}$

b. Vase bylo veselo
Vasja$_{DAT}$ was$_{N}$ merry$_{N}$
Vasja was having a good time

(14) a. Vasja byl xoloden
Vasja$_{NOM}$ was$_{M}$ cold$_{M}$

b. Vase bylo xolodno
Vasja$_{DAT}$ was$_{N}$ cold$_{N}$
"Vasja was feeling cold."

The dative subject, as opposed to the nominative one, can control a lower subject, as illustrated in (15).

(15) a. nam bylo očen' veselo katat'sja na lyžax
we$_{DAT}$ was$_{N}$ very merry$_{N}$ ride$_{INF}$ on skies
"We were enjoying ourselves skiing."

b. rebenku dusno spat' v ètoj komnate
child$_{DAT}$ stuffy sleep$_{INF}$ in this room
"This room is too stuffy for the child to sleep in."

It follows from this formulation that it is a matter of lexical properties of the predicate whether or not it shows the nominative-dative alternation: if the predicate does not have a theta-grid containing an EXPERIENCER theta-role, it will not occur in a configuration like (13/14b). This is in fact what we want, since with adjectives (as opposed to unergative verbs, see section 6) the alternation does not occur with all adjectives. It is impossible in the following examples.

(16) a. *nam bylo krasivo
us$_{DAT}$ was$_{N}$ beatiful$_{N}$

b. *Maše bylo prjamo
M$_{DAT}$ was$_{N}$ straight$_{N}$

It should be clear from this example that dative is assigned as a default whenever it is compatible with the NP's theta-role (or whenever a dative adjunct is interpretable with the given predicate, see section 6).[8]

3 Psychological Verbs

In the previous section I proposed that dative case in Russian can be assigned to any argument that receives a theta-role from its predicate that is compatible with the semantics of dative case. What we expect now is that all such arguments in fact occur in the dative case. This prediction seems to be contradicted by the behaviour of some classes of psych verbs in Russian. In this section, I will discuss

these problematic cases and show that some of them are not, in fact, counterexamples to the claims about dative assignment.[9]

Following the analysis of Italian psych verbs in Belletti and Rizzi (1988), I will distinguish three classes of psych verbs for Russian, as given in table 1:

Table 1

B+R-class		Russian equivalent	
temere	"fear"	*ljubit'*	"love"
piacere	"please"	*nravit'sja*	"please"
preoccupare	"worry"	*interesovat'*	"interest"

Examples with each of these verbs are given in (17).

(17) a. ona očen' ljubila knigu
she$_{NOM}$ very-much loved$_F$ book$_{ACC}$

b. èta kniga mne očen' nravitsja
this book$_{NOM}$ me$_{DAT}$ very-much pleases

c. èta kniga menja očen' interesuet
this book$_{NOM}$ me$_{ACC}$ very-much interests

Of course, the classic problem with these verbs is why three classes of verbs with apparently the same theta-structure project their arguments in different ways: *ljubit'* has an EXPERIENCER subject and what is commonly referred to as a THEME object; *nravit'sja* has a THEME subject and a dative (PP in Italian) EXPERIENCER, and *interesovat'* has a THEME subject and an object EXPERIENCER. I will not go into these matters here. My concern is why, once these theta-roles have been assigned to their various positions, do some of the EXPERIENCERs occur in the dative case as opposed to the others?

The *nravit'sja* class is unproblematic, since its EXPERIENCER argument does in fact occur in the dative case as predicted. I will concentrate on the other two.

3.1 Verbs like interesovat'

With *interesovat'* type verbs, the EXPERIENCER occurs as the direct object in the accusative case. The question to be asked, therefore, is: what does it have in its semantics that is incompatible with the dative's semantics?

Notice that these verbs have so-called affected objects, some examples are given in (18).

(18) a. ona pugaet menja
she$_{NOM}$ frightens me$_{ACC}$

b. Maša očen' obidela podrugu
Maša$_{NOM}$ very-much offended friend$_{ACC}$

All of these verbs can be used in contexts where the THEME undergoes a *change of psychological state*. Of course, as most change-of-state verbs, they can also (as imperfectives) be used to express continuous states, but these always have the flavour of continous states that have arisen as a result of some change. Therefore, the *change of state* semantics is always present. Let me compare these objects to some dative objects and subjects.

(19) a. ja prislala Maše knigu
I$_{NOM}$ sent Maša$_{DAT}$ book$_{ACC}$

b. kniga ej očen' ponravilas'
book$_{NOM\,F}$ her$_{DAT}$ very-much pleased$_{F}$

c. Maše zaxotelos' čitat' knigu
M$_{DAT}$ wanted-(SJA)$_{N}$ read$_{INF}$ book$_{ACC}$
"Maša wanted to read the book."

In (19a), the change of location occurs with the book, not the indirect object. In (19b), the verb actually means 'start to please', in which case the experiencer would go through a change of state, just as the object in (18). There is a big difference, however. The verb in (19b) is derived by adding the prefix *po-* to a verb meaning 'please' as a state. It can be shown that *po-* is the kind of prefix that does not change anything in the argument structure of the verb it attaches to. Therefore, the derived verb does not mean 'x changed from not

liking y into liking y', but it refers to 'the beginning of the state (x likes y)'. For this reason, the EXPERIENCER can in fact occur in the dative case: the change of state is not part of the semantics of the verb that assigns the theta-role. In (19c) a similar situation occurs: we have a modal predicate whose subject 'starts to want' something. Again, the 'starting' part is not part of the semantics of the underlying verb, it is added in a way that does not affect theta-roles at all. The experiencer experiences the beginning of a state of wanting, rather than the transition.

It is telling in this respect that the verbs in (18) have prefixed perfectives as their morphologically basic forms, as opposed to (19b-c), whose perfectives are derived. Perfective verbs as in (18) always have as part of their semantics a telic event, which of course very often is a change of state. In all of these verbs, the change of state is part of the basic meaning of the verb, and will be expressed, among other things, by its theta-structure. I conclude that *change of state* semantics, even if applied to a psychological state, is not compatible with dative case.

3.2 Verbs like ljubit'

Verbs like *ljubit'* have EXPERIENCER subjects that do not occur in the dative case. Here, as opposed to *interesovat'* verbs, no change of state is involved, although in most cases, as in (19b), the start of the state may be emphasized using a prefix. What, then, causes the difference between the EXPERIENCER case in (20a) and (20b)?

(20)	a.	ona	očen'	ljubila	knigu
		she_{NOM}	very-much	loved	$book_{ACC}$
	b.	ej	očen'	nravilas'	kniga
		her_{DAT}	very-much	pleased	$book_{NOM}$

In fact, these verbs are problematic for my proposal. I will indicate a line of research that, to my mind, should lead to a solution of this problem. More work will need to be done to solve it.

As a starting point I will take the fact that transitive state verbs across languages are very hard to get without their direct objects. Compare the following English examples[10].

(21) a. *John hates
b. *Mary sees
c. *The children know

It looks as though state verbs establish some particular relationship between their arguments that requires both of them to be expressed in syntax. Suppose this relationship were part of the semantic definition of both theta-roles, it might then be the case that this part of the definition is incompatible with dative case. Support for such a solution comes from the fact that, in general in Russian, predicates whose dative NPs can be argued to be subjects do not have NP complements.

I conclude that there is one class of psych verbs that contradicts the general claim concerning the applicability of dative case to EXPERIENCERs. I will leave this as a problem.

4 Modals

There are a fair number of modal predicates in Russian that have dative subjects. In fact, the intuition that datives can be subjects in Russian probably originally relies on the behaviour of modals, since controlling lower PRO subjects seems to be a very subject-like property. Examples are given in (22-23).

(22) a. Vase ne sleduet običat' roditelej
Vasja$_{DAT}$ not ought hurt-feelings$_{INF}$ parents$_{ACC}$
"Vasja shouldn't hurt his parents' feelings."

b. Vase prišlos' obidet' roditelej
Vasja$_{DAT}$ forced-to hurt-feelings$_{INF}$ parents$_{ACC}$
"Vasja had to hurt his parents' feelings."

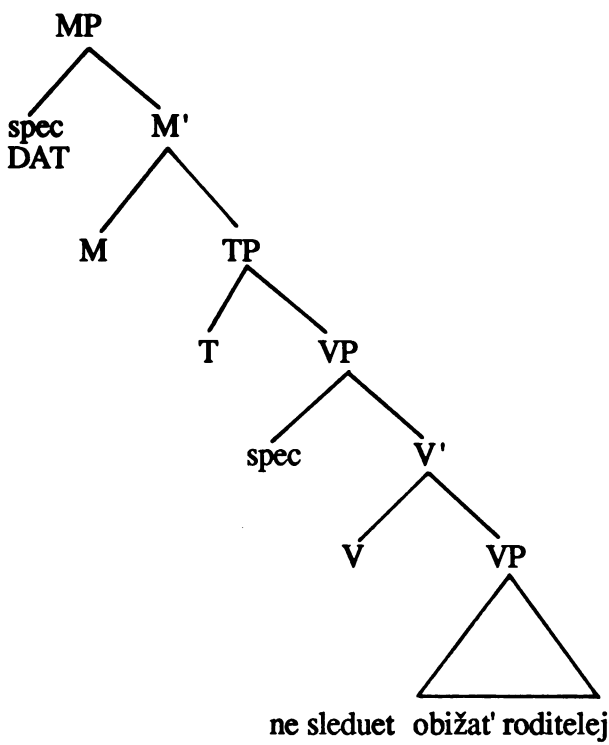
(23) Vase nado bylo ujti
Vasja$_{DAT}$ must was leave$_{INF}$

In all of these cases, the predicate (*sleduet/prišlos'*, *nado,* resp.) occurs in the default form with a dative subject. The predicate selects a controlled infinitival complement.

In this section, I will discuss an earlier proposal that establishes a direct link between modality and dative for subjects. I will argue that if such an approach is to be maintained, the notion of 'modality' must be voided of everything beyond 'dative EXPERIENCER semantics'. If this is so, such a system seems to have no advantage over the one proposed here, which associates dative case to a wider semantic field, and therefore is able to generalize over all datives except the quirky ones.

In Schoorlemmer (1991) a Modal Phrase (MP) is posited whose head assigns dative case to its specifier. An example of this structure is given in (24).

(24)



A modal verb like *sledovat'* (compare example (22a)) is base-generated as the head of the VP and raises to M through T where it picks up T-features. The structure of (22a) would therefore be as in (24), with dative case assigned to specVP. A modal adjective like *veselo* or *nado* is base-generated in M, since it could never raise through T. These adjectives assign dative to the spec of MP.

The modal predicate ends up in M in all cases, the dative subject is either base-generated in specMP or raised to it. A copula occurs in T. In this way, the analysis accounts for the word order *NPdat-Modal-(copula)* in (22) and (23).

The first problem with this analysis for a sentence like (25) is that it derives an (intonationally) slightly marked structure.

(25) nam očen' veselo bylo (katat'sja na lyžax)
we$_{DAT}$ very merry$_{N}$ was$_{N}$ ride$_{INF}$ on skies
"We were enjoying ourselves (our skiing)."

The preferred order is the one with the copula preceding the adjectival predicate (compare (15)), which would not fit into the structure given in (24).

A second problem is that MP seems to act like a lexical category in the sense that many lexical heads can be base-generated in it, and also that dative case is assigned to its spec. Still, structurally it alternates with AgrP, and therefore seems equivalent to a functional category.

Finally, there is a problem with the way dative is assigned by modal verbs. Considering the fact that internal dative objects never ever passivize, and that dative case is associated with quite distinct semantics, there really is not much reason to assume that dative is a structural case in the LGB sense. (Compare also the discussion of Franks 1990's proposal in section 2.) Still, in this proposal an external argument is able to raise to specMP and get assigned dative there. It is this fundamental problem which I have really set out to amend in this paper.

As a last point to be made against a direct link between dative subjects and modality, let me dwell on the content of the notion of 'modality'. If some definition of root and epistemic modality can be

given, the question is whether it would include the semantics of examples like (26).

(26) nam bylo veselo/xolodno
us$_{DAT}$ was$_{N}$ merry$_{N}$/cold$_{N}$

The subject is an EXPERIENCER, but it is doubtful whether the semantics of an EXPERIENCER automatically implies modality. It seems to me that what is understood by modality is a combination of a certain semantics, a kind of external theta-role (except if the verb is a raising predicate) and the ability to select a clausal complement. Since the semantics of a modal external argument is compatible with dative case, dative subjects show up with modal predicates. However, very often dative subjects express a state of mind or even a physical sensation (like cold). It does not seem fruitful for any discussion of modality to include such experiencers in the group of modal subjects. Therefore, if the ability to assign dative to an external argument is linked exclusively with modality, then the MP will not be anything but a Dative Assigning Phrase.

The system I have argued for in this paper results in dative case being available for arguments of modals and non-modals alike, provided their theta-roles do not clash with dative. In Russian, there probably is no lexical category of modals as there is in English. Modals take dative subjects, since their semantics is compatible with dative. There is no one-to-one relation between modality and dative case.[11]

The structure proposed for cases like (22b) and (25) both involve a predicate whose subject receives dative case in its D-structure position. The structure is as in (27).

(27)a. [$_{IP}$Vase prišlos'$_{k}$ [$_{TP}$ t_{k} [$_{VP}$ t_{i} t_{k} [PRO obidet' roditelej]]]]
b. [$_{IP}$Vase bylo$_{k}$ [$_{TP}$ t_{k} [$_{AP}$ t_{i} veselo [PRO katat'sja na lyžax]]]]

As can be seen from (27b) when compared to (25), this approach does derive the right neutral word order for the *veselo* cases. Still, if you look at (23) you will see that it does not derive the right order for *nado*-modals. This problem will be the topic of section 5.

One general problem with linking modality and dative case for subjects is that there are two modal predicates that do not assign dative case to subjects. Compare the examples in (28), which contain the modals *moč'* 'can, may' and *dolžen* 'must'.

(28) a. ja ne mogla slyšat' ničego
I not could$_F$ hear$_{INF}$ anything

b. *mne ne moglo slyšat' ničego
me$_{DAT}$ not could$_N$ hear$_{INF}$ anything

c. on dolžen byl otnesti èti knigi
he must$_M$ was$_M$ return$_{INF}$ these books

d. *emu dolžno bylo otnesti èti knigi
him$_{DAT}$ must$_N$ was$_N$ return$_{INF}$ these books

If there were a one-to-one relationship between modality and the ability to assign dative to subjects, these predicates should always assign dative to their subjects.

It follows that not all modal semantics is dative-compatible. If all modal semantics were compatible with dative case, there is no explanation for the fact that *mọ́ć'* and *dolžen* do not take dative subjects. I will now look a bit more closely at these subjects, to see whether they do indeed differ from dative-assigning modals.

Moč' and *dolžen* are the only two modals that can occur as epistemic modals. As epistemics they express 'objective' modality, as illustrated in (29).

(29) a. on mog prijti
he$_{NOM}$ could come$_{INF}$
"It might have been the case that he came."

b. emu možno bylo prijti
he$_{DAT}$ allowed was$_N$ come$_{INF}$
"He was allowed to come."

As epistemic modals, *moč'* and *dolžen* are raising predicates.

(30) emu moglo byt' veselo
him could$_N$ be$_{INF}$ happy
"It could be the case that he had a good time."

A raising predicate selects a lower predicate that will provide it with a subject through raising. It does not assign its own external theta-role, and if the lower predicate takes a dative subject, the modal will appear to occur with a dative NP.

As root modals, however, these modals do assign an external theat-role to a nominative subject. Dative being the default case if the theta-role on the NP is compatible with it, it must be the case that the root modality expressed by *moč'* and *dolžen* is incompatible with dative. What, then, is the special property of this modality?

Consider the examples in (31).

(31) a. on mog prijti
he$_{NOM}$ could come$_{INF}$
(He had the occasion, the money, the time to come.)

b. on dolžen prijti
he$_{NOM}$ must come$_{INF}$
(Because it is part of his duties. Because his moral values tell him to.)

It seems to me that in a fine-grained model of modal and EXPERIENCER semantics there is a distinction to be made between the root modality with *nado* (and other dative assigning modals) and with *moč'* and *dolžen*. In (31), modal pressure is exerted by 'the way the world is organized', so to speak, not by other people or by one's own needs. The modality in (31) is regarded as something maybe not absolutely objective as in (29a) and (30), but certainly not the kind of subjective necessity or possibility found in (29b). I conclude, therefore, that as root modals *moč'* and *dolžen* do in fact assign a theta-role that has features different from dative assigning modals. It is these special features that are not compatible with dative semantics.

5 Clitic Modals

In this section I will propose a system that derives the right word order for *nado*-modals, and that accounts for the rigidity of this order. I will argue that these predicates are categorially verbs. I will also argue that a predicate exactly like this is involved in the derivation of sentences like (32).

(32) emu bylo kolot' drova
him$_{DAT}$ was$_{N}$ chop$_{INF}$ wood
"He had to chop wood."

5.1 Nado-*Modals*

The modal predicates *nado* 'must', *možno* 'can, may' and its negative counterpart *nel'zja* 'cannot, must not' have very specific syntactic behaviour. As can be seen from examples like (23), these modals immediately precede the copula. In general, word order in Russian seems to depend very heavily on theme-rheme structure and focussing devices, and therefore it is very difficult to make general statements about word order on a purely syntactic basis. However, the order [*nado* copula] is not only the preferred, neutral one, but it can under no circumstances be violated, nor can any element intervene between the modal and the copula. Compare the examples in (33) and (34).

(33) a. mne *nado* *bylo* ujti
I$_{DAT}$ must$_{N}$ was$_{N}$ leave$_{INF}$
b. *mne *bylo nado* ujti
c. **bylo* mne *nado* ujti

(34) a. on *gotov* *byl* ujti
he ready$_{M}$was$_{M}$ leave$_{INF}$
b. on *byl* *gotov* ujti
c. *byl* on *gotov* ujti

The examples in (34) show that, in general, it is possible to move around predicate and copula and to separate them. With *gotov*, as

opposed to *nado*, the neutral word order is as in (34b). So, *nado*-modals differ from *gotov* in at least two respects: they have different neutral word order and the order [*nado* copula] is rigid, not flexible as is usually the case in Russian. Notice that positing a specific syntactic position for *nado* that precedes the canonical copula position is not enough to account for *nado*'s properties. The examples in (34) show that if such an approach were taken, we would expect the modal and copula to show the same kind of word order options as *gotov*.

The obvious solution to the kind of behaviour shown by *nado bylo* is that one of the elements is a syntactic clitic. If the copular verb were the clitic we would expect rigid word orders like the ones in (33) whenever *byt'* were used as a copula. Obviously, this is not the case, as can be seen from (34). Therefore, it must be the modal that is a clitic.

If the modal were a straightforward phonological clitic it would move to the copula in order for it to be heavy enough to be stressed, for instance. In Russian, the present tense form of the copula is null, and could therefore never serve as a host for a phonological clitic. Nevertheless, *nado* is quite happy to occur in the present tense, with the null copula as its only potential host. I conclude that cliticization occur for syntactic, not phonological reasons.

My proposal is that such modals are syntactic clitics, and that the reason for this is that they are categorially verbs. As a result, they occur in the following structure.

(35) $[_{IP}$ mne$_i$ nado$_k$-bylo $[_{VP}$ t_i t_k CP]]

The modal is not an adjective, as is suggested by its morphology, but a verb. Since verbs must occur in I to receive tense, *nado* raises to I too. Tense features cannot be morphologically expressed by *nado*, therefore the modal adjoins to a copula base-generated in I which serves as a vehicle for these features. The analysis of *nado*-modals as verbs accounts for the kind of clitic behaviour shown by these modals, including the fact that they cliticize to null elements if such a null element represents tense.[12]

5.2 Dolžen

The modal predicate *dolžen* 'must' is like a *nado*-modal in the sense that it is clitic in exactly the same way. (It is unlike those modals in that it is does not take a dative subject, as discussed in section 4). Examples are given in (36).

(36) a. on *dolžen byl* ujti
he must$_M$ was$_M$ leave$_{INF}$
b. *on *byl dolžen* ujti
c. **dolžen* on *byl* ujti

The analysis given for modals like *nado* above can be extended to this case as well. If *dolžen* is a verb, it is possible to account for its special syntactic behaviour by appealing to the need of a verb to formally express tense.

5.3 Null-Modal

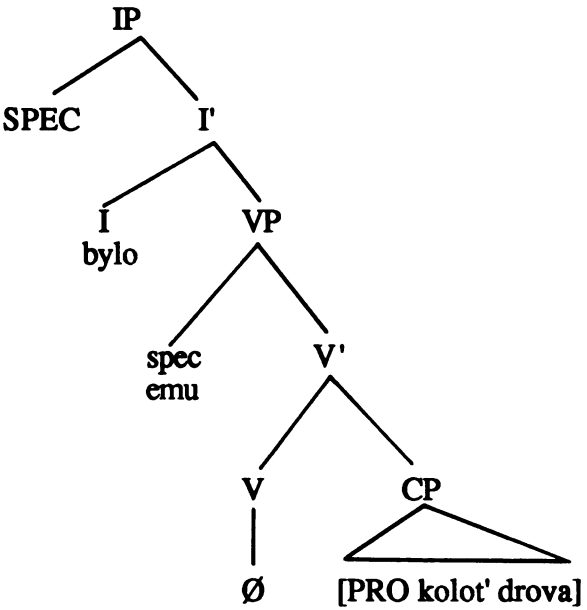
In general, Russian sentences can have one dative element only. To account for this, I have appealed to general restrictions on predicate argument structure which prevent two elements with dative compatible semantics from occurring with one predicate (see section 2.1). A notable exception to this generalization is the sentence type illustrated in (37).

(37) a. emu bylo kolot' drova
him$_{DAT}$ was$_N$ chop$_{INF}$ wood
"He had to chop wood."
b. mne tam bol'še ne rabotat'
me$_{DAT}$ there any-more not work$_{INF}$
"I shall not be working there any longer."
c. ne nam skazat' vam pravdu
not us$_{DAT}$ tell$_{INF}$ you$_{DAT}$ truth
"It is not up to us to tell you the truth."

A dative subject with an infinitive leads to a modal interpretation of the predicate. The predicate can have a dative internal argument.

My analysis of these sentences is that they involve a null-modal with the same properties as *nado*: it assigns a dative-compatible external theta-role, the modal subject controls the subject of a lower predicate and the lower predicate may take an internal dative argument.

(38)



In this way, a number of properties of these sentences have been accounted for. Firstly, the fact that they seem to take two datives is no longer a problem, since two predicates are involved which may take one each. Secondly, the fact that these sentences are modals is also accounted for. In section 4 I have argued that dative subjects do not necessarily express modal semantics. It follows from this that adding a dative subject to a sentence is not enough to derive modality. In my analysis of (37) modality is derived by a modal predicate, as it is in all other modal sentences. Finally, a structural problem is solved by this approach. If there were no null-modal present in this sentence, its structure would probably look like (39):

(39) [$_{IP}$ emu I [$_{VP}$ t kolot' drova]]

It is clear from the discussion of *nado* and *dolžen* (and of adjectival predicates, see section 2.3) that the copula is generated in I as a default in order to save structures that would have no morphologcial verb otherwise. Here, however, the verb could just move into I, and no copula would be inserted. If this were an option that was available in Russian in general, we would expect to find it with nominative as well as dative subjects. This is not the case: copula + infinitive is always linked to dative subjects. The assumption that a null modal is involved in such sentences accounts for the fact that the infinitive is prevented from moving into I. Also, it explains the availability of the copula + infinitive configuration with dative subjects only.

I have shown that no special assumptions need to be made to account for the properties of sentences like (37a-38), except that the group of *nado*-modals contains a null modal as well. I think that this is a very strong argument in favour of such an analysis.

6 Dative Assignment to Adjuncts

In the previous sections, we have seen that dative case is a combination of morphological case and semantics, and that it can be assigned to an argument only if the argument carries a compatible theta-role. It follows, therefore, that an adjunct should also be able to occur with this semantics. I will now show that such cases can indeed be found. Consider the examples in (40).

(40) a. on ispačkal mne jubku
he soiled me$_{DAT}$ skirt$_{ACC}$

b. on česal ej volosy
he combed her$_{DAT}$ hair

The dative NP in (40) has all the properties of an adjunct: it is optional, it can occur with any verb[13] and it does not change the argument-taking properties of the verb. Here, the dative case acts autonomously, without a theta-role from the predicate.

Considering the fact that dative case can occur with external arguments and adjuncts, it might also be possible for it to occur on

an NP in specVP without a theta-role. In the remainder of this section I will argue that this is indeed possible, and that the dative subject in impersonal reflexives is just such a case.

6.1 Impersonal Reflexives: Basic Properties

An example of an ordinary finite sentence and its impersonal reflexive counterpart is given in (41):

(41) a. Vanja guljaet v parke segodnja
Vanja walks in park today

b. Vane ne guljaetsja segodnja
Vanja not walks-SJA today
"Vanja does not feel like taking a walk today."

Of course, an analysis of impersonal reflexives should account for the fact that if the nominative subject of a verb changes to a dative, it always does so with the help, so it seems, of SJA, the reflexive marker. Another problematic property to be accounted for is the change in theta-roles between the nominative and dative alternants; as a nominative it is something like an AGENT, as a dative it is an EXPERIENCER.

In the analysis of psychological adjectives that take dative subjects in section 2.4 I suggested that whether or not the adjective can occur with a dative subject depends on its theta-structure. Only adjectives with a theta-grid that contains an EXPERIENCER allow this. As opposed to these adjectives, however, the change observed in (41) is productive for all unergative intransitives verbs. If we were to rely on the same mechanism to derive the dative subjects with verbs as we did with adjectives it would mean equipping all unergative intransitives with an additional theta-grid, one with an EXPERIENCER that only surfaces in the impersonal reflexive. This seems a very undesirable move indeed. The problem, therefore, is how to account for the fact that the subject appears in the dative case and that it carries a theta-role different from the one assigned to a nominative subject.

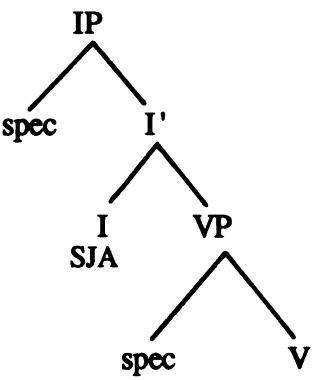
As dative is available throughout the VP for both adjuncts and arguments, it follows that dative is available for specVP even if the verb does not assign a theta-role to this position. My analysis of impersonal reflexives will consist of the following elements:

-SJA absorbs the verb's external theta-role;
-dative case is available for the external argument position;
-the external role having been removed, a dative adjunct can occur in the subject position.

I will refer to such a dative adjunct as an *adjunct subject* from now on.

The structure of an impersonal reflexive is as in (42).

(42)



It follows from this structure that a sentence like (43) is excluded.

(43) *on mne guljaet
he_{NOM} me_{DAT} walks

The semantics of this verb does not allow an ordinary dative adjunct (see note 13), and since the subject position has been taken by the external argument, no adjunct can be generated in that position.

The difference between these adjunct subjects and other subjects is that adjunct subjects do not receive a theta-role from the verb. In a way, therefore, adjunct subjects are the exact opposite of passive by-phrases. Passive by-phrases are syntactic adjuncts but semantic arguments (they carry a theta-role that is part of the verb's theta-

grid, see Grimshaw 1990), these adjunct subjects are syntactic arguments but semantic adjuncts.

In the remainder of this section, I will present the analysis in more detail, and I will show that it accounts for the puzzling properties given above: the fact that the nominative/dative alternation involves SJA and the difference in subject semantics between the dative and nominative.

6.2 SJA and the Absorption of the External Theta-role

We have just seen that adjunct subjects are base-generated in the same position as ordinary external arguments. Therefore, if an adjunct subject is to be projected, the external theta-role must not be assigned to an argument. This, of course, is very similar to what happens in a passive, where a direct object can move into the nominative position in the absence of an external argument. Since in Russian SJA is present both in passives and impersonal reflexives, there seems little doubt that it is there to prevent the external theta-role to be assigned to an argument in both cases.

In many theories of passive, the suppression of the external argument is accounted for by having the external argument assigned to or absorbed by the passive morpheme (Jaeggli 1986, Baker, Johnson and Roberts 1989). In such frameworks, the passive morpheme is the head of a functional projection dominating the main verb.

Let me suppose, following these proposals, that SJA is such a passive morpheme, and that it absorbs the external theta-role in both passives and impersonal reflexive. A SJA-passive example is given in (44).

(44)	dom_i	stroitsja	izvestnym	arxitektorom	t_i
	house	builds-SJA	[famous	architect]$_{INSTR}$	

As can be seen from (44), if the verb also projects an internal argument, this argument will move into specIP to receive case.

6.3 Impersonal Reflexives and Internal Arguments

If adjunct subjects were available wherever the specVP is not occupied by an argument, we predict types of impersonal reflexives that do not occur. Going back to (44), for example, an adjunct subject might be generated in specVP here, if the internal argument can move across it to receive case. However, the dative is impossible, as illustrated in (45).

(45) *dom arxitektoru ne stroitsja
house$_{NOM}$ architect$_{DAT}$ not builds-SJA

Impersonal reflexives with PP internal arguments should occur, which is impossible, too (an observation attributed to C. Chvany (S. Franks, p.c.)). Examples are given in (46) and (47).

(46) a. *Maše ne čitaetsja knigu
M$_{DAT}$ not reads-SJA book$_{ACC}$
b. *Maše ne moetsja posudu
M$_{DAT}$ not washes dishes$_{ACC}$

(47) a. Maše ne rabotaetsja (*nad ètoj stat'ej)
M$_{DAT}$ not works-SJA (on this paper)
b. nam ne govoritsja (*o čužix problemax)
us$_{DAT}$ not talks-SJA (aboutother-people's problems)

Finally, unaccusative verbs do not allow impersonal reflexives either. This is illustrated in (48).

(48)a. *Vase ne umiraetsja
Vasja$_{DAT}$ not dies-SJA
"Vasja does not feel like dying."
b. *Vase ne rastetsja
Vasja$_{DAT}$ not grow-SJA
"Vasja does not feel like growing, cannot grow."

What we have to account for, is not simply the impossibility of examples like (45), but the pattern that emerges from (45-48),

which is that adjunct subjects do not co-occur with internal arguments.

The arguments of a transitive verb have a particular relation with respect to each other. In a sentence like 'John reads the book', *John* is performing an action, *the book* is undergoing it. It is the projection of either element to a certain syntactic position that gives formal shape to this relationship. Adjunct subjects, even though they do not receive a theta-role from the verb, occur in a syntactic subject position. The reason why they cannot occur with predicates that have internal arguments is that the result would be that a relation between the adjunct subject and the internal argument would be established on the basis of their configuration. There are two problems with this, which might each be enough to rule out such cases. I will not decide between them here.

One problem is the Projection Principle. Two elements have no relation as arguments of the same verb on a lexical level, but they do once the adjunct subject has been projected in specVP. This shift in the formal relationship between the adjunct subject and the internal argument is what may provide the ungrammaticality in examples (46-47).

The second problem is that, probably, any relation between a dative (adjunct) subject and non-clausal internal argument is problematic. There are two cases where it might be argued that a dative subject occurs with an internal argument. The first is psych-verbs like *nravit'sja*, which occur in examples like (49).

(49)	èta	kniga	mne	očen'	nravitsja
	this	book	me$_{DAT}$	very-much	pleases

Belletti and Rizzi (1988) argue for comparable verbs in Italian that they are unaccusative verbs with an internal dative object. If this is true for the Russian cases we do not have a dative subject here. Evidence for this is the fact that the dative NP selected by *nravit'sja* can occur when the verb is used as an active participle. Compare the example in (50).

(50) tam ležit ponravivšajasja mne kniga
there lies pleas-ACTIVE PART-PAST-$_{NOM/F/SG}$ me$_{DAT}$ book
"There lies the book that I liked."

In this case, the internal theta-role seems to have been converted in a modificational one. The role assigned to the dative NP is left over, and assignable to an argument. Active participles never have subjects, so if a dative NP can occur in a sentence like (50), it is not a subject. (Compare (51b).) It follows that verbs like *nravit'sja* have the same argument structure as their Italian counterparts and do not contradict the claim that predicates never have both an external dative and an internal argument.

The second case of dative subject and internal argument, however, really is such a case. It is illustrated by (51).

(51) a. nam xorošo slyšno muzyku
us$_{DAT}$ well audible music$_{ACC}$
b. slyšnaja (*nam) muzyka
audible$_{NOM\,F}$ us$_{DAT}$ music$_{NOM\,F}$

The accusative case on *muzyku* is direct evidence that it is an internal argument. The fact that the dative NP cannot occur when the adjective is used attributively indicates that it is an external argument like the dative in a sentence like *Vase bylo veselo* (14b). It seems, therefore, that there are a very limited number of predicates[14] that do combine an external dative argument with a direct object. I will not try to account for these exceptions.

If we want to hypothesize that dative subjects do not co-occur with non-clausal internal arguments (in which case we must ignore the small group of predicates that occur in a structure like (51)), we can rule out all cases of 'external' dative, whether arguments or adjuncts, in sentences that have an internal argument.

The problem of this sub-section was how to account for the absence of adjunct subjects in passive and the impossibility of impersonal reflexives to take direct objects. We have seen that there are independent reasons why the combination of an adjunct subject and an internal argument is excluded (whether based on the Projection

Principle or on some deep generalization concerning argument structure). Adjunct subjects are possible only in the following configuration: in the specifier of a VP that does not assign its external theta-role to an argument and that has no internal arguments either. No verb is lexically specified as assigning no theta-roles, either internal or external,[15] and the configuration only arises if an unergative's external role has been absorbed by SJA.

6.4 Change in Theta-role

In section 6.1, we saw that the problem in accounting for the theta-role difference between sentences like (41a-b) was the productivity of the pattern. Since all verbs without internal theta-roles allow the formation of an impersonal reflexive, positing a lexical feature that triggers it does not explain anything. The analysis of datives in impersonal reflexives as adjuncts does in fact explain the apparent shift in thematic value observed in the subjects of (41a) and (41b). In (41a) the verb's external theta-role is assigned to an argument. In (41b) it is absorbed by SJA, and an adjunct subject in the dative case has been added. Notice that, as in a passive, the agent is still implicitly present. What the experiencer is evaluating is not the mere action expressed in the verb, but actually being the agent of this action, having to do it oneself. So, *Vane ne guljaetsja* (41b) does not mean that Vanja does not like all this walking, but the prospect of having to walk *himself*. If the dative in the impersonal passive were assigned the role by the verb, this semantics could not be accounted for. I therefore consider it evidence for the adjunct subject analysis of these dative NPs.

The analysis of the datives in impersonal reflexives as adjuncts gives us a tool to account for a systematic difference between these datives and all dative subjects, which is that only adjunct subjects cannot control. Compare the following examples.

(52)a.	emu	nado	bylo	ujti
	him_{DAT}	must	was_{N}	$leave_{INF}$

b. emu bylo dusno spat'
himDAT was stuffyN sleepINF
"He found it too stuffy to sleep."

c. *emu očen' spalos' vyzdorovet'
himDAT much slept-SJA get-wellINF
"He wanted very much to sleep to get better."

Of course, it could be argued that all adjectives that occur with dative subjects also select infinitival complements. Some of these infinitives, however, almost have the flavour of purpose clauses, in which case they are not selected by the verb. Suppose they are non-argumental, freely available if the subject can control, then we would not have to state this frequent co-occurrence as a lexical rule. The prediction is now that if the datives in impersonal reflexives were arguments, such an infinitive should be possible in these sentences too. Example (52c) shows that this is not the case. The reason for this is that the dative here is an adjunct, as opposed to the dative in (52b), and therefore it cannot control a lower PRO.

To summarize this section, I will repeat the main points of the analysis. The analysis of dative case as a case that includes semantics predicts the possibility of assigning it to adjuncts as well as arguments. The fact that dative can be assigned to internal and external arguments predicts that such adjuncts need not necessarily be V', i.e., 'internal' adjuncts, but can occur higher in the structure too. I have argued that the analysis of the dative subject of impersonal reflexives as such an adjunct, an adjunct subject, can account for a large number of properties of impersonal reflexives that have been problematic so far. First of all, the necessity of having the specVP available for this adjunct forces the external theta-role to be absorbed by SJA. Secondly, since the adjunct subject is structurally an argument, it must not co-occur with any other argument of the predicate, either to prevent a change in relations in the course of the derivation or the largely impossible combination of dative subjects and internal arguments. For this reason, not only are unaccusative verbs excluded in impersonal reflexives, but so are all transitives, regardless of whether they have NP or PP complements. Finally, it is the absorption of the verb's external role and the projection of the

subject adjunct that explain the difference in 'subject' theta-role between nominative sentences and impersonal reflexives with the same verb.

5 Conclusions

In this paper, I have given an analsysis of the assigument of dative case in Russian, which can account for most of its distributional and semantic properties.

I have argued that dative case is a feature value on the head of a functional category KP, which has a particular lexical semantics as its specifier. Dative case is freely available for NPs that have not been assigned an incompatible theta-role, whether they are arguments or adjuncts (section 2). I have shown that the analysis of dative case as proposed in section 2 can account for the behaviour of modal predicates, and that 'modality' is not fully equivalent to 'having a dative subject'. The special clitic properties of some modals have been attributed to the fact that they are categorially verbal. Finally, an analysis of impersonal reflexives was proposed in which the dative subjects of such sentences are really adjunct subjects. In this way, the presence of SJA in such sentences, the special semantics of the dative subject and restrictions on the formation of impersonal reflexives have been accounted for.

Of course, some problems remain. One problem is why not all EXPERIENCER verbs occur with dative subjects, or why dative subjects are so rare with direct objects. The solution to this problem will probably have to do with another one, which is to define the precise nature of dative semantics. Some problems also remain for the syntax of embedded clauses, namely the problem of second dative (see note 4) and of control (see note 8). I will leave these matters for future research.

APPENDIX: DATIVE CONSTRUCTIONS IN RUSSIAN

In this appendix I will present a survey of sentence types in Russian that involve dative case. I will also discuss some preliminary reasons for assuming that a particular dative is an external or an

internal argument (or adjunct, as the case may be), and refer the reader to the main text where possible.

A DATIVES WITH VERBS

1 Quirky Objects (section 2.2)

Ja radujus' vašemu uspexu.
I be-pleased(SJA)$_{1\ SG}$ your succes$_{DAT}$

On izmenil rodine.
he betrayed motherland$_{DAT}$

On učil nas francuzskomu jazyku.
he taught us$_{ACC}$ French language$_{DAT}$

2 Indirect Objects (section 2.1)

On dal mne knigu.
he gave me$_{DAT}$ book$_{ACC}$

On prislal ej knigu.
he sent her$_{DAT}$ book$_{ACC}$

3 Dative Adjuncts (sections 2.1 and 6)

On mne isportil jubku.
he me$_{DAT}$ ruined skirt$_{ACC}$

If it is assumed that none of these datives are subjects, the following cross-linguistic generalizations can be maintained:

AGENTs are always external arguments;
PATIENTS are always internal arguments;
Quirky case is always assigned internally (except in Icelandic).

I will therefore stick to this assumption.

4 EXPERIENCER Datives (section 6.3)

Mne ne nravitsja tvoja kniga.
me$_{DAT}$ not pleases your book$_{NOM}$
"I don't like your book."

Ego rešenie mne kažetsja strannym.
his decision$_{NOM}$ me$_{DAT}$ seems strange$_{INSTR}$
"His decision seems strange to me."

Mne pomnilas' èta strašnaja noč'.
me$_{DAT}$ remembered/occurred$_F$ that terrible night$_{NOM\,F}$
"I had to think back to that terrible night."

Mne opjat' prisnilas' èta strašnaja noč'.
me$_{DAT}$ again dreamt(SJA)$_F$ that terrible night$_{NOM\,F}$
"I dreamt about that terrible night again."

Mne predstavljaetsja ego udivlenie.
me$_{DAT}$ imagine(SJA) his surprise$_{NOM}$
"I can imagine his surprise."

These verbs are members of what Belletti and Rizzi (1988) have called the *piacere* class of psychological verbs. They analyze these verbs as unaccusatives, which means the grammatical subject is an underlying object. In their system, dative case (expressible as a PP) is not available for subjects, so the EXPERIENCER is generated internally in their system, as an indirect object. The analysis of such verbs as unaccusatives has been confirmed for a number of languages, Dutch being one of them. In Russian, there seems to be very little evidence that these verbs should be unaccusatives. Still, since all of these verbs are inherent reflexives, the possibility should certainly not be excluded.

If the nominatives are external arguments, the datives can only be internal ones. If the nominatives are underlying objects, chances are that the datives are internal arguments as in Italian and Dutch. Another interesting option, however, would be that the datives were external arguments.

5 Impersonal Reflexives (sections 1.3 and 6)
Mne ne spitsja.
me$_{DAT}$ not sleeps-SJA
"I can't sleep, I am not sleepy."

6 Lexical Impersonal Reflexive (note 15)
Emu nezdorovitsja.
him$_{DAT}$ feel-unhealthy(SJA)$_N$
"He is not feeling well."

This verb has no nominative counterpart. It is not clear whether the dative is an internal or an external argument or an adjunct.

B DATIVES WITH ADJECTIVES

1 Quirky Object

Ja rada vašemu uspexu.
I (am) happy your $succes_{DAT}$
"I am happy about your succes."

The presence of a quirky dative may be the reason why the EXPERIENCER cannot occur as a dative.

2 Indirect Object (section 1.2)

Prijatnoe mne slovo
$pleasant_{N\ SG\ NOM}$ me_{DAT} $word_{N\ SG\ NOM}$
Slovo mne bylo prijatno.
$word_{N\ SG\ NOM}$ me_{DAT} was_{N} $pleasant_{N}$

3 EXPERIENCER datives (sections 1.2 and 2.4)

Nam veselo (katat'sja na lyžax).
us_{DAT} (is) $happy_{N}$ ($ride_{INF}$ on skies)

4 Dative Subject plus Internal Argument (section 6.3)

a. Bašnja byla nam vidna.
$tower_{NOM\ F}$ was_{F} us_{DAT} $visible_{F}$

b.*Vidnaja nam bašnja
$visible_{NOM\ F}$ us_{DAT} $tower_{NOM\ F}$

c. Nam vidno bašnju.
us_{DAT} (is) $visible_{N}$ $tower_{ACC}$

d. Nam ne vidno bašni.
us_{DAT} not $visible_{N}$ $tower_{GEN}$

The nominative subject can surface as an accusative object as well, (c), and even with genitive of negation, (d). This is evidence that it is a genuine direct object, and therefore that the adjective is an unaccusative predicate: it assigns an internal modificational theta-role. If the dative is a subject, this would account for the fact that it does

not occur with a prenominal adjective. This would be the only instance of such a predicate with an internal NP argument as well.

C DATIVES WITH MODALS: SECTIONS 4 AND 5

All of these datives are subjects.

1 Modal Verbs (section 4)

Vase ne sleduet obižat' roditelej.
Vasja$_{DAT}$ not ought hurt-feelings$_{INF}$ parents$_{ACC}$
"Vasja shouldn't hurt his parents' feelings."

2 Clitic Modals (sections 4 and 5.1)

Nam nado bylo ujti.
us$_{DAT}$ must was$_{N}$ leave$_{INF}$

3 Null-Modal (section 5.3)

Nam ujti bylo.
us$_{DAT}$ leave$_{INF}$ was$_{N}$

Null-modal in free relative (not discussed in the paper):

Nam negde žit'.
us$_{DAT}$ not-where (is) live$_{INF}$
"We have nowhere to live."

Nekomu doit' korov.
not-who$_{DAT}$ (is) milk$_{INF}$ cows$_{ACC}$
"There is noone to milk the cows."

4 Nominal Modals (section 5.1, note 12)

Emu ne len' znakomit'sja s ljud'mi.
him$_{DAT}$ not lazy (is) meet with people

D PREPOSITIONS WITH DATIVE

ljubov' *k* materi
love for/towards mother$_{DAT}$
idti *po* ulice
walk along street$_{DAT}$

Ja im dala *po* jabloku.
I them$_{DAT}$ gave PO apple
"I gave them an apple each."

vopreki ploxomu zdorov'ju
despite poor health$_{DAT}$

On smotrel *vsled* poezdu.
he looked after train$_{DAT}$

On šel mne *navstreču*.
he came me$_{DAT}$ to-meet

soglasno zakonu
in-accordance-with law$_{DAT}$

blagodarja xorošemu zdorov'ju
thanks-to good health$_{DAT}$

Notes

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1 An overview of sentence types involving dative NPs is given in the Appendix.

2 The abbreviations used in the glosses are:

M masculine, N neuter, F feminine; NOM nominative, GEN genitive, DAT dative, ACC accusative, INSTR instrumental; INF infinitive; SG singular, (SJA) inherent reflexive. In verb forms, the following features are glossed: in the past tense: M/F/N/PL (also with predicative adjectives); in the non-past tense: 1/2/3 person, SG/PL.

3 The only way out would be a flat structure, with *knigu* and *čas* both sisters to V^0. Apart from any general considerations concerning non-binary branching, in this case there is an additional problem. Both accusative elements can occur in the genitive of negation (Pesetsky 1982), as in (i).

(i) ona ne čitala romana (n)i minuty
she not read $novel_{GEN}$ (not)even $minute_{GEN}$

Sentence negation allows genitive of negation on the direct object, but notice that an extra polarity element is necessary to trigger the genitive on the durational adverb. Without it, genitive is impossible:

(ii) *ona ne čitala romana minuty
she not read $novel_{GEN}$ $minute_{GEN}$

If the two genitives occurred in the flat structure suggested above, it would be impossible to account for the fact that sentence negation is enough to trigger genitive on the direct object, but not the durational adverb.

4 It is this fact that Franks does not take into consideration in his analysis of second dative (the second part of his paper). Instances of second dative are exceptions to this common semantics, which should be treated as such. An analysis that eliminates any reference to dative semantics in order to be able to incoporate the exceptional behaviour of two predicates (*odin* 'alone' and *sam* '(by one-)self') seems to me to be on the wrong track.

5 My proposal seems to match Emonds (1987)'s. In his system, a dative NP is analyzed as a PP with an empty preposition. The idea is that both the P and the lower N have semantic features, and that P remains empty if all its features coincide with features on the noun. I think that introducing KP as the carrier of case morphology and semantics provides the necessary step to make Emonds' system work. A P will now select KP with a particular case, and match its features with those of N+K. Having KP as an intermediate functional level enables the N to be the carrier of the necessary semantics and morphology. Without it, we would have to assume that nouns are inserted not only carrying dative morphology, but also that the semantics of dative is added to the noun in the lexicon.

6 A mechanism of quirky dative assignment might look like this. Suppose that the difference between quirky case verbs and all other ones is that quirky case verbs assign a theta-role to KP, not NP. By doing this, they define the thematic content of KP, so that it may have a semantic specification that is different from the ordinary cases.

7 Notice that it cannot be the case that there is just one theta-role that is assigned to either a nominative or a dative subject. Such an assumption would offer no account for the semantic difference between the two sentences in (13-14), with the additional problem that it would allow the nominative-dative alternation for all experiencers. Since this is not in accordance with the facts (except in impersonal reflexives, to be discussed in section 6), I will not follow this line.

8 The question might be raised why dative subjects are excluded as controlled elements, as in (i).

(i) *on ne xotel sebe byt' veselo
he not wanted $self_{DAT}$ be $happy_{N}$

If an ordinary NP were inserted instead of *sebe*, it would be excluded as a principle C violation. PRO cannot be inserted because it would get case.

Notice that it is not the case that dative case is impossible with infinitives. If the higher verb is a raising predicate, datives are possible (see section 4, example (30)). Therefore, positing some formal relation between finiteness of the predicate and dative case is not enough to explain the ungrammaticality in (i). I will leave this as a problem for Control theory.

9 I will discuss two potentially problematic modals in section 4.

10 These examples improve markedly if they are interpreted as though they had undergone object topic-drop. I will abstract away from this phenomenon.

11 In Kondrashova' (1993) analysis, MP is projected below AgrP and above TP. A modal can either be base-generated in M or raise into it, and it can move into Agr only if it has a [+agr] feature. Only if the predicate moves into Agr is nominative assigned, otherwise dative is. Like Schoorlemmer 1991, this system suffers from the problem that it argues for dative being assigned to a position the subject NP is raised to. Also, it is forced to treat all dative subjects like modal subjects. It does, however, provide a system that can deal with *moč* and *dolžen* not assigning dative case (see the remainder of section 4).

12 Following the strategy outlined in this sub-section, it is probably possible to analyze *pora* ('it is time to') and *len'* ('feel too lazy to') as verbs as well. They can occur as feminine nouns meaning 'time, age' and 'laziness' resp. As predicates they occur in sentences like (i).

a. emu pora bylo uxodit'
him_{DAT} high-time was_{N} $leave_{INF}$
"It was high time for him to leave."

b. emu len' bylo uxodit'
him_{DAT} too-lazy was_{N} $leave_{INF}$
"He was too lazy to leave."

For these predicates too, it could be argued that they are verbs categorially.

13 This is not quite true, in fact, such datives can occur with 'affectedness' verbs only. I consider this the kind of restriction that is equivalent to durational expressions being grammatical only with verbs that are durative. It is certainly not the kind of selection that one finds with verbs like *dat'* 'give' for an indirect object.

14 They are *vidno* 'visible', *slyšno* 'to be heard', and *zametno* 'perceptible'.

15 Except perhaps *nezdorovit'sja* (see appendix).

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Case as a Functional Projection: A Note on an Issue in Parametrization

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Although our understanding of nominal structures has greatly increased with Abney's (1987) DP analysis, there remain numerous reasons for returning to the structure of nominal groups. The present note addresses one of them—the status of case, or case morphology, in the nominal group. Specifically, it discusses the possibility of analyzing case as the functional head of the nominal group. The discussion is informal and the conclusions are preliminary.

1 The KP Analysis

For the sake of presentation I shall start with the assumption that if case is a functional projection, then the resulting Case Phrase (henceforth KP),[1] has, in simplified terms, the following structure:

(1) $[K\ [DP]]_{KP}$

In other words, what had been understood as a case-marked DP in earlier research is now represented as a structure in which case is a constituent, rather than a feature.

Examining this proposal from a purely conceptual point of view, one can intuitively claim a number of advantages. For instance, if case is an element represented at the level of constituent structure, it cannot be assigned, but has to meet basic conditions that govern the distribution of nodes in phrase structure. Such conditions are generally viewed as the core of (some variant of) the theory of licensing. True, a feature licensing approach is also easily conceivable, but the KP analysis is perhaps stronger in that it simply excludes the assignment approach.

The K-licensing approach leads away from case-assignment rules, which is in line with the idea that Universal Grammar, or its core, is a set of abstract principles complemented by maxims that regulate the range of variation of these principles—the notion rule, such as case-assignment rule, is absent in UG. While this departure from a rule-oriented grammar is clear, care must be taken in order not to make K-licensing statements resemble rules contentwise. I assume that the Specifier-Head Agreement interpretation of K-licensing has precisely this attractive property, but, clearly, many unresolved problems remain. (Does the Spec-Head Agreement approach extend to the so-called inherent cases? Does the nominal group have a genitive node to account for the ad-nominal case licensing?)

On the whole, however, K-licensing statements seem neutral with respect to earlier analyses that make reference to case. Thus NP-movement triggered by so-called Case Absorption can now be reformulated accordingly, if needed. For instance, movement of a caseless NP into a position in which it can receive case can now be rephrased as KP-movement into a position in which a KP is licensed.

2 K-Licensing and Parametrization

While a number of technicalities come to mind, the KP analysis has some conceptually interesting properties that lead to the discussion of parametrization, a central concept in recent research.

Consider abstract and morphological case, two distinct categories in the Theory of Government and Binding (GB). With a

distinction between DP and KP at hand, the GB-approach might be reconsidered. Contrast, for instance, Russian and English by taking seriously the intuition that while Russian has case morphology, English doesn't—one simply fails to see it. A way of translating this observation into the parametric framework that exploits the KP analysis is to assume that there is only one case, morphological case, and that Russian has it, but English does not. Naturally, realistic analyses of this kind have little merit *per se*. In a domain that involves representation of knowledge at so abstract a level, they are actually likely to be inferior to start with. Nonetheless, the realism proposed here sheds some potentially interesting light on our understanding of parametrization. Specifically, we can understand case, i.e., "what we see," as a language-specific instantiation of a parameter that characterizes what I will henceforth term the Functional Overlay (FO) of the nominal group (NG). Observing Russian and English, one can speculate that the Functional Overlay has two values that can be instantiated as D or K:

(2) Nominal Group Parameter
Functional $\text{Overlay}_{\text{nominal}}$ equals *D* or *K*.

Some problems will be discussed below, but one point is relatively straightforward—this proposal is in line with a theory that views functional categories as the central locus of parametric variation. Such a theory may be empirically inadequate, but it clearly is a step forward with respect to the manner in which parametrization was handled during the 1980s, when no principled approach was available and arbitrary instances of cross-linguistic contrasts were often regarded as permissible candidates for a parameter.

3 D and/or K?

Observing languages such as English, one notes, however, that vestigial instances of morphological case are present in them, after all. It appears that these languages exploit both options named in (2): constituents projected from nouns are DPs, while constituents projected from personal pronouns appear to be KPs. Obviously,

whatever the relevant K-licensing elements are, they license the Functional Overlay$_{NG}$, but not necessarily its surface instantiation. In other words, it is not the licenser's business to worry about how nominal groups meet licensing requirements. For some reasons, whatever they might be, French and Bulgarian pronominal clitics show case, English personal pronouns distinguish between oblique and non-oblique forms, etc., while French, Bulgarian and English nouns do not make such distinctions. Given these facts, the Nominal Group Parameter will be rephrased as follows:

(3) Nominal Group Parameter (Revised)
Functional Overlay$_{nominal}$ equals K or D (depending on the part of speech)

where the clause in parentheses names a language-specific option.

This statement complicates matters to some extent because it raises the the question of how to account for the apparently valid generalization that languages exploiting the option provided for in (3) tend to exclude a situation in which case-marked nouns coexist with caseless pronouns. A traditional one-way implication such as "if case on nouns, then case on pronouns" might seem appropriate, and its status would have to be discussed. I will not pursue the issue here, however, for it will be apparent below that more fundamental issues are involved.

4 A Natural Condition on Parameter Range

Examining parametrization statements such as (2) or (3), we observe a disjunction of two categories, K and D. As for the latter, there is a relatively clear idea about the semantic function of determiners in natural language. The standard wisdom is that they are associated with the semantic potential that contributes to the quantification of nominal groups. Case morphology, on the other hand, cannot be straightforwardly attributed any such property. With the possible exception of the partitive case, cases are not quantificational, at least not in an obvious way. Moreover, case morphology is no way semantically coherent. Considering a broad

variety of languages, Slavic included, we find that case morphology appears on nominal groups that function in diverse semantic functions ranging from predicate nominals to adverbial phrases. This heterogeneity of case semantics puts an advocate of the KP analysis into a difficult position, especially if (4) is stipulated to be the core maxim of the theory of parametrization:

(4) Alpha & Omega
The values of a parameter must range over a natural class

Given (4), can (3) be a valid parameter? Note that it is hard to find a criterion that would make K and D members of a natural class. On the other hand, if a separate category of quantifiers, Qs, and a corresponding projection, a Q(uantifier) P(hrase), is assumed, a parameter such as:

(5) Functional $\text{Overlay}_{\text{nominal}}$ equals D or Q

would seem to be perfectly natural on semantic grounds, thus fully complying with (4). In any case, if a QP is assumed, (5) adequately covers semantic issues resulting from the quantificational nature of the partitive, assuming that partitives are licensed by an abstract Q-head (see Giusti 1991, Cardinaletti & Giusti 1991).

5 Compounds and Case

Clearly, (3) is in a serious impasse once (4), a natural criterion on parameter range, is assumed. Before abandoning (3), however, let us examine a set of data which may lead to the conclusion that the set named in (3) represents a natural class after all. Consider the following Russian compound exemplifying a well-known type of complex words:

(6) *mašinostroitel'nyj* "machine-building"
(as in *mašinostroitel'nyj zavod,* lit., machine-building factory, i.e., machine factory)

Two properties of these compounds are relevant in the present connection: firstly, the nominal in the non-head position of the compound adjective has no case morphology; secondly, the incorporated nominal is generic in reference—even if a factory were built to produce one single copy of one single machine, it would still be called a machine factory.

These facts seem to have a striking parallel in DP-languages: just as KP-languages do not permit word-internal case, DP-languages do not allow word-internal determiners:

(7) a. *some [[the-machine] factory]
b. *any [[a-machine] factory]

In other words, the following empirical generalization can be considered:

(8) Neither K nor D can appear word-internally

Since K and D are predicated the same property in (8), we might wish to conclude that (8) demonstrates that K and D form a natural class. However, this conclusion cannot hold serious scrutiny—the mere fact that K and D appear in an empirical generalization cannot simply make them a natural class. After all, empirical generalizations can only have heuristic value. (3), where the issue of natural class came up, was not meant to be an empirical generalization, but a higher-order statement of Universal Grammar.

Moreover, (8) does not provide an entirely adequate picture in the first place, for, clearly, no inflectional morphology whatsoever appears word-internally. Thus in German verb-noun compounds, a rare type cross-linguistically, the verb appears in its root form:

(9)

Schrumpfleber	lit. "shrink-liver," i.e., liver that shrinks
**Schrumpf-t-leber*	(where *-t* is the 3rd ps. sg. morpheme)
Leitgedanke	lit. "guide-idea", i.e. guiding idea
**Leit-et-gedanke*	(where *-et* is the 3rd ps. sg. morpheme)

Clearly, this type of distribution can be accounted for if we assume that there is no way to license INFL inside words. By the same reasoning there is no way to legitimately generate a KP or a DP compound-internally because a local licenser is missing. In other words, (8) provides no support for regarding K and D a natural class. Consequently, (3) cannot be a valid principle of parametrization.

6 Final Remarks

To be precise, I have neither invalidated the *Alpha & Omega*-Maxim nor shown that the form of (3) is impermissible—I have merely demonstrated that (3) cannot be a valid principle of parametrization because of its content (K and D do not form a semantically natural class). This conclusion does not imply that case cannot be represented as a constituent in the sense of X-bar theory. Certainly, case can still be a word-syntactic category, i.e., a constituent at the level at which morphological properties of words are represented. This line of approach has a number of consequences, and, among others, one that seems particularly interesting in connnection with the theory of functional categories. If case makes no semantic contribution at the level of Logical Form, i.e., if it is not a "working" category at LF, as I believe must be assumed,[2] the projection that K is heading must become invisible at LF. As a result, then, at least two classes of projections emerge: those that are visible at LF and those that are not. This amounts to the existence of a special translation mechanism that "purges" the deep structure representations of semantically empty material that does not function at LF. Thus LF is constructed by a number of operations, including Quantifier Raising (May 1985), Conversion to Normal Form (Toman 1986) and Deletion of K (and all "empty" morphology such as NP-internal concord morphology). It would appear that this wealth of operations is not necessarily welcome, but restructuring (such as rebracketing) and obliteration of structural information are generally regarded as permissible characteristics of interfaces—note the variety of mechanisms

assumed at the syntax/phonology interface. In this sense, the above discussion may retain some interest.

Notes

1 Throughout, case is abbreviated as "K" but spelled as "case" so that the acronyms K, KP, rather than C, CP, can be used; the latter are reserved for "complementizer" and "complementizer phrase," respectively. The idea of a KP is not new—Lamontagne & Travis (1986) attribute the proposal to Ken Hale's lectures delivered at the 1980 LSA Linguistic Institute at Albuquerque.

2 It is generally assumed that a nominal (group) must be case-marked in order to be visible for theta-role assignment. However, I assume that compounds with incorporated nouns, e.g. (6), indicate that case marking is not among the properties that must be satisfied for a nominal to receive a theta role. In such compounds a caseless nominal clearly receives a theta-role; see Boase-Beier & Toman (1986) for an analysis of German compounds based on this premis.

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