

PARAMETRIC PROPERTIES OF NUMERAL PHRASES IN SLAVIC*

Numerical phrases in Russian display many unusual morphosyntactic properties, e.g., (i) the numeral sometimes assigns genitive (GEN-Q) to the following noun and sometimes agrees with it and (ii) the numerical phrase sometimes induces subject-verb agreement and sometimes does not. In this paper existing analyses of these properties are parametrized to accommodate related phenomena in other Slavic languages. First, Babby's (1987) proposal that GEN-Q is structural in Russian is shown not to extend to Serbo-Croatian, where it must be analyzed as inherent. Second, Pesetsky's (1982) idea that Russian numerical phrases may be either QPs or NPs also does not extend to Serbo-Croatian, where these are only NPs. This set of assumptions explains a range of seemingly unrelated facts about the behavior of numerical phrases in the two languages. Pesetsky's analysis is recast in terms of more recent hypotheses about phrase structure: (i) NPs are actually embedded in DPs and (ii) subjects are D-Structure VP-specifiers. Proposal (i) allows for a more explanatory analysis of GEN-Q assignment and proposal (ii) accounts for several distinctions between QP and NP subjects within Russian, also motivating the absence of these distinctions in Serbo-Croatian. Finally, it is shown that Polish can be assimilated to the proposed system.

0. INTRODUCTION

This paper compares quantificational structures in Russian and Serbo-Croatian, with the aim of developing a conceptually unified account. The interaction of case, agreement and quantification is one of the most thorny problems of Russian grammar. It has consequently been the subject of much attention, both traditionally and in more recent theoretically-ori-

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ented work.¹ In particular, Babby (1980a, 1984, 1985, 1986, and especially 1987) has treated issues of how case is assigned to numerically quantified noun phrases in Russian and spread within them, while Pesetsky (1982) has focused on the syntactic distribution of numeral phrases. Each of these researchers offers valuable insights into the constructions in question, but fails to address adequately what the other considers to be the core problems posed by the Russian facts. Moreover, neither extends his account to handle comparable phenomena in other Slavic languages, presumably because neither set of 'core facts' holds in the other languages. Yet solving the mystery of this variation is crucial to any theoretically consistent account, since if the properties of Russian numeral phrases derive (as both Babby and Pesetsky claim) from principles of UNIVERSAL GRAMMAR (UG), then the other Slavic languages should follow suit.

Babby (1987, p. 94) maintains that his conclusions "illustrate one of the basic hypotheses of Government and Binding theory, namely, that fairly simple rules and principles interact to yield structures of considerable complexity." Of course, the value of this kind of result is that it helps to explain how human beings are mentally capable of internalizing the grammar of the particular language to which they are exposed. If, however, solving the projection problem is regarded as the fundamental goal of cognitive linguistics, then proposals that exploit universal principles, such as Babby's and Pesetsky's, cannot be based upon data drawn exclusively from a single language. The generative research program advocates the consideration of comparable phenomena from other languages in order to test and refine any particular proposal. As Chomsky (1982, p. 92) notes, in suggesting how one might identify subtle, relatively minor grammatical differences with complex and pervasive effects, a "natural research strategy is to consider languages that differ in some cluster of properties but have developed separately for a relatively short time."

For this reason, one measure of the validity of both Pesetsky's and Babby's accounts of quantification in Russian is their applicability to similar constructions in other Slavic languages.² I therefore introduce data from Serbo-Croatian, and attempt to show how their proposals might be adapted to handle this language as well. It turns out that each of their

¹ In addition to the transformational approaches addressed here, other important studies include Mel'čuk (1985), Neidle (1988) and Suprun (1959).

² Optimally, one should compare relevant structures from as many languages as possible. In this paper I concentrate on what seem to me to be the most diverse systems, namely those of East Slavic Russian, South Slavic Serbo-Croatian and West Slavic Polish. In this way, the status of numeral phrases is addressed for languages representative of each of the Slavic language groups.

models can be slightly modified to incorporate minor parametric variation, thereby accounting for the behavior of numeral phrases in both languages. The discussion will proceed as follows: section 1 addresses the case of numeral phrases, proposing a revision of Babby's account in order to accommodate Serbo-Croatian, section 2 discusses Pesetsky's account of Russian, also extending it to Serbo-Croatian, section 3 revises Pesetsky's model in terms of Abney's (1987) DP hypothesis and Koopman and Sportiche's (1988) internal subject hypothesis in order to resolve certain theoretical and empirical inadequacies, section 4 treats the problem of how Polish fits into the proposed analysis and, lastly, section 5 offers a brief summary.

1. THE CASE OF NUMERAL PHRASES

This section discusses the internal properties of numerically quantified phrases in Russian and Serbo-Croatian. Babby (1987) offers an in-depth treatment of case distribution in such phrases in Russian. He argues that the complex pattern of existing possibilities can be accounted for by assuming an extremely hierarchical structure, and then by letting the level at which a given modifier is adjoined determine the case it is eventually assigned. Crucial to the operation of Babby's system is the idea that case is first assigned (by an external governor) to NP and is only subsequently "percolated down to all available lexical and phrasal categories in the phrase" (Babby 1987, p. 91). This view, which I regard as essentially correct, allows Babby to handle certain problems in the distribution of case within numerically quantified NPs in terms of the mechanics of NP-internal case assignment, mediated by general principles for resolving case conflicts.

It is, however, a relatively straightforward matter to show that the facts of Serbo-Croatian are incompatible with the analysis put forward by Babby for Russian. My attempt to reconcile these facts with Babby's account requires the assumption that the quantificational genitive is a structural case in Russian but an inherent case in Serbo-Croatian. This relatively minor aspect of variation enables me to account for the entire range of case and agreement facts.

1.1. *Russian*

In Russian, the [-N] categories of verb and preposition assign ACCUSATIVE (ACC) to their complements, unless otherwise specified. However, 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 the pausal numerals *oba* 'both', *dva* 'two', *tri* 'three' and *četyre* 'four' (as well as compound numerals ending in *dva*, *tri* and *četyre*) assign the genitive singular.³

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-ACC cars-GEN SG
Ivan bought three cars.
- c. Ivan kupil pjat' mašin.
NOM bought five-ACC cars-GEN PL
Ivan bought five cars.

The verb *kupit'* 'to buy' assigns ACC to its object NP. This case is realized both on *odnu* 'one' and the head noun *mašinu* 'car' in (1a), but in (1b, c) it is blocked from reaching the noun by the GEN-Q assigning numerals *tri* 'three' and *pjat'* 'five', respectively. A similar pattern exists for numeral phrase objects of prepositions that assign accusative, as shown in (2).

³ Owing in part to their adjectival origins and the fact that 'two' historically occurred with dual nouns, the pausal numerals actually assign a case that is occasionally minimally distinct from the regular genitive singular and which should perhaps be glossed as pausal rather than GEN SG. For one thing, a handful of monosyllabic masculine stems exhibit a stress contrast; compare *dva časá* 'two hours' with *okolo čásá* 'about (an) hour'. For another, surnames of women belonging to the pronominal declension class take the nominal genitive ending after pausal numerals, although the regular genitive ending is adjectival; compare *dve Puškiny* 'two (female) Pushkins' with *okolo Puškinoj* 'near (a female) Pushkin'. It should also be noted that adjectives after pausal numerals in nonoblique contexts may be either NOM/ACC PL or GEN PL, with the likelihood of the NOM/ACC PL option very roughly depending on the degree of syncretism between the GEN SG and NOM/ACC PL form of the noun, as well as on stylistic factors. This fact should follow from a proper model of feature propagation throughout NP, under the assumption that perfect agreement with a pausal head noun is technically impossible, there being no true pausal adjectival forms.

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

The preposition *čerez* ‘in’ governs ACC on both *odnu* ‘one’ and *minutu* ‘minute’ in (2a), but this is overridden by the GEN-Q assigned by the numeral in (2b, c), so that the head noun of its complement ends up being marked genitive.⁴

As is well-known, this pattern is not exhibited in oblique case positions.⁵ Instead, the appropriate oblique case permeates throughout the numeral phrase, as shown in (3) and (4).

- (3)a. Ivan vladeet odnoj fabrikoj.
NOM owns one-INST SG factory-INST SG
 Ivan owns one factory.
- b. Ivan vladeet tremja fabrikami.
NOM owns three-INST factories-INST PL
 Ivan owns three factories.
- c. Ivan vladeet pjat'ju fabrikami.
NOM owns five-INST factories-INST PL
 Ivan owns five factories.
- (4)a. ob odnoj knige
about one-LOC SG book-LOC SG
- b. o trëx knigax
about three-LOC books-LOC PL

⁴ Although I have indicated that the numerals in examples (1b, c) and (2b, c) are themselves ACC, it is actually unclear whether these should be regarded as syncretic nominative/accusative forms or as caseless quantifiers. In subsequent sections I therefore only indicate the case of numerals which bear unequivocal declensional endings.

⁵ 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 nominative and accusative from the other cases.

- 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 HETEROGENEOUS case assignment (because part of the phrase bears a different case, the GEN) and the paradigm in (3) and (4) as HOMOGENEOUS case assignment.

Here, as elsewhere, Babby is concerned with explaining the striking contrast between heterogenous and homogenous internal case distribution in numerically quantified phrases, where by QUANTIFIED I mean not that the phrase has a logically quantificational interpretation, but rather that it contains a numeric quantifier with specific syntactic properties. Babby (1987) offers essentially the following structures, assuming that the quantifier projects up to a QUANTIFIER PHRASE (QP):

- (5)a. čitat' [NP [QP pjat'] [N' interesnyx knig]]
to read five-ACC interesting-GEN PL books-GEN PL
- b. v [NP [QP pjat'] [N' interesnyx knig]]
into five-ACC interesting-GEN PL books-GEN PL
- (6)a. vladet' [NP [QP pjat'ju] [N' starymi fabrikami]]
to possess five-INST old-INST PL factories-INST PL
- b. s [NP [QP pjat'ju] [N' starymi fabrikami]]
with five-INST old-INST PL factories-INST PL

Because it is an idiosyncratic lexical property of the items in (6) that they take INST complements, Babby characterizes this phenomenon as LEXICAL case. In his terminology, there are (at least) two kinds of cases, lexical and CONFIGURATIONAL, reflecting the familiar idea that nominative and accusative are fundamentally different from the other cases. The former, which are in some sense more superficial and less idiosyncratic, are also referred to as DIRECT OR STRUCTURAL in the frameworks of Jakobson (1958/71) and Chomsky (1981, 1986a), respectively, whereas the latter, which are in some sense deeper and more invariant, are referred to as OBLIQUE OR INHERENT in these other frameworks. In section 3.1 of this paper, I shall argue for adopting the Jakobsonian feature distinction [\pm oblique]. Nonetheless, however the opposition between types of case is

conceptualized, this curious asymmetry between how quantified phrases behave in NOM/ACC and lexical case contexts constitutes a fundamental problem for any account of Russian case.

Notice that localizing the difference between the heterogenous pattern of (1, 2) and the homogenous pattern of (3, 4) in the nature of the cases themselves implies that the ACC assigned by prepositions, as in (2), is configurational rather than lexical. That is, Russian prepositions are just like verbs in that they both assign ACC by default so that it is only oblique case assignment which is idiosyncratic. This claim is of course supported by the fact the GEN-Q blocks ACC equally on complements to verbs and prepositions, and fits in with the general model of the structural/inherent dichotomy put forward in section 3.1, which is based on the observation that a case behaves consistently whatever its syntactic provenance. In Franks (1985, *in press*), I argue on other morphosyntactic grounds that Slavic prepositions always assign ACC in the absence of further specification. For example, spatial prepositions with locational and directional variants often assign some idiosyncratic case in their locational function but ACC in their directional function; e.g. *v* 'in' and *na* 'on' assign LOC and ACC and *za* 'behind' and *pod* 'under' assign INST and ACC. I interpret this alternation between an oblique case and ACC in terms of whether or not the preposition has some lexical specification of idiosyncratic case assignment.

This issue of why numeral phrases behave differently in NOM/ACC and lexical case contexts is treated in section 3 of Babby (1987). Having argued in the preceding section that heterogenous and homogenous constructions do *not* differ in X-bar structures, he must seek an external explanation. Babby's solution requires the adoption of a hierarchy for determining which case has precedence in conflict situations. In order to handle the facts in (5) and (6), Babby (1987, p. 116) proposes the SYNTACTIC CASE HIERARCHY in (7), which places GEN-Q between lexical case and NOM/ACC:

- (7) Syntactic Case Hierarchy: LEXICAL CASE > GEN-Q >
 NOM/ACC

While the Syntactic Case Hierarchy indeed gets the required results, merely stipulating such a hierarchy lacks explanatory force. Babby therefore suggests that the three-place hierarchy in (7) can be reduced to two places, as in (8), if GEN-Q is taken to be a purely structural case.⁶

⁶ He argues for this partly on the basis of the assumption that the adnominal genitive is also structural. However, as discussed in section 3.1 below, it is impossible to sustain this particular claim.

(8) Syntactic Case Hierarchy (revised): LEXICAL CASE >
 CONFIGURATIONAL CASE

The operative principle here is one of locality – NOM/ACC cannot percolate down to N' since N' is already GEN by virtue of being in the domain of a quantifier, but oblique case can, since it is assigned earlier, before N' has had a chance to receive GEN-Q.

In fact, it is clear that even this two-place hierarchy is an artifact of the dichotomy between inherent and structural case of Chomsky (1981, 1986a), under the assumption that inherent case is assigned at D-Structure and structural case at S-Structure. Indeed, in other work Freidin and Babby (1984) and Babby (1985) account for the facts in (5) and (6) in terms of their PRINCIPLE OF LEXICAL SATISFACTION, stated in (9).⁷

(9) Principle of Lexical Satisfaction: Lexical properties must be satisfied.

The Principle of Lexical Satisfaction holds at all levels of representation and, in particular, at D-Structure. This more standard kind of solution exploits the observation that it is an idiosyncratic lexical property of the words in (5) that they take instrumental complements. If lexical case is subcategorized for, then it must have precedence over any other case-marking strategy. This approach seems to me to be indistinguishable from the standard theta-theoretic account of so-called QUIRKY case, whereby certain arguments must bear a particular oblique case in order for their theta-roles to be visible. Consequently, if a verb or preposition requires its complement to bear some specific case rather than the default ACC assigned by [-N] categories, then this consideration overrides (or blocks) any other. In what follows, I too shall assume that some such requirement is in effect. That is, I equate Babby's lexical case with the inherent case of standard GB, and his configurational case with structural case, so that the former will be assigned obligatorily at D-Structure and the latter not until S-Structure.

Notice that this account requires the reinterpretation of some conventional GB assumptions about case assignment. In particular, since case appears to be assigned by the QP to N', we must allow for case assignment (i) from phrases rather than just from heads and (ii) directly to nonmaxi-

⁷ It is unclear to me why Babby (1986, 1987) employs a hierarchical approach rather than the theta-theoretic one. As Freidin and Babby (1984, p. 87) observe, the "precedence of lexical case over other case types follows from the Principle of Lexical Satisfaction". Babby's insight that GEN-Q is actually structural in Russian should therefore have led him to reject the Syntactic Case Hierarchy altogether.

mal projections. Although these issues are tangential to the primary concerns of this paper, in section 3.2 I show how more recent conceptions of phrase structure provide for a straightforward resolution of these problems. At this point, however, I employ Babby's system for clarity of exposition. I also assume a model of case which regards morphological case as the realization of GB's abstract Case. NPs universally require abstract Case under standard assumptions about the Case Filter; Ns, as their coindexed heads, (as well as agreeing modifiers) receive morphological case in most Slavic languages. Morphological case is chosen syntactically and percolates *down* from the maximal projection, whereas the pronominal features of person, number and gender are paradigmatic and percolate *up* from the head. Since all members of a projection are by definition coindexed, assignment of case to NP results in percolation down the projection. The spreading of case down the projection is thus an automatic consequence of case assignment to NP, which takes place whenever possible.

1.2. Serbo-Croatian

I now turn to some curious differences between Russian and Serbo-Croatian. In Serbo-Croatian, most quantified phrases exhibit only the heterogeneous case pattern, regardless of syntactic context. This is illustrated in (10):⁸

- (10)a. Kupili smo [NP [QP pet] [N' knjiga]].
bought-M PL AUX-1 PL five books-GEN PL
 We bought five books.
- b. za [NP [QP osam] [N' dana]]
in eight days-GEN PL

⁸ The data are complicated by the fact that undeclined quantified phrase complements to verbs which subcategorize for an oblique case vary in acceptability. My informants however readily accepted (10f); similar examples where a quirky genitive is called for are:

- (i) Čuvaо sam se pet ljudi.
I guarded myself against five people.
- (ii) Domogao sam se pet knjiga.
I obtained five books.

Various peripheral strategies for making the oblique case transparent on quantified complements exist, such as vacuously inserting the preposition *s(a)* 'with' after verbs governing the instrumental. See Leko (1987) for discussion and examples.

- c. sa [NP [QP pet] [N' devojaka]]
with five girls-GEN PL
- d. Turska se nalazi na [NP [QP ova] [N' ova
*Turkey REFL locates on both these-PAUC*⁹
kontinenta]].
continents-PAUC
- Turkey is situated on both these continents.
- e. izmeđ u [NP [QP dva] [N' zla]]
between two evils-PAUC
- f. Bojao sam se [NP [QP pet] [N' ljudi]].
feared-M SG AUX-1 SG REFL five people-GEN PL
I feared five people.
- g. u toku [NP [QP tri] [N' poslednje godine]]
in course three last-PAUC years-PAUC
during the past three years

⁹ As two anonymous *NLLT* reviewers remind me, the form *ova* is not the regular genitive, which is *ovog(a)*. *Ova* resembles an indefinite (short form) genitive adjective, except that (i) demonstrative (and other) adjectives lack such a form in other contexts and, as Wayles Browne (personal communication) points out, (ii) some adjectives distinguish the paucal form from the indefinite GEN SG: in *dva crna ovna* ‘two black rams’, with long rising, is indefinite and *dva crna ovna*, with long falling, is definite. Although most reference grammars simply state that the paucal form is GEN SG, there is clearly no consistent analysis of the morphology of adjectives and nouns in the scope of these numerals. The confusion lies in the fact that masculine and neuter As occur in what may be regarded as either the *neuter* NOM PL or the *neuter* GEN SG, and masculine and neuter Ns occur unambiguously in the GEN SG, whereas feminine As and Ns are in the NOM PL. However, one must rely on subtle and frequently absent accentual and/or length distinctions to tell that the neuter nouns are GEN SG and the feminine ones are NOM PL. The issue of subject-verb agreement, discussed in section 2 below, also bears heavily on the resolution of this matter. There are at least two schools of thought about how to treat this problem: either the paucal numerals assign NOM PL but an exceptional morphological readjustment rule (cf. Corbett 1983, pp. 89–91 or Halle 1990) changes masculine As to neuter plural and masculine Ns to genitive singular, or the paucal numerals govern a special paucal form. Following Browne’s suggestion, I shall assume the latter approach and tentatively gloss these endings as ‘PAUC’, focusing on the less idiosyncratic numerals ‘five’ and above instead. I will also refer to PAUC elements as GEN-Q throughout the text in order to facilitate the discussion. Note that localizing these idiosyncrasies in the case-governing properties of the paucal numerals is consistent with the analysis adopted in section 3.2 that Q takes (APs and) NPs as complements; if the Serbo-Croatian paucal numerals are heads (rather than SPECs, as proposed for Russian ‘five’ and above), then one can claim that [+PAUC, +Q] heads take paucal complements.

- h. vlasnik [NP [QP pet] [N' malih kuća]
owner *five* *small-GEN PL houses-GEN PL*
 the owner of five small houses

Quantified NPs in Serbo-Croatian therefore appear to be inconsistent with Babby's would-be universal principles, since the QP assigns GEN-Q not only after items that assign ACC, as in (10a, b), but also after those that inherently assign specific oblique cases, as in (10c–h).

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’, *između* ‘between’ and *na* ‘on’ in (10) require INST, GEN and the LOC, 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 conclusion that these quantified phrases are cased – even if no element within them actually shows it morphologically – implies that the bracketed phrases are NPs. This point will become relevant when Pesetsky’s analysis is examined in section 2.

Secondly, the internal quantifier in Serbo-Croatian must be *inherently* assigning GEN-Q to the N' to its right, otherwise it would be overridden by percolation of the inherent (oblique) case assigned to NP. Thus, in (10c–g) we have a conflict of inherent case assigners, with the external governor requiring one case and the internal one another.¹⁰ According to the Principle of Lexical Satisfaction, both requirements must be met at D-Structure. I conclude therefore that already at D-Structure NP is INST, GEN or LOC and N' is GEN-Q. It is only in this way that principle (9) can be satisfied. This parametric difference between the two languages, which can be characterized within GB theory as in (11), thus constitutes a fundamental source of variation between quantificational structures in Russian and Serbo-Croatian.

- (11)a. GEN-Q is a structural case in Russian.
 b. GEN-Q is an inherent case in Serbo-Croatian.

In other words, quantifiers in Russian are structural case assigners on

¹⁰ According to Babby, such conflicts between lexical case assigners are theoretically impossible, although I see no reason why Friedin and Babby’s Principle of Lexical Satisfaction cannot be interpreted as proposed in the text.

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. Russian (5b) and (6b) thus have D-Structures as in (12):

- (12)a. [PP v [NP [QP pjat'] [N' interesnyx knig]]]
- b. [PP s [NP:INST [QP pjat'ju] [N' interesnymi knigami]]]

The only inherent case is INST in (12b), which percolates throughout NP onto all of its parts. In (12a), on the other hand, neither case is assigned at D-Structure since neither is lexically required. Only at S-Structure, where structural case is assigned, does the preposition in (12a) mark NP ACC and the QP mark N' GEN-Q, as in (13).

- (13) [PP v [NP:ACC [QP pjat'] [N':GEN interesnyx knig]]]

In Serbo-Croatian, on the other hand, the QP assigns inherent case. Hence, Serbo-Croatian (10b, c) will have roughly the D-Structures in (14), with ACC being assigned in (14a) only at S-Structure.

- (14)a. [PP za [NP [QP osam] [N':GEN dana]]]
- b. [PP sa [NP:INST [QP pet] [N':GEN devojaka]]]

Either way, percolation of case onto genitive N' is impossible. As I argue in Franks (1985), 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.¹¹ A node already assigned case by a more local governor will, however, prevent further downwards percolation, despite the coindexation. Thus, it is invariably blocked by the D-Structure presence of GEN-Q on N' in Serbo-Croatian. In Russian, on the other hand, the heterogeneous/homogeneous pattern arises because N' is not assigned case until S-Structure and consequently only blocks other less locally assigned structural cases (i.e. NOM and ACC).

Notice that this account is not readily compatible with the three-place hierarchical model in (7), where GEN-Q is ascribed special status. Thus, the Serbo-Croatian facts lead to the strengthening of Babby's idea that Russian *may* be handled with a two-place hierarchy, as in (8), to the conclusion that it *must*. The proposal that we are only dealing with a two-way opposition also strongly suggests that the case hierarchy per se is epiphenomenal, deriving from the primitive distinction between inherent

¹¹ Percolation must be an obligatory process, otherwise one might still expect the material in the scope of the QP to be able to receive GEN-Q in Russian examples such as (12b).

and structural case. This has the additional implication that all analyses employing hierarchical strategies for resolving case conflicts may be misguided, in that the hierarchies themselves may follow from more fundamental principles.

The opposition in (11) is reflected in other contrasts between Russian and Serbo-Croatian. It explains, for example, the different forms of demonstratives standing before the QP in the two languages. In Russian, in nonoblique contexts, most adjectival modifiers appear in NOM/ACC if they precede the quantifier and GEN if they follow it. In Serbo-Croatian, on the other hand, all modifiers must be in the genitive regardless of position.¹² This is shown in Russian (15) and Serbo-Croatian (16).¹³

- | | | | |
|------|------------------------------|------------------------------|---------------------|
| (15) | Èti | pjat' krasivyx | devušek |
| | <i>these-NOM PL</i> | <i>beautiful-GEN PL</i> | <i>girls-GEN PL</i> |
| | prišli/*prišlo. | | |
| | <i>arrived-PL/N SG</i> | | |
| (16) | Ovh | pet lepih | devojaka |
| | <i>these-GEN PL</i> | <i>beautiful-GEN PL</i> | <i>girls-GEN PL</i> |
| | je ¹⁴ | došlo/ | ?su |
| | | | došle. |
| | <i>AUX-3 SG arrived-N SG</i> | <i>AUX-3 PL arrived-F PL</i> | |

This dichotomy clearly follows from the assumption that Russian *èti* ‘these’ is nominative because *pjat'* ‘five’ is a structural case assigner, but Serbo-Croatian *ovih* ‘these’ is genitive because *pet* ‘five’ is an inherent case assigner. Of course, for *ovih* to be assigned GEN-Q by *pet* it must be governed by it.

Various ways of realizing this configurationally are conceivable. In analyzing Russian, Babby (1987) contends that the determiner is not c-commanded by the quantifier (under the “first branching node” definition) and is therefore unable to receive GEN-Q. He opposes the situation of determiners and other NOM/ACC modifiers in prequantifier position, as

¹² This is not technically correct, given that the paucal numerals may also decline in oblique positions in more literary styles, although this is quite rare in the modern language. When they inflect for case I regard them as purely adjectival, following the account in section 3.2. I therefore focus throughout on canonical quantifiers such as ‘five’ and above. The point remains, however, that in Serbo-Croatian the form of the demonstrative depends on the quantifier, whereas in Russian it depends on the case assigned to NP.

¹³ The issue of subject-verb agreement is taken up in section 2.

¹⁴ The AUX, which is a clitic, may also appear after *ovih* rather than at the end of the subject NP, but speakers regard the cited order as slightly more natural.

in (17), to that of GEN prequantifiers such as *polnyx* '(a) full', *dobryx* '(a) good', *dolgix* '(a) long', and *celyx* '(a) whole', as in (18).¹⁵

- (17) poslednie sem' let
last-NOM/ACC seven years-GEN PL

- (18)a. polnyx sem' let
full-GEN PL seven years-GEN PL
- b. dobryx pjat' butylok
good-GEN PL five bottles-GEN PL

Since these are invariably genitive, Babby claims that they must be sisters of the quantifier in order to be c-commanded by it. Unfortunately, this analysis fails to extend to Serbo-Croatian, where the form of a modifier is fixed regardless of its position within the NP or the semantic class to which it belongs. If, as Babby would need to maintain, Serbo-Croatian *pet* governs *ovih* in (16), then it would also be reasonable to assume that Russian *pjat'* governs *eti* in (15). *Pyat'* must therefore be prevented from assigning case to determiners and most adjectival prequantifiers in Russian by some other means.

One simple method for accomplishing this, yet allowing GEN-Q to be assigned to prequantifiers in Serbo-Croatian, comes to mind. Although not compatible with Babby's structural analysis, it relies on his inherent/structural case dichotomy. This approach is based on proposals in Corbett (1979), who argues that Serbo-Croatian prequantifiers are actually base-generated to the right of the numeral, where they receive the genitive case, and subsequently move to its left. Assuming such an analysis not only for Serbo-Croatian, but for Russian as well, the D-Structures would

¹⁵ Here I recapitulate Babby's data, which drive the hierarchical account proposed in his paper. There are, however, several important issues raised by the prequantifier data that Babby (1987) does not address and which would probably pose significant problems for his analysis. For one thing, I have found considerable variation in judgments about the viability of the NOM/ACC vs. GEN form of adjectives such as those in (18). This variation may be an artifact of misanalysis by speakers, since these constructions are technically ambiguous and it is sometimes difficult to distinguish the reading where the adjective modifies the numeral from the reading in which it modifies the noun. This problem is compounded by the possibility of scrambling elements within the noun phrase. In addition, some speakers report that the NOM/ACC form is acceptable or even preferable with the paucal numerals, again suggesting that scrambling should be implicated. The proper analysis of genitive prequantifiers in Russian is, however, peripheral to the arguments in this paper, my main claim being that a purely hierarchical account along the lines of Babby (1987) cannot be adapted to the other Slavic languages, whether or not it in fact even covers the Russian data.

be roughly as in (19) for the quantified phrases in Russian (15) and Serbo-Croatian (16).

- (19)a. [NP [QP pjat'] [N' èt- krasiv- devuš/k-]]
- b. [NP [QP pet] [N':GEN ovih lepih devojaka]]]

The determiner would adjoin to NP by a local movement rule that applies more or less obligatorily, except after ‘both’; cf. (10d).¹⁶ Since GEN-Q is assigned to NP at D-Structure in Serbo-Croatian, this case is retained under movement. In Russian, on the other hand, movement of the determiner puts it outside the scope of the genitive of quantification rule at S-Structure, where GEN-Q is assigned.

In support of this idea note that for many speakers it is also possible in Russian to leave the demonstrative in its D-Structure position, depending on the relative scope of the numeral and demonstrative. When this happens the demonstrative must appear in the genitive, as in the S-Structure (20).

- (20) [NP [QP Pjat'] [N' ètix krasivyx
five *these-GEN PL beautiful-GEN PL*
devušek]] prišli/prišlo.
girls-GEN PL arrived-PL/N SG

Interestingly, this option allows for both agreement possibilities, for reasons to be explained in the next section. Note further that the demonstrative in Serbo-Croatian is in the case required by the quantifier, even in oblique positions and in contrast to Russian, as illustrated in (21).

- (21)a. [PP sa [NP:INST [AP:GEN ovih] [NP [QP pet] [N':GEN devojaka]]]]]
- b. [PP s [NP:INST [AP:INST ètimi] [NP [QP:INST pjat'ju] [N':INST knigami]]]]]

As before, the demonstrative moves from inside the N' following the numeral, adjoining to NP, and thus retains inherent GEN-Q in Serbo-Croatian in (21a) but, moving before structural GEN-Q is assigned in Russian, is free to receive INST in (21b).

Opting for this approach leads to the conclusion that the quantifier

¹⁶ In section 3.2 this derivation is recast in terms of the DP structure of Abney (1987), where it is proposed that Slavic demonstratives are generated as As and move to D position. Except for Macedonian, Bulgarian and some North Russian dialects, there are no lexical determiners in Slavic. The obligatoriness of this movement can then be seen as a reflex of generating a feature [+def] in D, which the demonstrative adjective must incorporate into in order to host.

cannot in fact directly assign case to prequantifier position. This entails the rejection of Babby's configurational explanation of the difference between the behavior of the vast majority of prequantifiers, which are NOM/ACC, and those few that bear GEN-Q. Following Mel'čuk (1985), I suggest that these special prequantifiers are actually frozen adverbial forms internal to the quantifier phrase.¹⁷ Since they have scope only over the quantifier, I assume a structure roughly as in (22).

- (22) [NP [QP *dobryx pjat'*] [_{N'} *butylok*]]

This structure will be fleshed out in section 3.2, where a more explicit analysis of QP is developed.

This analysis is better motivated semantically than Babby's, assuming a sisterhood restriction on modification; cf. Koopman and Sportiche (1988, 1991). Babby (1987, pp. 126–128) considers a suggestion by Gil Rappaport that the prequantifier forms a constituent with the numeral, but rejects it since he is unable then to explain why GEN-Q is assigned and why the prequantifier is plural. Moreover, since Babby employs the minimal branching node definition of c-command, allowing QP to branch would cause problems for him. However, QP can indeed branch with no ill effect on its ability to assign case, as in Russian *priblizitel'no pjat' knig* 'approximately five books', where the QP contains an adverbial modifier. In addition, Babby's contention that the head Q can assign GEN-Q outside its maximal projection if QP does not branch contradicts general properties of case assignment and relies on accidental consequences of assuming the FIRST BRANCHING NODE definition. I also do not regard the plurality of *dobryx* as insurmountable, although it is certainly true that if it does not modify the plural head N this feature cannot arise by virtue of agreement with that head.¹⁸

2. THE CATEGORY OF NUMERAL PHRASES

I now turn to the issues of the categorial status and distribution of quantified phrases in the two languages under consideration. These questions are intimately related to the agreement of verbs predicated of quantified subjects. I first review the account of Pesetsky (1982), who argues convincingly that an expression such as *pjat' ženščin* 'five women-GEN PL' in Russian is ambiguous between being either a QP or an NP. I next show

¹⁷ Babby (1987, p. 124, note 27) rejects this possibility on the basis of putative agreeing oblique prequantifiers. Speakers I have consulted, however, do not find the example he cites felicitous under the intended reading.

¹⁸ Note a similar problem with English *these/*this kind of books, those/*that sort of girls*, where the demonstrative presumably restricts the classifiers *kind (of)* and *sort (of)*, but nonetheless for many speakers must agree in number with the noun.

how his arguments do not carry over to Serbo-Croatian, where all quantified phrases appear to have the categorial status of NPs. This provides the background for subsequent modification of Pesetsky's model in terms of the theory that the canonical position of subject is the specifier of VP, which will serve to rectify several factual inadequacies.

2.1. Russian

For Pesetsky, the puzzling problem of subject-verb agreement constitutes the core mystery posed by Russian quantificational structures. It is well known that there are two possible subject-verb agreement patterns with quantified subjects, as in (23).¹⁹

- (23)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 (23a), 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. The S-Structures of (23) would thus be roughly as in (24).

- (24)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 as an object.²⁰ Given the relative freedom of Russian word order, unaccusativity clearly cannot be based on the fact that the subject

¹⁹ See Corbett (1983) for general discussion of this issue in various Slavic languages.

²⁰ The term 'unaccusative' is usually attributed to Perlmutter (1978), although there is much debate as to the original ownership of the idea that some intransitive verbs have underlying (or initial) objects and no subject; cf. Pullum (1988) for discussion. There also seems to be considerable vacillation in the class of unaccusative verbs, both across languages and within a single language. One complicating factor is that the concept of unaccusativity is closely linked to existentiality, in that when a nonaccusative (i.e. UNNEGATIVE) verb is used in an existential sense it sometimes exhibits hallmark unaccusative behavior. This is particularly true of the genitive of negation rule in Russian, which in existential contexts for many speakers extends well beyond the paradigm set of unaccusative verbs. Emphatic and scope markers, such as (*n*)i '(not-) even', also greatly improve the felicity of the genitive of negation. Here, however, my aim is merely to sketch out Pesetsky's analysis for comparison. Since I will eventually argue that unaccusativity is irrelevant to the distribution of QPs, there is no need for me to establish a definitive relationship between unaccusativity and the genitive of negation. For the purposes of discussion, I follow Pesetsky in assuming the genitive of negation applies only to VP-internal NPs; see Babby (1980b) for an alternative treatment of genitive 'subjects' that catalogs a variety of nonstructural licensing factors.

is post-verbal at S-Structure.²¹ One reason, however, why this verb might be analyzed as unaccusative is that under negation it is possible for the subject to appear in the genitive case, as in (25):

- (25) Ne prišlo ni odnogo čeloveka.
NEG arrived-N SG not even one-GEN SG person-GEN SG
 Not a single person came.

The genitive of negation only applies VP-internally, as demonstrated by e.g. Chvany (1975), Pesetsky (1982) and Neidle (1988).²² When it is an NP, as in (24a), it must move to subject position to receive case, but when it is aQP, which does not require case, it remains in situ within VP. According to Pesetsky, this explains why the unmarked word order is subject-verb in (24a), but verb-subject in (24b); but cf. note 21.

Pesetsky then argues that QPs can only be underlyingly VP-internal direct objects, which he calls “the D-Structure [XP, VP] restriction.” While this is arguably true for the genitive of negation (modulo the caveats in note 20), the facts are hardly conclusive for numerically quantified QPs, since, contrary to Pesetsky’s claims, speakers do fairly readily accept “non-agreeing” (i.e. neuter singular) verbs with quantified subjects of both

²¹ In neutral contexts, however, even nonquantified unaccusative subjects are more natural after the verb, and unergative ones before it. For example, in answer to the question *Cto slučilos?* ‘What happened?’, the following replies are expected:

- (i) Prišel Vanja.
arrived-M SG John-NOM
 (ii) Vanja umer.
John-NOM died-M SG

This correlation between word order and unaccusativity is, however, clearly indirect, since *Vanja* presumably first moves to SPEC-IP position for NOM case in both (i) and (ii), then scrambles to follow the verb in (i) for stylistic reasons. Thus, as observed in note 20, apparent unaccusative behavior could instead be due to concomitant factors such as functional sentence perspective, thematic relations or existentiality, so that the need to posit unaccusative predicates in Slavic becomes moot. Interestingly, unmarked word order is the sole test that comes to mind of unaccusativity in Polish, since in that language the genitive of negation applies only in instances which have the accusative when affirmative, there being no Polish correlate to Russian (25).

²² Their arguments about the domain of the genitive of negation rule do not extend to quantified phrases, contrary to Pesetsky’s account (although in keeping with Chvany and, in particular, Neidle, who offers several good reasons for contrasting the genitives of quantification and negation). Pesetsky claims that both are QPs and therefore cannot be D-Structure subjects, given the ECP argument discussed in the text. However, the range of constructions in which genitive ‘subjects’ under negation can appear is far more restricted than that of true (i.e. numeral phrase) QPs. This lack of correspondence in distribution leads me to reject Pesetsky’s assimilation of the two phenomena.

unergetic and transitive verbs. Moreover, as we shall see in section 3, his analysis will fail to carry over when the internal subject hypothesis of Koopman-Sportiche (1988, 1991) is adopted. There I will argue that although QPs – like all arguments – are base-generated inside the VP, they may either be underlying subjects in the VP-specifier position or underlying objects. Nevertheless, in this section I adhere to Pesetsky's presentation, since other aspects of his theory will remain relevant to my eventual analysis. He claims that, except for the few verbs that actually select for QPs as external arguments, QPs cannot be true subjects. This (falsely) predicts the following paradigms:

- (26)a. Dvadcat' samolëtov pereleteli/(*)pereletelo
twenty planes-GEN PL flew across-PL/N SG
granicu.
border-ACC
- b. Neskol'ko studentov pročitali/(*)pročitalo ètu
several students-GEN PL read-PL/N SG this
knjigu.
book-ACC
- c. V ètom restorane obedali/(*)obedalo desyat' čelovek.
in this restaurant ate lunch-PL/N SG ten people-GEN PL
- d. Na ulice guljali/(*)guljalo pjat' studentov.
on street walked-PL/N SG five students-GEN PL

I have placed the asterisks in parentheses since speakers do not actually reject nonagreement in such constructions. However, the alleged impossibility of nonagreement with transitive verbs (26a, b) and unergative verbs (26c, d)²³ leads Pesetsky to conclude that QPs cannot be subjects.²⁴ He

²³ The unergative status of *obedati* 'to eat lunch' and *guljati* 'to walk' is demonstrated by the failure of sentential negation to induce genitive case:

- (i) *V ètom restorane ne obedalo ni odnogo
in this restaurant NEG ate-lunch-N SG not-even one-GEN SG
čeloveka.
person-GEN SG
- (ii) *Na ulice ne guljalo ni odnogo studenta.
on street NEG walked-N SG not even one-GEN SG student-GEN SG

However, given the observations in note 20, this test is admittedly not watertight, so that for some speakers even (i) and (ii) somewhat improve in purely existential contexts.

²⁴ For the LFG analysis of Neidle (1988, p. 109) as well, nonagreement with quantified

rules this option out by means of a complex interaction between the EMPTY CATEGORY PRINCIPLE (ECP) and categorial selection, which Pesetsky claims must be satisfied at LOGICAL FORM (LF).

Pesetsky's reasoning proceeds roughly as follows. If (most) verbs select for NPs, then QUANTIFIER RAISING (QR) is forced whenever the quantified phrase is a QP. Its trace will then be determined to be an NP, thereby satisfying categorial selection at LF. The trace left behind by QR must, however, be properly governed in accordance with the version of the ECP in (27).

- (27) Empty Category Principle: a nonpronominal empty category must be either (i) lexically governed or (ii) locally bound.

Any empty category inside the verb phrase can fulfill this requirement by being lexically governed. Crucially, this option is not available for subjects, which are generally not governed by lexical categories. Traces of subjects can, however, satisfy the ECP by being locally bound by a c-commanding operator. The trick is then to render this latter option unavailable to the trace of a QP. Pesetsky accomplishes this by relying on the assumption that the trace has the categorial status of an NP since it originates in a position canonically occupied by an NP. He argues that the categorial mismatch between the QP potential binder and the NP trace inhibits proper government. In sum, the QP must undergo QR since its D-Structure position must canonically be occupied by an NP at LF, but since its

subjects of transitive verbs is erroneously regarded as impossible. In her system, homogenous numeral phrases are NPs and heterogeneous ones are QPs. Like Pesetsky, she relates the genitive of negation to GEN-Q in that both involve the "scope-marking feature" [+Q], although they differ in that genitive phrases under negation are NPs assigned [+Q] syntactically whereas homogeneous numeral phrases are QPs that receive [+Q] from their Q heads. She argues – contra Pesetsky – that genitive of negation NPs are invariably objects but QPs need not be. For her, however, "subjective" [+Q] phrases become objects by a rule of demotion, which is blocked in transitive clauses by the LFG "principle of function-argument biuniqueness." Thus, it is only when QPs denote that nonagreement obtains. While I agree that the two phenomena should be distinguished, the fact that *inter alia* numeral phrases may occur as subjects of transitive verbs whereas genitive of negation phrases cannot leads me to a different analysis. Genitive of negation phrases are, following Neidle, NPs not QPs, but, following Pesetsky, they are both D- and S-Structure objects. Nonagreeing numeral phrases, it will be argued in section 3.3, may on the other hand also be subjects. In my account they differ in category – and, consequently, in S-Structure position – from heterogeneous numeral phrases that induce agreement. This move is unavailable to Neidle since (i) for her all heterogeneous numeral phrases are QPs, (ii) QPs have case and pronominal features, leading to potential subject-verb agreement, and (iii) grammatical functions are primitives rather than structurally defined, so that no correlate of the internal subject hypothesis I adopt in section 3.3 is conceivable.

trace will be an NP the QP cannot bind it, leading to a violation of the ECP.

Note at this juncture that Pesetsky is assuming that all properties of a trace are determined by independently motivated principles of grammar – its index by binding theory, its category by categorial selection, and its very existence by the Projection and/or Bijection Principles. While I agree that all aspects of trace theory are in fact epiphenomenal, I think his conception of categorial selection is in need of revision. As I see it, the issue is how the process of CANONICAL STRUCTURAL REALIZATION (CSR) proceeds. The basic idea, as proposed for example in Chomsky (1986a), is that explicit subcategorization statements can be eliminated in favor of semantic selection plus some set of principles delimiting the possible categorial realizations of arguments of any given semantic type. According to the theory of CSR, each semantic type of argument, where the semantic types are presumably derivative from Lexical-Conceptual Structure, is canonically realized by means of a particular syntactic category. The question, to my mind, is how the term ‘canonically’ is construed. For Pesetsky, there is a list of phrase types that can realize each semantic type, and crucially QPs cannot realize entity roles, resulting in the analysis above in which QPs undergo obligatory QR at LF. A reasonable alternative, however, is that the CSR of a semantic type is simply its default (or least marked) categorial realization; everything else being equal, an entity will be an NP, a proposition a CP, a location a PP, and so forth. This is not, however, an absolute requirement, so that QPs and CPs can occupy a position canonically realized by an NP so long as the QP or CP is semantically compatible with the role assigned to that position, and additionally satisfies all relevant syntactic restrictions. Similarly, an NP can appear in a CP or PP position if it is semantically and syntactically viable.

For example, an NP can serve as a hidden proposition or question, as shown in (28a) and (29a), respectively.

- (28)a. I told Bill [_{NP} the answer to your question].
 - b. I told Bill [_{CP} what the answer to your question was].
 - c. I told Bill [_{CP} that the answer to your question was ‘five’].
- (29)a. John asked (Bill) [_{NP} the time].
 - b. John asked (Bill) [_{CP} what the time was].
 - c. *John asked (Bill) [_{CP} that the time was 3 o’clock].

A [+WH] CP can function as a proposition, as in (28b), but a [-WH] CP cannot function as a question, as shown by the unacceptability of

(29c). Similarly, a CP can serve as an entity or even as a temporal or locative adjunct, as in (30), and, as observed by Larson (1985), an NP can also serve as a time or location adverbial, as in (31).

- (30)a. Elisabeth always eats [_{CP} what you eat].
- b. David will go home [_{CP} when you go home].
- c. I saw Julia [_{CP} where I least expected her to be].
- (31)a. Elisabeth will visit you [_{NP} next Thursday].
- b. David was relaxing [_{NP} someplace warm].

Larson (1985, p. 595) argues that the bare NP adverbs in (31) are able to receive case “through the lexical properties of their own heads,” and thereby satisfy the Case Filter. Whatever the mechanics of this process may be, the crucial fact is that these NPs must not only be semantically appropriate to function as temporal or locative adjuncts, but they must also satisfy syntactic criteria.

In a similar vein, Pesetsky (1982) observed that case plays a critical role in ruling out examples such as (32b)

- (32)a. John wondered [_{CP} what the time was].
- b. *John wondered [_{NP} the time].

Pesetsky’s idea was that the examples in (32) contrast with those in (29) in that *wonder*, unlike *ask*, is not a case-assigning verb, hence no NP complement is admissible in (32b). In light of these facts, he argued that the CSR of questions should be either NP or CP, and that extraneous factors such as Case Theory may interfere to limit the actual range of categories instantiating questions in any given context. Pesetsky then claimed that the reason why Russian QPs necessarily undergo QR at LF and their traces are obligatorily NPs is that they cannot satisfy categorial selection at LF otherwise, QP not being a CSR of entities. Notice, however, that under this view no primacy is assigned to a [+WH] CP as realizing a question, a PP as realizing a location (assuming NPs and [+WH] CPs can also do this), or an NP as realizing an entity (assuming a [+WH] CP can also do this). Under the alternative approach to CSR suggested above, it is certainly possible for another noncanonical phrase to bear the required semantic role if (i) it has the appropriate semantics in order to express the required role *indirectly* and (ii) it is independently able to satisfy all relevant syntactic conditions. If so, Pesetsky loses any motivation for obligatory QR of QPs and, concomitantly, loses his account of why they cannot appear in subject position. This is, however, actually

an advantage since, as I mentioned above in putting the asterisks in (26) in parentheses, QPs can indeed appear in subject position in Russian. Notice, however, that it still might make sense to claim that the traces of QPs must be NPs, since if all properties of traces are determined by independent principles, it may be that the theory of CSR is exactly what is implicated. If so, and Pesetsky's ECP analysis is correct, we would expect subject QPs to be acceptable so long as they do *not* undergo QR.

I have intentionally not addressed Pesetsky's semantic arguments for QR, since his predictions are inconsistent with speakers' judgments. Essentially, he claims that QR of a numeral phrase leads to an individuated (as opposed to group) reading. Since Pesetsky's conception of CSR forces QR whenever the numeral phrase is a QP, it should be obligatory in (24b) but not in (24a). If anything, however, (24b) strongly favors the group reading and (20a) the individuated one. Interestingly, this is precisely what might be expected if QR of a QP is blocked by virtue of its trace being determined by the principles of CSR to be an NP and if QR induces individuation. Notice, however, that this correlation between category and interpretation holds irrespective of the position of the QP. The group reading obtains whenever the subject is a QP as indicated by the form of verb regardless of whether that QP is the 'subject' of an unaccusative, intransitive or transitive verb. There is no asymmetry between lexically governed and ungoverned positions, suggesting that QR of a QP from a canonical NP position must be invariably impossible. This state of affairs could follow if the traditional ECP in (27) were replaced by a more recent version requiring antecedent-government at LF; cf. e.g. Chomsky (1986b), Aoun et al. (1987).

For object positions it is impossible to tell whether the numeral phrase is an NP or a QP; there is no morphosyntactic difference, and both group and individuated readings are equally possible. I assume that both NPs and QPs 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 (33), where the object of Russian *znaju* 'I know' can be realized by a case-marked NP or a caseless clause.

- (33)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 positions, theta-theory requiring oblique case to be discharged. In keeping with this observation, note that if a clause occurs in an oblique position, it must be embedded in a nominal phrase headed by *to* 'it', as in (34b).

- (34)a. Ja dumaju ob [_{NP:LOC} otvete na vaš vopros].
I am thinking about the answer to your question.
- b. Ja dumaju o [_{NP:LOC} tom, [_{CP} čto net otveta na vaš vopros]].
I am thinking about it-LOC that there is no answer to your question.

Since the preposition *o(b)* 'about' assigns LOC, it requires an NP after it to bear this case. Any numeral phrase complement to *o(b)* must thus be an NP rather than a QP:

- (35) Ja dumaju o [_{NP:LOC} pjati knigax].
I am thinking about five books.

Here, the locative numeral *pjati* modifies and agrees with the locative head noun *knigax*.²⁵

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 (36).

- (36)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, (iii) control gerunds, (iv) antecede reflexives, and (v) cannot long-distance move. Examples of these contrasts are given in section

²⁵ An anonymous *NLLT* reviewer raises the important issue of why numerals can bear morphological case if QPs are necessarily caseless. In my system, oblique numerals actually never head QPs, only APs. That is, following Neidle (1988), I assume that oblique numerals are essentially adjectival. I will return to the details of the relevant structures in section 3.2.

3.3; 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. It is nonetheless clear that an analysis as in (36) 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 (36a) the noun *rublej* should project an NP, and in (36b) the numeral *pjat'* should project a QP. A system with just these properties will be developed in section 3.2.

Before turning to Serbo-Croatian, consider the mechanism by which the verb appears in the third neuter singular with QP ‘subjects’. One possibility is that the agreement features of the verb, whether intrinsic to V or mediated through an abstract AGR node, are simply filled in as third person neuter singular in the absence of a nominative subject with pronominal features. However, since QP ‘subjects’ are in fact VP-internal, subject position must actually be occupied by a null expletive element.²⁶ This raises the alternative possibility that in Russian the null expletive pronoun itself bears third neuter singular features, either inherently or filled in as such by default. Therefore, given an S-Structure such as (24b), the verb may actually be agreeing with the empty NP subject. If so, the neuter third person singular is technically not a nonagreeing form, but rather the result of syntactic agreement with an empty subject. Under this approach, verbs may only agree with NP subjects and the third singular neuter is simply the verb form one always finds in Russian with empty expletive subjects.

2.2. *Serbo-Croatian*

In this section I address the import of Serbo-Croatian for Pesetsky’s account of Russian. The fact that numeral phrases in Serbo-Croatian may appear in oblique NP positions, as discussed in section 1.2, indicates that they must themselves be NPs in this language. As such, they should

²⁶ Once ‘subject position’ is taken to mean SPEC-IP, as argued in section 3.3, the same problems and solutions persist: the verb cannot agree with a QP subject since this remains in SPEC-VP position, but might be agreeing with a null expletive in SPEC-IP. Once again, the issue of unaccusativity is irrelevant. This state of affairs is possible because Russian, like all the Slavic languages, admits null expletive subjects. This property is technically independent of whether the language allows morphologically null theta-marked subjects. See Franks (1990) for a parametric account of these and related phenomena.

potentially be able to bear any oblique case,²⁷ although this need not be reflected morphologically, since percolation of the oblique case down from NP is blocked by GEN-Q, which I have argued is an inherent case in Serbo-Croatian.

Are Serbo-Croatian numeral phrases maximally NPs or QPs? In Serbo-Croatian, both agreement patterns are in principle acceptable.²⁸

²⁷ The dative is for some reason strongly disfavored, with Serbo-Croatian speakers reporting the following judgments:

- (i) * Dao je knjigu pet ljudi.
gave-M SG AUX-3 SG book-ACC five people-GEN PL
- (ii) ?* Koračao je prema pet ljudi.
stepped-M SG AUX-3 SG towards five people-GEN PL

The indirect object dative in (i) is unacceptable and the dative governed by the preposition in (ii) is marginal.

²⁸ The neuter singular is however considered standard and far preferred by many speakers, with the plural option having the status of a performance error. I consider the singular with the nonpausal numerals to reflect true syntactic agreement and the plural to instantiate semantic agreement. For clarity of presentation, however, I abstract away from the marginal status of the plural in subsequent presentation of Serbo-Croatian examples. A further problem here, as an anonymous *NLLT* reviewer reminds me, is that the acceptability of the plural partly depends on the cardinality of the numeral. Corbett (1978, 1983) summarizes data arguing for a numeral ‘squish’, both across Slavic and universally, such that the lower a number is, the more adjectival properties it displays. Within this squish, the pausal numerals constitute a subclass of their own, being by far the most adjectival after ‘one’. To the extent that the Serbo-Croatian pausal numerals are pure modifiers of a nominative head noun – albeit in a special pausal rather than the expected plural form; cf. the discussion in note 9 – they generally take plural syntactic subject-verb agreement. Sand (1971) found that with ‘two’, agreement occurred in 97% of her examples, with ‘three’ 89%, and with ‘four’ 83%. A further complication with the pausals is that masculine nouns typically induce a special agreement option that resembles the neuter plural ending, as in (i):

- (i) Dva muškarca su došla/ ?je došlo/ ?su
two men-PAUC AUX-3 PL came-N PL AUX-3 SG came-N SG AUX-3 PL
došli.
came-M PL

Although speakers report fuzzy judgments, especially where ‘three’ and ‘four’ are concerned, the first pattern clearly represents syntactic agreement. Compare this with *pet* ‘five’, for which the neuter is standard:

- (ii) Pet muškaraca *su došla/ je došlo/? su
five men-GEN PL AUX-3 PL came-N PL AUX-3 SG came-N SG AUX-3 PL
došli.
came-M PL

In both (i) and (ii) above, I take the *su došli* forms as reflecting plural semantic agreement, although the expected true syntactic agreements are different. The problem is that even if

- (37)a. Dvadeset "migova" preslo je/
twenty MIGs-GEN PL crossed-N SG AUX-3 SG
 ?prešlo su granicu.
crossed-M PL AUX-3 PL border-ACC
- b. 70 miliona lica je napustilo/? su
70 million people-GEN PL AUX-3 SG left-N SG AUX-3 PL
 napustili ovaj kontinent.
left-M PL this continent-ACC
- 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-LOC

Recall that in Russian the third person neuter singular is in fact possible in comparable constructions, which was taken to reflect the failure of syntactic agreement with a QP 'subject'. Numeral phrases that induce plural agreement, on the other hand, were analyzed as plural NPs. From this perspective, the surprising thing is that the third person neuter singular verb form is the norm in Serbo-Croatian. If numeral phrases in Serbo-Croatian differ from those in Russian in that they are always categorially NPs, then we must conclude that this form in Serbo-Croatian actually represents agreement with a quantified NP subject. That is, what I have deemed the agreeing form is different in Russian and Serbo-Croatian. 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 properties of heads, and must therefore percolate upwards. Ordinarily, nothing prevents percolation of pronominal features up to NP,

the paucal numerals technically occur with nominative paucal nouns, there is no paucal auxiliary, so that the plural *su* must be used instead, and nominative paucal forms such as *muškarca* in (i) are easily taken as GEN SG, leading to the *je došlo* option found with the nonpaucal numerals. Complexities such as these greatly obscure the agreement system with paucal numerals in Serbo-Croatian. Note that in Polish the paucals take unquestionably NOM PL nouns, so that plural agreement is the only real option; cf. note 76.

but something appears to be inhibiting this percolation in quantified NPs in Serbo-Croatian, although not in Russian. Now, the essential difference between these categories in the two languages is the level at which GEN-Q is assigned. Recall the D-Structure contrast between Russian (38a) and Serbo-Croatian (38b).

- (38)a. [NP pjat' [N' krasiv- devuš/k-]]
- b. [NP pet [N':GEN lepih devojaka]]

Presumably, the fact that N' is GEN-Q in Serbo-Croatian inhibits percolation of pronominal features up to NP. Even though the phrase *pet lepih devojaka* 'five beautiful girls' is semantically plural, upwards percolation of this feature from N is blocked by the oblique status of N'. Consequently, the pronominal features of the NP are set as neuter singular in the absence of any further specification.²⁹ 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

²⁹ Here, this constitutes the truly default option, in that the NP must bear pronominal features, and these must be endowed with some value. An anonymous *NLLT* reviewer points out, however, that numerically quantified subjects differ from true neuter NP subjects in that they do not conjoin to make a plural:

- (i) Tele i dete su skakali.
calf-NSG and child-NSG AUX-3PL jumped-MPL
 The calf and the child jumped.
- (ii) Pet devojaka i nekoliko momaka je skakalo.
five girls-GENPL and several boys-GENPL AUX-3SG jumped-NSG
 Five girls and several boys jumped.

Note that the conjunction of two neuter singular nouns in (i) results in *masculine* plural agreement, the expected neuter plural verb form being *skakala*. The process whereby pronominal features are passed up the tree within a projection must be complex to cause the sum of two neuters to be a masculine (no similar problem exists for the conjunction of two feminines or two masculines). With respect to (ii), then, it is clear that *pet devojaka* is not neuter in the same sense *tele* is, since the conjunction of the two numeral phrases receives its gender/number specification by the same default mechanism its constituents do, rather than somehow deriving its pronominal features from those of the conjuncts. The pronominal features of the numeral phrases are somehow inaccessible to their dominating NP. Since these features are not intrinsic to the numeral phrases, unlike true neuter NPs, it is reasonable to suppose that they are all fixed as neuter singular at once, preventing from applying whatever percolation process produces a masculine plural from neuter singulars. Note that similar problems exist whenever categories defective in features are conjoined, such as clausal subjects. See especially Corbett (1983) for discussion of this and related problems.

NP itself, so that verb shows number (and gender) features of the subject noun.

Another interesting result of the proposed categorial contrast between Russian and Serbo-Croatian has to do with predicates such as Russian *rassstat'sja* 'to disperse', which Pesetsky (1982, pp. 84–85) noted can only appear in the plural with a quantified subject, as in (39):³⁰

- (39)a. [CP [NP pjat' ženščin] [VP rasstalis' [NP e] na mostu]]
five women-GEN PL dispersed-PL on bridge
- b. *[CP [NP e] [VP rasstalos' [QP pjat' ženščin]]]
dispersed-N SG five women-GEN PL
 na mostu]]
on bridge

Pesetsky explained this by arguing that the QP must undergo QR, but once having done this only the individuated reading is possible. According to my approach, on the other hand, *rasstat'sja* requires its subject to undergo QR, which is something QP subjects can never do since their traces would be NPs, hence never antecedent-governed at LF (contra Pesetsky, for whom they must raise). The real question then becomes 'What requirements do such verbs place on their subjects?' It seems to me that Pesetsky's claim that *rasstat'sja* requires that its subject be a group is backwards. This verb really means that each individual in some nonsingleton set went off in a different direction. It thus requires that it be possible to look inside of the semantically plural subject in order to make a statement about each of its constituents. Be that as it may, the point remains that no such contrast arises in Serbo-Croatian, supporting my view that the neuter form in this language does not indicate that the numeral phrase is a QP. In the identical Serbo-Croatian construction, therefore, both variants are possible (with the neuter singular, as always, far preferred).

- (40)a. [CP [NP Pet žena] [VP su se razišle]].
five women-GEN PL AUX-3 PL REFL dispersed-F PL

³⁰ With large numerals the felicity of the neuter form seems to improve.

- b. [CP [NP Pet žena] [VP se razišlo]]³¹
five women-GEN PL REFL dispersed-N SG

Both agreement patterns are viable because they both reflect a semantically plural NP subject, which, I have argued, is grammatically neuter singular. The agreement of the verb has no effect on interpretation comparable to that found in Russian – only the individuated reading is possible here regardless of the form of the verb. Since the quantified phrase is an NP in Serbo-Croatian, both semantic agreement, as in (40a), and syntactic agreement, as in (40b), are possible.

Since my account divorces the range of possible interpretations from the form of the verb in Serbo-Croatian, whether a quantified NP exhibits the group or individuated reading does not depend on the form of the verb. This is borne out by (41), where both readings are possible with both agreement patterns:

- (41)a. [CP [NP Pet ljudi] [VP su došli na
five people-GEN PL AUX-3PL arrived-M PL at
miting]].
meeting
- b. [CP [NP Pet ljudi] [VP je došlo na
five people-GEN PL AUX-3SG arrived-N SG at
miting]].
meeting

In other words, either semantic or syntactic agreement is possible in (41), and this is formally independent of whether the subject NP *pet ljudi* undergoes QR and is assigned an individuated reading, or not. Thus, whatever the correct analysis of the Russian semantics, the approach I have adopted makes no prediction about any correlation between these two readings and verbal morphology for Serbo-Croatian.

3. EXTENDING THE ANALYSIS

In this section I revise and extend the analysis in three directions. First, I argue that structural cases should be distinguished from inherent ones purely in terms of a feature [oblique]. This superficial opposition then allows for a novel analysis of distributive *po* in Russian, which in turn

³¹ Note that the third singular auxiliary *je* disappears after the reflexive clitic *se*.

leads to a more carefully articulated internal structure for numeral phrases. Finally, contrasts between QPs and NPs are reassessed from the perspective of the VP-internal subject hypothesis.

3.1. *The Nature of the Structural/Inherent Dichotomy*

Although the contrast between structural and inherent case played a crucial role in the analysis put forward in section 1, no attempt was made to isolate just what distinguishes these types of case. Within the GB tradition, including Babby's model, the two have been endowed with abstract properties that set them apart, in particular, that inherent case is in some sense thematically dependent, whereas structural case is purely configurational.³² An alternative tradition, popular among Slavists, localizes the differences in the cases themselves, typically decomposing them into appropriate morphological distinctive features. Most such systems take as a point of departure the seminal work of Jakobson (1936/1971, 1958/71), who proposed *inter alia* an opposition between "direct" and "oblique" cases.³³ NOM and ACC differ from all other cases in being direct. Translating the analysis of section 1.1 into these terms, [+oblique] cases are assigned at D-Structure and so cannot be affected by conflicting case marking rules, whereas [-oblique] (i.e. direct) cases are assigned at S-Structure and therefore can be so affected.

Interaction between these two types of case with the genitive of quantification revealed that whereas a [+oblique] case percolates throughout the quantified NP before GEN-Q has a chance to apply, a [-oblique] case is blocked by the more local governor *pjat'* 'five'. Hence, GEN-Q must also be [-oblique]. Relevant D- and S-Structures for examples (2c) and (4c) are given in (42):

- (42)a. D-STRUCTURE:
- i. [PP čerez [NP *pjat'* minut]]
 - ii. [PP o [NP:LOC *pjati knigax*]]

³² Consider, for example, Speas' (1990, p. 180) statement that "inherent Cases are theta-related in the sense that they are linked to an argument bearing a *specific theta role*."

³³ See Franks (1985, *in press*), Chvany (1986) and Neidle (1988), for discussion of possible feature systems and comparison with those of Jakobson. Although Jakobson's case features were originally semantically motivated, one point made repeatedly is that relevant features must have morphosyntactic reality. Neidle and I independently propose workable sets of case features loosely based on Jakobson's. Both Chvany and I, but not Neidle, argue for the necessity of positing a feature [oblique] or [direct].

b. S-STRUCTURE:

- i. [PP čerez [NP:ACC pjat' [N':GEN-Q minut]]]
- ii. [PP o [NP:LOC pjati knigax]]

These representations reflect the claim that neither ACC nor GEN-Q is assigned at D-Structure, whereas oblique cases such as LOC are. Assuming percolation to take place automatically as soon as possible, LOC in (42aii) percolates throughout the NP before GEN-Q has a chance to be assigned. Consequently, these three cases must have the feature specifications in (43).

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

Whether or not cases are actually bundles of morphosyntactic features is not, I think, at issue, since most theories regard all syntactic nodes ultimately as feature complexes. And while there is naturally some debate as to the best inventory of case features for Russian, [oblique] seems to be one of the least controversial, being particularly active in morphosyntactic processes. Given the association of the Jakobsonian feature [oblique] with GB levels of representation, the inclusion of GEN-Q among the [-oblique] cases is a necessary (if somewhat unorthodox) move in order to accommodate Babby's essential insight into the heterogeneous/homogeneous contrast. If Russian GEN-Q is regarded as [-oblique], then the fact that it is overridden by a [+oblique] case but it itself blocks another [-oblique] case follows immediately. One might of course wonder whether the need to posit a special [-oblique] genitive to handle the idiosyncrasies 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. 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. It is less obvious why GEN-Q should contrast with the regular genitive in terms of obliqueness.

The answer, I think, 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. Although cases do not actually indicate specific theta-roles, they are still

inextricably linked to theta-theory. That is, NPs must be associated with some case in order for their theta-roles to be visible – 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 3.2, 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 [\pm 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, with nonobliqueness serving as 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 GEN-Q by virtue of being in the scope of a numeric quantifier appears in a regular genitive position, as in (44).³⁴

- (44)a. opisanie trëx gorodov
description three-GEN cities-GEN PL
- b. Ja izbegaju trëx ljudej.
I-NOM avoid three-GEN people-GEN PL

The adnominal genitive in (44a), configurationally assigned under sisterhood to N,³⁵ and the quirky genitive in (44b), lexically required on complements of *izbegat'* ‘to avoid’, both override the quantificational genitive. Crucially, once the regular genitive is assigned to the quantified NP, this

³⁴ It is 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: *opisanie pjati gorodov* ‘description five-GEN cities-GEN PL’. Of course, if my claim that all oblique numeral phrases are cased NPs rather than caseless QPs is correct, then the form of ‘five’ also indicates that the adnominal genitive must be inherent, with *gorodov* receiving its genitive case from *opisanie* rather than *pjati*.

³⁵ As argued in Franks (1985) and Fowler (1987), the adnominal genitive, as well as the VP-adjunct instrumental discussed immediately below, support my separation of whether a case is determined by structural or lexical (semantic) considerations from the GB structural/inherent dichotomy. Note that I am not claiming that *all* adnominal NPs must be genitive; they can of course also bear a semantically appropriate case. My point is that nouns virtually always have the *potential* for taking some sort of GEN object, whereas verbs must additionally be designated as case-assigners in order for ACC to be assigned. Both cases, however, are configurationally motivated, the one under sisterhood to N (possibly [+N] categories), the other under sisterhood to V (possibly [-N] categories).

case does not stop on the numeral with the ungrammatical result in (45), but percolates instead throughout the NP.

- (45)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 interacts with the genitive of quantification in a uniform manner whether determined structurally, as in (44a, 45a), or lexically, as in (44b, 45b). This follows if the morphosyntactic behavior of any given case is due to intrinsic properties of that case rather than to the reasons for it being assigned. In particular, the case feature [+oblique] identifies GEN as applying at D-structure, regardless of its provenance.

This 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 generally believed. As noted above, the standard GB view is that inherent cases are intimately connected with particular semantic roles, whereas structural ones are not. But the situation, I maintain, cannot be that simple, since by this criterion adnominal GEN should be as structural as adverbial ACC. Their differing behavior with respect to GEN-Q shows that this is clearly untrue. Instead, for all practical purposes a case is inherent if it is [+oblique] and structural if it is [-oblique], where the value of this feature – just like any other distinctive feature – is primitive and definitive.³⁶

A consideration of other cases leads to the same inevitable conclusion. Contrast the adjunct instrumental, as in (46a), with true complement instrumentals, as in (46b).

³⁶ My approach follows very much in spirit that of Neidle (1988), who similarly concludes that the morphosyntactic behavior of a case depends solely on the particular morphological case. I know of no convincing arguments that reference need ever be made to the ‘abstract Case’ of GB independent of morphological case, beyond simply ascertaining its presence in order to satisfy the Case Filter. Dyla (1984) argues for an abstract Case parallelism requirement on across-the-board extraction, but in Franks (1993) I demonstrate that the proper restriction is unrelated to abstract Case and should be formulated in terms of thematic prominence instead.

(46)a. ADJUNCT INSTRUMENTAL:

Ivan el ikru ložkoj.
NOM ate caviar-ACC spoon-INST

Ivan was eating caviar with a spoon.

b. COMPLEMENT INSTRUMENTAL:

Ivan upravljaet fabrikoj.
NOM manages factory-INST

Ivan manages a factory.

The adjunct INST in (46a) is of the type Jakobson pointed out 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 Predicate node that assigns INST. Either way, the adjunct INST is structurally and semantically distinct from the kind of quirky INST exhibited in (46b). For Fowler and myself the latter is simply governed by the V, the main reason being that passivization proves that a quirky INST NP is really a complement of V, as shown by the following examples, cited by Fowler (forthcoming):

(47)a. Russkaja armija upravljala-s' Kutuzovym.

Russian-NOM army-NOM manage-REFL INST

The Russian army was run by Kutuzov.

b. Rus' dolgo pravila-s' varjagami.

NOM long rule-REFL INST

Rus' was ruled by the Varangians for a long time.

c. Vremja otpuska často zloupotrebljaet-sja

time-NOM vacation-GEN often misuse-REFL

studentami.

students-INST

Vacation time is often misused by students.

d. Jazkyi ovladavajut-sja tol'ko userdiem.

languages-NOM master-REFL only diligence-INST

Languages are mastered only by diligence.

The same is true of quirky GEN complements.³⁷ Fowler (1987, forthcoming) examines verbs that take quirky case complements and shows that those which assign INST or GEN have passive forms with nominative subjects *so long as all other independently motivated conditions on passivization are met*. In addition to the reflexive passives cited in (47), Fowler adduces numerous similar examples using the participial passive construction, both with the literary present passive participle and the far more common past passive participle. His arguments convincingly demonstrate that some verbs take oblique complements. Note also that although Bailyn and Rubin (1991) 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 (44–5) above, neither type of INST can be overridden by GEN-Q, as shown in (48):

- (48)a. Ivan el ikru dvumja ložkami/*ložki.
NOM ate caviar-ACC two-INST spoon-INST PL/GEN SG
 Ivan was eating caviar with two spoons.
- b. Ivan upravljaet dvumja fabrikami/*fabriki.
NOM manages two-INST factory-INST PL/GEN SG
 Ivan manages two factories.

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 instrumental. The point is thus that a GEN or INST assigned to a complement because it is lexically required by a particular verb 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 it. This kind of fact 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

³⁷ See Fowler (forthcoming) and references therein, as well as Franks (in press, chapter eight), for details. Interestingly, Fowler's passive test indicates that DAT is never assigned to true complements of V, being reserved for indirect objects instead. One Russian speaker, however, accepted passive forms of *podražat'* 'to imitate', with the DAT argument of the active appearing as NOM in the passive, as follows:

- (i) Perdovye rabotniki podražajut inostrannym metodam.
forefront-NOM workers-NOM imitate foreign-DAT methods-DAT
- (ii) Inostrannyе metody podražajut-sja peredovymi rabotnikami.
foreign-NOM methods-NOM imitate-REFL forefront-INST workers-INST

Oddly enough, this verb is in fact cited in Freidin (1992, pp. 206–207) in support of his erroneous claim that quirky case-assigning verbs in Russian *never* passivize.

particular whether it is [+oblique] or [−oblique] – so that positing a [−oblique] genitive becomes a viable option. Additionally, once this move has been made, it becomes a relatively small step to the idea which I develop in the next section that the other quantificational case, namely the dative assigned by *po*, must also be analyzed as [−oblique].

3.2. *Po and the Internal Structure of Numeral 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.

3.2.1. *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 (49):

- (49)a. Každyj učenik polučil po odnomu rublu.
each student received DIST one-DAT SG ruble-DAT SG
- b. Každyj učenik polučil po rublu.
each student received DIST ruble-DAT SG
- c. Každyj učenik polučil po dva rubla.
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 indicated by an explicit quantifier, typically *každyj* ‘each’. *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.³⁸ Its government properties are also baffling, since, as a consideration of the examples in (49) reveals, distributive *po* appears to be able to assign several different cases.³⁹ 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 (49a,b) and (49c,d), respectively. Some scholars, such as Mel'čuk (1985) and Neidle (1988), add the genitive to this list in discussing examples such as (49e), although the form of the numeral here could also be taken to be dative, or even locative.

Superficially, then, *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 (90) that *po* governs the dative on singular NP objects:⁴⁰

- (50) 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'.

³⁸ One exception is *za*, in the *čto za* 'what for' construction, which is a calque on German *was für*. In addition to assigning no theta-role to its object NP, *za* in this construction does not assign any specific case; see Franks (1985) for discussion of the range of possibilities. The NP appears instead in whatever case is independently called for. Interestingly, as discussed in section 3.2.6, Serbo-Croatian *po* has precisely this property of being transparent to case assignment.

³⁹ To be fair, *po* is exceptional in this regard in other usages as well – even though it necessarily assigns DAT to a complement NP, as in (i), it also admits LOC pronominal complements, as in (ii) and (iii):

- (i) Vera skučaet po otcu/*otce.
Vera longs for father-DAT/LOC
- (ii) Vera skučaet po nemu/?něm.
Vera longs for him-DAT/LOC
- (iii) Vera skučaet po ? vam/vas.
Vera longs for you-DAT/LOC

Speakers seem to prefer the LOC form for 1 PL and 2 PL pronouns, although judgments vary. The DAT/LOC 1 SG and 2 SG forms *mne* and *tebe* are syncretic.

⁴⁰ *Odnomu* 'one' in (50) can be left out with no loss in meaning or grammaticality.

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

The structure in (51) represents a preposition with an NP complement, i.e. an ordinary PP. The most reasonable conclusion is that the same structure should be ascribed also to the *po*-phrase in (50). 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. Compare (52) with (53):⁴¹

- (52)a. po dva rublja
DIST two ruble-GEN SG
- b. po pjat' rublej
DIST five ruble-GEN PL
- (53)a. k dvum rubljam
to two-DAT ruble-DAT PL
- b. k pjati rubljam
to five-DAT ruble-DAT PL

Crucially, even though *po* assigns the dative case in (50), it is somehow prevented from assigning this same case in (52). In this respect, it contrasts markedly with other prepositions that govern the dative, as in (53). In (52), the dative cannot be realized, whereas in (53) it must percolate throughout the entire numeral phrase. Converse application is clearly ungrammatical in both instances:

- (54)a. *po dvum rubljam
DIST two-DAT ruble-DAT PL
- b. *po pjati rublam
DIST five-DAT ruble-DAT PL

⁴¹ The numerals in (52) are traditionally regarded as accusative, although I shall argue that they are caseless Qs.

- (55)a. *k dva rublja
DIST two ruble-GEN SG
- b. *k pjat' rublej
to five ruble-GEN PL

Since examples like (50) demonstrate that distributive *po* is able to govern the dative, blocking its assignment in (54) 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.

3.2.2. *Po* Assigns 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 now familiar kind of interaction between structural case and GEN-Q. In order to see that this is so, compare distributive *po* with a preposition governing the accusative. Such a preposition, it will be recalled from (2) above, exhibits the exact same government pattern as does *po* – it assigns case (here, ACC) to its object NP, but this is blocked when the NP contains a numeric quantifier greater than ‘one’. These examples are repeated in (56) and (57):

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

The relationship between (50) and (52) with *po* is parallel to that between (56) and (57) 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 ACC from percolating into the GEN-Q domain of the quantifier.

It is easy to see that the proper solution to our *po* puzzle should capitalize on this case conflict mechanism. The mixed government pattern of dative-assigning *po* will result if it is analyzed on a par with accusative-assigning prepositions 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 thus characterizes the feature content of DAT-Q:

- (58) Russian dative of quantification (DAT-Q) is [−oblique].

The crucial point here is that the [−oblique] DAT-Q differs from the regular [+oblique] DAT in that it is assigned at S-Structure. Therefore, just like the accusative, it is blocked by another closer [−oblique] case assigner, such as GEN-Q, which is structural in Russian. This accounts for the ungrammaticality of (59a) and (59b) in a parallel manner.⁴²

- (59)a. **po* [_{NP:DAT} *pjati* *rublam*]
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 than *čerez* is to assign accusative. Both are similarly blocked by the genitive of quantification, under minimality of government at S-Structure.

3.2.3. Another *Po* Puzzle

The ungrammaticality of the examples in (59) is due to the unmotivated case on the nouns *rubljam* and *minuty*, which have no source for DAT and ACC, respectively. They cannot be assigned these cases since the quantifier assigns 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

⁴² *Pjat'* 'five' in (59b) is glossed as accusative to facilitate comparison with (59a), the essential point being that the nominal head of the object of the preposition fails to receive the case governed by that preposition.

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, taking it to be a caseless, frozen form, since in nonoblique contexts syncretism generally makes it 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 (49e) and repeated below:

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

This property of Russian distributive *po* is usually analyzed as idiosyncratic, since (60) looks quite unlike any other case phenomenon in Russian. I shall however argue in the next section that the possibility of (60) 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 (60).

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 (60) 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 e.g. Babby (1985) and Franks (1986), is to claim that what is involved in examples like (60) 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, (60) could be given a structure roughly as in (61):

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

Although this account seems reasonable on both morphosyntactic and semantic grounds, in the next section I will argue that a more insightful analysis can be constructed, taking advantage of my claim that DAT-Q is a [-oblique] case, and that this analysis leads to a clearer picture of the internal structure of numeral phrases.

Before doing so, however, it is worth pointing out that I differ from Babby with regard to the possibility of extending the structure in (61) 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) observes, 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. This contrast is shown in (62):

- (62)a. po dvu/* 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 (62) illustrate two related points: (i) distributive *po* is not able to assign case to the paucal numerals, only to *pjat'* and higher, 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 fact that the paucal numerals are morphologically opposed to the higher numerals in being essentially adjectival rather than nominal. Assuming that case can only be directly assigned to NPs, and not APs, the impossibility of assigning dative to the adjectival numeral *dvum* in (62a) immediately follows.⁴³ 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 sole realistic candidate for a prepositional quantifier – 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 (61) 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 analyze *po* so far. In the remainder of this section, just such an analysis is explored.

3.2.4. 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

⁴³ By 'directly' I mean by virtue of government rather than agreement. See Franks and Hornstein (1992) for discussion of another instance where a morphologically nominal phrase is directly assigned case even though it is not an NP.

okolo, but rather with other prepositions that assign a structural case, such as *čerez*. Once such a move is made, it becomes possible to treat *po* exactly like any other preposition that assigns a [-oblique] case. That is, *po* simply heads a PP and assigns case to its NP complement, just like any garden variety preposition. This makes sense for canonical instances of distributive *po*, where I have argued 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:

- (63)a. [PP [P po] [NP:DAT-Q odnomu rublju]]
- b. [PP [P po] [NP:DAT-Q [QP pjat’] [N’:GEN-Q rublej]]]

In (63a) *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 (63b), on the other hand, although *po* again assigns structural dative to NP, it cannot percolate down to N’, since this is marked GEN-Q under sisterhood to the numeral phrase headed by *pjat’*. Now, the question is whether the type in (60) can be assimilated to this standard structure, instead of invoking a construction specific analysis along the lines of (61). I will claim that it can if we allow *po* to assign its dative to the numeral phrase directly, rather than to the phrase containing the numeral, and if the structure of numeral phrases is modified accordingly. In short, (60) 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) standardly employed to explain what happens after *believe*-type verbs in English, as in (64).

- (64) 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. Of particular relevance for my analysis of *po* is the fact that such ECM occurs only with structural cases, never with inherent ones; cf. e.g. Chomsky (1981) or Speas (1990). The reason for this is presumably because only structural cases can be divorced from assignment of semantic roles, so that in (64) *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 parallel – *po* is assigning its case to what looks like the specifier of its complement rather than to 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. The existence of the type of *po*-phrase in (60) thus provides striking support for my claim that distributive *po* assigns a *structural* dative case, since the possibility of ECM only exists for structural (i.e. [–oblique]) cases.

Other motivation for ECM within Russian is, admittedly, not overwhelming, although one reasonably likely candidate is the verb *sčitat'* ‘to consider’, as in (65).

- (65) 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 (SC), corresponding as it does to the full clause (*čto*) *Vera krasavica* ‘(that) Vera (is a) beauty’.⁴⁴ 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 ACC is a [–oblique] case. For example, if (65) were negated the genitive would not be acceptable, as shown in (66):

- (66) 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

⁴⁴ 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 constituent, the subject of which is externally accessible for the purposes of case-assignment.

of the regular oblique GEN rather than [-oblique] GEN-Q. Correspondingly, it can override GEN-Q, as illustrated by (67).⁴⁵

- (67) Ja ne ponjal ètix pjati
I NEG understood these-GEN PL five-GEN
 zadač.
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 (60).

3.2.5. *The QP Hypothesis Revisited*

My claim that (60) 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 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 be able to understand the case-assignment mechanisms involved in Russian *po*-phrases better. The hallmarks of English ECM, as typified in (64), are listed in (68):

- (68)(i) the case assigned by V is structural, rather than inherent;
- (ii) the complement is an IP, rather than an NP, and so 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 (59a). That the second and third claims also apply to Russian is somewhat more difficult to see. I have up to now been referring to the phrase after *po* as a 'quantified NP', but there is no reason to suppress the QP option, since QPs are freely admissible in structural case positions. This satisfies the second

⁴⁵ The genitive of negation does not interact with the structural dative assigned by *po* since this heads a PP rather than an NP.

requirement of ECM, QP being roughly comparable to IP in terms of its case properties.

In fact, making QPs completely parallel to other phrases leads to an interesting solution to the problem of the internal structure of numeral phrases. Case is standardly argued to be assigned by the heads of various categories to the 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 (69):

- (69) [QP [Q' [Q pjat'] [NP rublej]]]

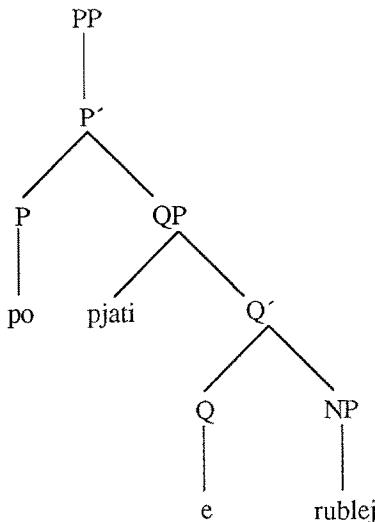
The relationship between the Q and the NP is thus identical to that between any verb or preposition and its object. In other words, I am claiming that QP is a functional category along the lines of much similar current work with the theory of phrase structure,⁴⁶ and that quantified NPs are properly regarded as complements to Qs. There are, however, two reasons why the precise structure in (69) is inadequate for Russian numeral phrases, although both have solutions that follow straightforwardly from recent proposals about phrase structure. First, notice that structure (69) does not help very much in assimilating *po* to ECM constructions. 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, (69) must be revised so that *pjat'* is in fact the specifier of the QP, as in (70):

- (70) [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 (70) after *po*, as in (71), 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*.

⁴⁶ Cf. for example Abney (1987) or Ouhalla (1990, 1991).

- (71) [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 particularly radical. A QP is a kind of operator phrase, and much work since Chomsky (1986b) contends that it is generally true that the lexical material in an operator phrase can be either in the specifier or head position, or sometimes in both, with obligatory SPEC-head agreement. For example, interrogative sentences, analyzed as CPs, typically have the overt [+WH] material in the specifier of CP position, as in (72).

- (72)a. [CP When_i [_C [_C[+WH] will_j] [_{IP} John _{t_j} leave _{t_i}]]]]?
 b. I wonder [_{CP} when_i [_C [_C[+WH] e] [_{IP} John left _{t_i}]]]].

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 (72b), for example, *wonder* selects 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 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.⁴⁷ Adapting these ideas to the analysis of Russian QPs in (70) and (71) thus makes perfect sense.⁴⁸

⁴⁷ In principle, both positions may be occupied, as in the French *ne pas* construction.

⁴⁸ Shlonsky (1991), extending ideas due to Abney (1987), proposes that the Hebrew quantifier *kol* 'all' heads its own functional category QP. Ritter (1991) similarly claims that

The other problem with (69) is that it still obscures 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 widely accepted that NPs are actually embedded in DETERMINER PHRASES (DPs), with the head D taking an NP complement.⁴⁹ In line with this hypothesis, I propose that QPs may be embedded in DPs. That is, in addition to the structure in (70), the structure in (73) also exists:

- (73) [_{DP} [_{D'} [_D e] [_{QP} pjat' [_{Q'} [_Q e] [_{NP} rublej]]]]]]]

Numeral phrases that I have up to this point been analyzing as QPs have the structure in (70), but those that I have been analyzing as NPs are actually DPs with the structure in (73). Assuming this distinction, placing a DP rather than a QP after the preposition *po* protects the numeral from

numerals and other quantifiers in Hebrew head NumPs. Guisti (1991) also argues for Q as a functional head in a variety of languages. 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 as either the specifier or the head of the phrase.

⁴⁹ An anonymous reviewer questions the need to posit DPs for Russian. While my primary motivation is admittedly theory-internal, in that within current models of UG nominal expressions are analyzed as maximally DPs, there are I believe independent reasons for assuming them in Russian. It is true that determiner-like elements can iterate, as in (80b) below or (i), from Avrutin (1992):

- (i) Ja čital ètu ego poèmu.
I read this his poem

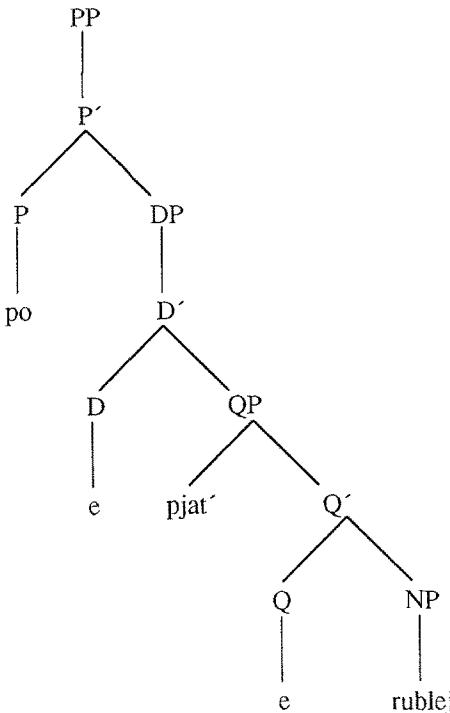
However, as Avrutin points out, although possessives in Russian can otherwise extract (in apparent violation of the Left-Branched Condition), this extraction is blocked by the demonstrative, both in the syntax as in (ii) and at LF as in (iii), assuming the reflexive *svoj* raises to I at LF.

- (ii) *Č'ju ja čital ètu poèmu?
whose I read this poem
- (iii) *Ivan slomal ètot svoj velosiped.
Ivan broke this self's bicycle

If each of these determiner-like elements heads a separate functional category projection, then the trace left after extraction will not be antecedent-governed under the relativized minimality theory of Rizzi (1990). For more detailed arguments that Russian requires something akin to a DP, see Padučeva (1985, pp. 83–107), the relevance of which was pointed out to me by Michael Yadroff.

ECM by the preposition, since the numeral is no longer the specifier of the complement.⁵⁰ This structure is given in (74):

- (74) [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 (74) 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; cf. e.g. Fowler (1987). However, if this were an accusative position,

⁵⁰ An anonymous reviewer raises the question of whether there is any difference resulting from the DP/QP contrast, perhaps in terms of definiteness. It seems to me that *po*-phrases are always indefinite, since restrictive relative clauses, demonstratives such as *eti* 'these' or quantifiers such as *vse* 'all' are incompatible with *po*-phrases. However, I take this to mean that D is present and necessarily [-definite] in these phrases, rather than absent; cf. also the discussion at the end of section 3.2.5. Note that the same issues of interpretation of numeral phrase DPs vs. QPs arise elsewhere.

there would be no way to explain why unambiguously accusative numerals cannot appear here. Consider the behavior of *tysjača* ‘thousand,’ as shown in (75).

- (75) po tysjače/*tysjaču rublej
DIST thousand-DAT/ACC rubles-GEN PL
 a thousand rubles each

The dative is the only viable form in (75), 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. It is worth noting that Russian *tysjača* elsewhere always appears in the required case, with NOM SG *tysjača* as a subject and ACC SG *tysjaču* as an object.⁵¹ Both of these cases can be assigned under ECM into the specifier of the QP, which is where I claim *tysjača* is, the QP and its empty head being caseless. Note that in languages such as Serbo-Croatian in which numeral phrases are always maximally DPs, the frozen form option is the only alternative to true noun status. Thus, in this language *tisuću/hiljadu* ‘thousand’ is indeed a frozen form, appearing as such regardless of syntactic position:⁵²

- (76)a. Hiljadu ljudi je došlo.
thousand people-GEN PL AUX-3 SG arrived-N SG
- b. sa hiljadu ljudi
with thousand people-GEN PL

Many other quantificational elements behavior similarly:

- (77)a. od stotinu Beograđana
from/of hundred Belgraders-GEN PL
 out of a hundred Belgraders
- b. od par ljudi
from/of couple people-GEN PL
 of a couple of people

⁵¹ *Tysjača* can also be a true noun; see Corbett (1978, 1983) for details.

⁵² In Franks (1985) I argue that this form resembles the accusative because, in my feature system, this is the least marked case.

- c. u roku od nedelju dana
in period of week day-GEN PL
 in the course of a week

Others, such as *masa* '(a) lot', are only true nouns, and decline as such. Polish, which I will argue in section 4 is like Serbo-Croatian in lacking maximal QPs,⁵³ also makes extensive use of frozen Qs. Thus, items like *parę* '(a) couple', *trochę* '(a) little' and *mase* '(a) lot' are fixed, accusative-like forms able to appear in any case position.⁵⁴ This array of facts shows that whether or not any given numeric classifier is analyzed as a true quantifier or not is in part an idiosyncratic lexical property.

Consider next the agreement possibilities exhibited by subject *po*-phrases. As shown by the examples in (78), the plural verb form is generally unacceptable, the neuter singular being the only viable option. As before, the asterisk in front of the neuter forms is in parentheses since Pesetsky (again, erroneously) considered the neuter impossible with *po*-phrase subjects for the same ECP reason as with other QP subjects. Here, however, the plural option is (this time correctly) also unavailable.

- (78)a. Každuju knjigu *pročitali/(*)pročitalo po pjat'
each book-ACC read-PL/N SG DIST five
 studentov.
students-GEN PL
 Five students read each book.
- b. Na každom zavode *rabotali/(*)rabotalo po sto
at each factory-LOC worked-PL/N SG DIST hundred
 čelovek.
people-GEN PL
 A hundred people worked at each factory.

These facts follow if we assume that *po*-phrases in Russian are never DPs,

⁵³ For this same reason neither language allows the Russian phenomenon of ECM in QPs.

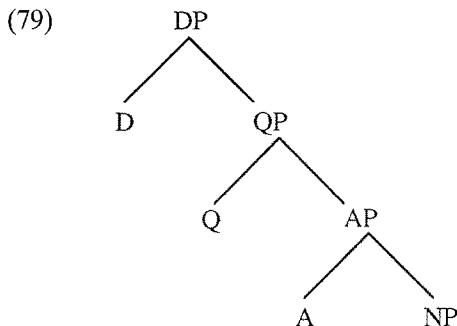
⁵⁴ The Polish facts are actually somewhat more complicated. Speakers consulted report that *trochę* is used in NOM, ACC and possibly GEN positions, but are not sure what to do in other oblique contexts. *Parę* on the other hand has a special oblique form *paru*, so that this more realistically seems like the frozen form. *Mase* may decline like a feminine singular noun in oblique positions, although it is used alongside the expected form *masy* in GEN contexts. This array of facts roughly correlates with my claim in section 4 that GEN-Q in Polish is only assigned in ACC contexts, with subject numeral phrases for some reason being ACC rather than NOM.

since only DPs induce subject-verb agreement. Under Pesetsky's account, they would have to be invariably QPs. However, as observed by an anonymous *NLLT* reviewer, restricting *po*-phrases to QPs is merely a stipulation designed to accommodate the data; a more principled explanation is clearly called for. Under my account the agreement data follow straightforwardly: *po*-phrases in Russian are only PPs, never DPs or QPs. They are therefore expected to behave just like PP subjects do in general. The actual S-Structure position occupied by PP subjects is immaterial to the analysis; wherever they are, 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 generally.

Agreement with PP subjects is a complex issue which I have so far suppressed since it introduces an unwanted complexity into the data. The problem is that under certain circumstances plural agreement with PP subjects is admissible, as discussed by e.g. Chvany (1975), Crockett (1976), Babby (1980b, 1985) and Neidle (1988). Babby, (1980b, p. 34), for example, shows that sometimes the plural (alongside the expected neuter singular) is acceptable with quantificational PP subjects, citing examples with subjects such as *okolo četyrëxsot predstavitelej* 'about 400-GEN representatives-GEN PL' and *do trëxsot oficerov* 'up to 300-GEN officers-GEN PL', in addition to occasional *po*-phrases. I take this to be an instance of semantic agreement, just as in Serbo-Croatian, so that the form of the verb reflects the plurality of the lexical head noun, despite the syntactic fact that it is technically an oblique complement to a functional Q head. I thus maintain that, whatever the factors may be for licensing optional plural semantic agreement with quantified PP subjects, *po*-phrase subjects behave similarly to other PP subjects in this regard, supporting my claim that they are simply PPs.

The functional analysis of QPs suggests certain revisions to the analysis in section 1 as well. For one thing, the DP theory of Abney (1987) treats adjectives as heads taking NP complements, resulting in a schematic structure as follows:⁵⁵

⁵⁵ Further articulation is possible; cf. e.g. Bernstein (1991), Valois (1991) and Szabolcsi (1991).



Note that this analysis treats Qs, Ds and As in a structurally parallel fashion.⁵⁶ This makes some sense in that Russian numerals are essentially adjectival in oblique positions. That is, they do not belong to a syntactically uniform class: when they agree they are As and when they govern they are Qs. Determiners are also more or less adjectival in Russian, there being no morphologically distinct or uniform class of Ds. For example, determiner-like elements can occur internal to QP, as in (20) above, with the structure in (80a), or can iterate up to semantic acceptability, as in (80b).

- (80)a. [DP [QP pjat' [AP ètix [AP krasivyx
five *these-GEN PL* *beautiful-GEN PL*
[NP devušek]]]]]
girls-GEN PL
- b. [DP [AP ètot [AG moj [AP odin
this-NOM SG *my-NOM SG* *one-NOM SG*
[AP staryj [NP drug]]]]]
old-NOM SG *friend-NOM SG*

Note that for the sake of discussion I label the phrases headed by internal demonstratives, possessives and adjectival numerals such as *odin* ‘one’ APs, although they are technically distinct functional categories which overlap in features with adjectives but also presumably bear additional grammatical features; cf. note 49. As argued by Neidle (1988), numbers in homogeneous numeral phrases must be modifiers, since they decline. I

⁵⁶ Further support for the structure in (79) can be found in Bulgarian and Macedonian, which have post-positive articles. These can be regarded as enclitics in D. Crucially, the article attaches to the right of the first head beneath it – the N if there are no modifiers, the first A if one is present, and so on. This suggests an analysis in terms of head raising to D, subject to the Head Movement Constraint of Travis (1984) and Baker (1988).

thus agree with her that as modifiers they lack a NOM/ACC form, although I differ in that as Qs they are caseless rather than NOM/ACC.⁵⁷ This is reasonable both in that a few other adjectival quantifiers, such as *skol'kix*/**skol'kie* 'how many-GEN/NOM' and *neskol'kix*/**neskol'kie* 'several-GEN/NOM', also lack a NOM/ACC, and in that this opposition can be stated in terms of there being no [-oblique] forms.

QPs (and other functional categories associated with nouns) are thus part of an extended nominal projection, roughly in the sense of Grimshaw (1991). Note that the problem of headedness in numeral phrases described in Babby (1987) disappears from this perspective: it is perfectly consistent to understand the noun always as a semantic head (i.e. "lexical", in Grimshaw's terms) but the numeral always as a purely syntactic head (i.e. "functional").⁵⁸ This idea however requires some clarification of the percolation mechanism employed in section 1 to explain the Russian heterogeneous/homogeneous case pattern, as well as the part-of-speech features that distinguish Qs from other categories. Assume not only that maximal projections are coindexed with their heads, but also that functional categories dominating a substantive maximal projection also bear the same index.⁵⁹ This is necessary for case features to percolate down from DP and pronominal features up from N, assuming that coindexation

⁵⁷ She explains the lack of expected agreement by claiming that Qs are plural, having lost their historical gender; see the discussion of the evolution of numerals in Babby (1987) and section 5 below.

⁵⁸ Babby's dilemma stemmed from the fact that the N satisfies selection requirements but the Q exhibits certain properties of a syntactic head. This is however exactly what Grimshaw's view of functional projections is designed to accommodate. Note that Babby's problem that subject-verb agreement is never with the numeral disappears when one realizes that Qs bear neither nominative case nor pronominal features. He thus points out that *pjat'* 'five' was originally a feminine noun and induced feminine agreement, but this never occurs in the modern language, as shown in (i):

- (i) *Pjat' ženščin prišlo*/**prišla*.
five women arrived-N SG/F SG

Notice that even when *pjat'* arguably functions as a noun, the verb shows third person neuter singular rather than feminine agreement, as in (ii):

- (ii) *Pjat' delilos'* *na tri*
five divided-N SG by three

I would claim that here *pjat'* (and *tri*) are still Qs and N is simply empty.

⁵⁹ I necessarily differ from Grimshaw (1991) in that all members of an extended projection cannot be required to share the same categorial features. This is evident if APs enter into a structure as in (79), independent of my treatment of QPs. Grimshaw does not discuss the position or status of modifiers of NP.

is a prerequisite for percolation.⁶⁰ However, since I have argued that QPs lack case features, it must be possible for them to transmit these features down the tree without actually acquiring them. The existence of such case transmission follows from the nature of agreement and a literal interpretation of the case feature model. Given the Case Filter, DPs universally contain case features (even if just [case]). Whether other nodes contain case features is, however, a matter of great linguistic variation. Nothing in UG forces Ns, let alone As or Ds, to have case features. Since it is perfectly reasonable for a language to mark Ns with case but not As, it must be possible for AP also to transmit case features in the same manner QP does. A similar approach is required to handle case-transmission by obligatorily controlled PRO from its controller to an agreeing predicate adjective in Slavic, as discussed in Franks and Hornstein (1992).⁶¹ I conclude that the assumption that QP is caseless does not present any special problems for percolation.

The issue of the categorial features of Qs is somewhat murky. It seems that, in addition to the standard [N, V], a third feature [Q] is called for. GEN-Q is then assigned to NP by [+Q] heads. Since the paucal numerals are formally adjectival and the higher ones nominal, there are both [+Q, +N, -V] and [+Q, +N, +V] Qs.⁶² When a numeral agrees and declines for case, however, I speculate that it is [-Q]. Note that numerals that appear both to govern GEN-Q and decline for case, such as *tysjača* 'thousand', are in my analysis not actually Qs. I have argued that they are instead specifiers of QP. Thus, those that are nominal are [-Q, +N, -V] and can be assigned case directly under ECM. It is only frozen numerals, which are [+Q], that appear in the head position Q.

Let us now return in light of the structure in (79) to the problem of pre- and post-quantifier adjectives treated by Babby (1987) and the solution I

⁶⁰ Coindexation is also implicated in case assignment by government, not just agreement, since case assignment is a consequence of theta-role assignment, which is the entering of an argument's index into the theta-grid of the theta-role assigner; cf. Franks (1985, in press) for details.

⁶¹ In some languages, most notably Icelandic, as argued e.g. by Sigurðsson (1991), PRO has case features, but this situation seems to be relatively rare.

⁶² Fowler (1987) argues that other parts-of-speech in Russian can assign GEN by virtue of their being quantificational. He claims, for example, that there are quantificational [+Q, -N, +V] verbs, such as those prefixed by *na-*, e.g. *nakupit'* 'buy a lot of', which requires a quantity object, and possibly also [+Q, -N, -V] prepositions. Interestingly – and unlike Fowler's putative [+Q] prepositions – verbs in *na-* take QP objects or genitive DP objects; crucially, numeral phrases do not need to be genitive. In this respect verbs in *na-* differ from verbs that assign quirky GEN. This suggests to me that they semantically select for quantified expressions rather than for entities, with the CSR of a quantified expression being a QP and with genitive DPs also being able to satisfy their semantic selection requirements.

proposed based on the idea of adjective raising due to Corbett (1979). All that need be assumed is that adjectives with wide scope can move up to D. In (80a), for example, the demonstrative can remain in place and be marked genitive in the scope of the quantifier, or it can raise to D and be marked NOM/ACC.⁶³ This makes it unnecessary to stipulate that such movement only take place in numeral phrases that are maximal DPs, never QPs, as evidenced by obligatory subject-verb agreement in (15), repeated below.⁶⁴

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

Genitive prequantifiers, on the other hand, originate inside QP to the left of numeral, as in (22) above, with the revised structure (82).

- (82) [DP [QP dobryx [[QP pjat'] [NP butylok]]]]
good-GEN PL five bottles-GEN PL
 a good five bottles

Dobryx is presumably adjoined to QP (or, if it is an X⁰, to Q), rather than in specifier position, if my analysis of *pjat'* as a specifier is correct. The point is that since this structure could be either a DP, as in (82), or a QP,⁶⁵ either agreement pattern is fine:

- (83) Dobryx pjat' butylok stojalo/stojali na stole.
good-GEN PL five bottles-GEN PL stood-N SG/PL on table

Consider also the interaction of the paucal numerals with the rule that animate accusative Ø-declension and plural nouns appear in the genitive, as discussed for example in Neidle (1988). Although obligatory for non-quantified DPs, the animacy rule is in principle optional for numeral

⁶³ Recall that in Russian GEN-Q is [-oblique] and thus applies at S-Structure; in Serbo-Croatian, on the other hand, movement takes place after GEN-Q has been assigned. In (80b) *ètot* 'this' may of course also undergo string-vacuous movement to D.

⁶⁴ The stipulative nature of this movement restriction was pointed out to me by an anonymous *NLLT* reviewer.

⁶⁵ This is true of Russian; in Serbo-Croatian they can only be maximally DPs.

phrases quantified by ‘two’, ‘three’ and ‘four’.⁶⁶ The examples in (84) therefore have the following structures:

- (84)a. Ja videl [QP [Q četyre] [NP soldata]].
I saw four soldiers-PAUC
- b. Ja videl [DP [D [AP [A četyrëx [NP soldat]]]]].
I four-GEN soldiers-GEN PL

Neidle’s system requires a similar contrast between Q and A. Note that whenever a demonstrative is present, regardless of the cardinality of the numeral, the animacy rule necessarily applies, since in order for the demonstrative to move to prequantifier position the numeral phrase must be a DP. Thus, to my mind, the behavior of paucals strongly suggests that they are heads rather than specifiers of QP, and this is also probable for quantifiers in general outside of East Slavic. Unfortunately, a complete treatment of these complex issues is beyond the scope of this paper.

Finally, the analysis in this section raises a further potential aspect of variation which remains to be explored. The possibility exists that numerals in different languages might vary as to whether they occupy the specifier or head position of QP. I can think of no compelling argument why numerals should not be head Qs in Serbo-Croatian and Polish; this is also suggested by the far greater incidence of frozen, accusative-like forms in these languages. Even within Russian, I think there is good reason to believe that the pausal numerals at least are invariably heads. For one thing, they have many more adjectival properties than do the higher numerals; cf. Corbett (1983) for discussion. For another, the very fact that they govern a special form suggests that they are heads, assuming that government is a property of heads. Moreover, in compound numerals ending in paucals it is the pausal numeral that determines the form of the following material, suggesting that it alone is relevant. In fact, the clearest reason for the nonpausal numerals ever to be QP-specifiers is to account for the ECM possibility in terms of the structure in (74). Since this phenomenon exists only in East Slavic, and even there is regarded as archaic by many speakers, it is conceivable that Slavic numerals are always heads

⁶⁶ Borras and Christian (1971, p. 391) mention this fact, although the particular examples they cite were deemed infelicitous by native speakers for extraneous reasons. They note that marking animacy with the genitive, as in (84b), is standard. Interestingly, they observe that with compound numerals ending in paucals the situation is reversed, with failure of the animacy rule considered the norm. The nonpausal numbers show no alternation, since as Qs they are caseless and even as nouns they did not belong to the appropriate declensional class, being i-stem substantives, which never undergo the animacy rule.

of QPs, except in the Russian ECM construction, and that the on-going loss of this phenomenon reflects the reanalysis of Qs in this construction as heads. The only place where this reanalysis would never apply is with *tysjača* ‘thousand’, as in (75). Martina Lindseth (personal communication) points out that explaining the variation between ECM and no ECM in terms of whether the numeral is a head or specifier of the QP would eradicate any observable distinction between numeral phrase DPs and QPs after *po*, so that one could then maintain that all *po*-phrases are QPs, thus obviating the structure in (74). I think this move is unwarranted, for several reasons. First of all, note that the same problem of ambiguous structure exists in all structural case positions, with the exception of subject. Second, there is no obvious way to prevent DPs from appearing in this position, since they clearly do (i) in Russian when the numeral is ‘one’, as in (50), and (ii) in the other Slavic languages for which I have argued nouns always project maximally to DPs and never to QPs.

3.2.6. Remarks on Serbo-Croatian Po

Before turning to the implications of the internal subject hypothesis for the analysis in section 2, I point out some curious facts about *po*-phrases in Serbo-Croatian.⁶⁷ As Dickey (1992) observes, the Serbo-Croatian distributive preposition *po* does not assign any specific case.⁶⁸ Consider the following examples:

⁶⁷ In certain other Slavic languages distributive *po* is like any other preposition assigning a fixed oblique case. In Czech, for example, it simply assigns locative. In Polish and Slovak, however, it seems to be assigning a structural locative; see Franks (in press) and Łojasiewicz (1979) for examples and discussion.

⁶⁸ Dickey (1992) comments that example (86) has a fairly “mathematical” flavor. He also notes similar case behavior for Serbo-Croatian *po* in examples such as the following, which should be compared to (85) and (87), respectively:

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

These examples illustrate that it is also possible in Serbo-Croatian for the *po*-phrase to distribute over the verb’s event argument, resulting in the *jedan po jedan* ‘one by one’ reading. The fact that the two *po* constructions display the same case properties and comparable distributive interpretation shows that they are intimately connected.

- (85) Svako razgovara sa po
everyone-NOM speaks with DIST
 jednim kandidatom.
one-INST candidate-INST
 Everyone is speaking with one candidate each.
- (46) Kupio sam tri knjige po učeniku.
bought AUX-1 SG three books DIST student-DAT
 I bought three books for each student.
- (87) Dobijali smo municiju od po jednog
got AUX-1 PL ammunition from DIST one-GEN
 vojnika od prilike svakih pola sata.
soldier-GEN about every half hour
 We received ammunition from each soldier about every half hour.
- (88) Sećam se po jednog događaja iz
I-remember REFL DIST one-GEN event-GEN from
 svakog grada u kome sam živio.
each town 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 of a DP in the position in question, which can be any case at all. In (85) this case is INST because of the preposition *sa* ‘with’, in (86) DAT because the NP is an indirect object, in (87) GEN because of the preposition *od* ‘from’, and in (88) also GEN, as lexically required by the verb *sećati se* ‘to remember’.

As pointed out in note 38, this situation is reminiscent of the Russian *čto za*/German *was für* ‘what kind of’ construction. It is reasonable to suppose that this state of affairs exists precisely because distributive *po* assigns no theta-role of its own. In this respect it differs from all other prepositions, except *za* in this special usage. Thus the fact that the distributive preposition *po* has unique case-assignment properties in Russian, resulting from its quantificational rather than thematic force, is consistent with its more general behavior.

3.3. Subjects as VP-Specifiers

In this section, I consider what import recent proposals about the underlying position of subjects might have for the analysis of QPs in Pesetsky (1982). According to Koopman and Sportiche (1988, 1991), among others, the canonical position of D-Structure subjects is the specifier of VP, as in (89).

- (89) [CP [IP [DP[^] e] [I⁻ I(NFL) [VP [DP* 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. In many languages, including English and presumably the Slavic ones under consideration here, the subject undergoes NP movement from DP* to DP[^] position in order to receive nominative case at S-Structure.⁶⁹ 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 DP* position.

With this idea in mind, let us return to the Slavic agreement facts and see how they might follow. The internal subject hypothesis has little effect on the analysis of Serbo-Croatian. Quantified phrases are always DPs, hence they must always move from DP* to DP[^] 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. In Russian, on the other hand, the situation is not so straightforward. First of all, nothing in principle prevents a QP from occupying the VP-specifier position, DP*. The result is that in Russian the S-Structure possibilities are more explicitly represented as in (90) and (91).

- (90)a. [CP [IP [DP[^] e] [VP [QP* *pjat'* čelovek] [V' V-o . . .]]]]
 b. [CP [IP [DP[^] *pjat'* čelovek]_i [VP [DP* e]_i [V' V-i . . .]]]]
 (91)a. [CP [IP [DP[^] e] [VP [DP* e] [V' V-o [QP *pjat'* čelovek] . . .]]]]
 b. [CP [IP [DP[^] *pjat'* čelovek]_i [VP [DP* e] [V' V-i [DP e]_i . . .]]]]

Structure (90a) contains a QP with an unergative verb and (90b) a DP with an unergative verb, while structure (91a) contains a QP with an unaccusative verb and (91b) a DP with an unaccusative verb. When DP[^] is occupied by the plural DP *pjat'* čelovek 'five people', the verb takes

⁶⁹ Although the raising approach is standard for SVO languages, demonstrating that Russian is definitively SVO is beyond the scope of this paper. The analysis in this section, however, supports the idea that Russian DP subjects raise.

the (past tense) plural ending *-i*, and when DP[^] 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 (90a) 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 DP[^] position. Indeed, as pointed out earlier, nonagreement is in fact acceptable even with unergative and transitive verbs. They will thus have the schematic structure in (90a), with a QP appearing and remaining as a VP-specifier, and the verb agreeing with the expletive subject DP.

Whether Pesetsky's analysis of Russian should carry over to this model is unclear. For one thing, as discussed above, Pesetsky's conception of categorial-selection as forcing QR requires several peculiar assumptions, such as that categorial-selection need not be satisfied until LF and that the Canonical Structural Realization of a semantic type is an absolute specification. Indeed, I know of no subsequent work that relies on the complex theoretical apparatus assumed in Pesetsky (1982). For another, the motivating data themselves are extremely indecisive, with the status of nonagreement with quantified subjects by transitive and unergative verbs ranging from preferred to marginal, depending on the semantics of the VP and the choice of quantifier. Nonetheless, the facts presented in this paper argue that Russian has both QPs and DPs whereas Serbo-Croatian has only DPs, and that whereas QPs are S-Structure VP-specifiers, DPs are S-Structure IP-specifiers.⁷⁰

Let us turn now to some further discrepancies between Russian and Serbo-Croatian 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, two other important subject-oriented diagnostics.⁷¹ Consider the following examples:

⁷⁰ Although QPs, unlike DPs, do not raise to IP-specifier position since they do not need case, the possibility remains that they may raise anyway, although this would be an unmotivated movement, contra Chomsky's 'least effort' principle. One might, however, maintain that nothing prevents raising of a QP into IP-specifier position, but that once there the construction is ruled ungrammatical along Pesetsky's lines, with the category of the trace being determined by the CSR theory. A further and more general question – one which in fact arises for all non-cased arguments – is how the theta-role of a QP is identified if it is not in a case-marked chain. Perhaps Q undergoes LF incorporation into V as an alternative to satisfying the Case Filter, as proposed in Baker (1988) and Johnson (1991). This would independently restrict QP to VP-internal positions, since otherwise its trace would not be antecedent-governed.

⁷¹ The significance of examples such as these is discussed in Pesetsky (1982) and Neidle (1988). While there is some vacillation as to the degree of ungrammaticality of nonagreement in the (b) examples, all speakers consulted felt a sharp contrast in acceptability.

- (92)a. Pjat' ženčin smotreli/smotrelo na Ivana.
five women looked-PL/N SG at Ivan
- b. Pjat' ženčin smotreli/*smotrelo na sebja.
five women looked-PL/N SG at themselves
- (93)a. Po dorođe domoj, pjat' mal'čikov zašli/zašlo
on way home five boys dropped-in-PL/N SG
 v magazin.
to store
- b. Vozvraš čajas' domoj, pjat' mal'čikov zašli/*zašlo
returning home five boys dropped-in-PL/N SG
 v magazin.
to store

The presence of the reflexive pronoun in (92b) or the gerund clause in (93b) forces plural agreement. Otherwise, both options are viable. I conclude that in the (a) examples the quantified phrases are either DPs in DP^{\wedge} position or QPs in DP^* position, but in the (b) examples they can only be DPs in DP^{\wedge} position. This follows under the assumption that only IP-specifiers can bind reflexives or control gerunds.⁷²

Interestingly, Serbo-Croatian displays none of these contrasts, as illustrated in (94) and (95).

- (94) Pet žena je kupilo/ su kupile
five women AUX-3SG bought-N SG AUX-3 PL bought-F PL
 ovu knjigu za sebe.
this book-ACC for themselves
- (95) Pet žena je to diskutovalo/ su
five women AUX-3 SG that-ACC discussed-N SG AUX-3 PL
 to diskutovale, idući kući.
that discussed-F PL going home

Either agreement option is possible, with the plural option as always marginal in that it reflects semantic agreement, despite the presence of

⁷² There are some possible counter-examples to both claims; cf. Greenberg and Franks (1991) for discussion. It may be that small clause subjects also exhibit these properties, in which case the relevant fact is not the location of the QP, but rather its categorial status.

the reflexive pronoun in (94) or the gerundive clause in (95). 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 a DP and as such must invariably raise to IP-specifier position.

Obligatory control constitutes another potential diagnostic and, indeed, in unequivocal structures of obligatory control, as defined in e.g. Williams (1980), Franks and Hornstein (1992), the plural is required in Russian (96).

- (96) Pjat' ženščin staralis'/*staralos' kupit' ètu
five women-GEN PL tried-PL/N SG to-buy this
 knigu.
book-ACC

As before, this restriction does not hold of Serbo-Croatian.

Consider one further consequence of the QP/DP dichotomy. According to Koopman and Sportiche, movement from DP^{\wedge} should show ECP effects and movement from DP^* should not. Hence, there should be a contrast in long-distance movement, corresponding to agreement morphology on the verb. This prediction is borne out (for Russian speakers who show ECP effects at all):

- (97) Skol'ko čelovek, [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 a DP it is an IP-specifier.

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 simply its category. One potential test that might distinguish between these two possibilities would be to see whether the effect in (92b) 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 (98), suggesting that categorial-mismatch is indeed relevant.

- (98) Pjat' studentov pomogali/*pomogalo drug drugu
five students-GEN PL helped-PL/N SG each other-DAT

na èkzamène.

on exam

Whether this constitutes the sole factor or not is unclear. An alternative explanation for (98) might be to maintain that the reciprocal requires its antecedent to raise at LF. Then, just as with reciprocal verbs such as *rasstat'sja* ‘to disperse’, selecting the QP in (98) would lead to a violation of the antecedent-government requirement on traces at LF, assuming CSR determines the trace to be a DP and antecedent-government requires categorial nondistinctness.

Another place where Russian and Serbo-Croatian differ has to do with the APPROXIMATIVE INVERSION construction. In Russian, when the noun appears before the numeral an approximative reading obtains. As the examples in (99) indicate, inversion appears to apply only to QPs, not DPs.

- (99)a. Studentov pjat' *sdali/sdalo èkzamen.
students-GEN PL five passed-PL/N SG exam
- b. Na stole *ležali/ležalo knig pjat'.
on table lay-PL/N SG books five
- About five books lay on the table.

Crucially, if the subjects in these examples were the uninverted *pjat'* *studentov* ‘five students’ and *pjat'* *knig* ‘five books’, the plural agreeing form would be perfectly acceptable.⁷³ These agreement facts suggest that

⁷³ Although approximative inversion does strongly favor nonagreement, the plural option is sometimes also possible. Relevant factors that to varying degrees improve the status of the plural include the following: (i) focussing the subject, either by intonation or word-order, (ii) use of certain nouns, such as *čelovek* ‘people’ in (99a), instead of *studentov*, and (iii) increasing the cardinality of the numeral. These all suggest to me that *semantic* agreement with the plural noun inside the QP – just as was noted for PP subjects – is at work here, rather than syntactic agreement with a nominative plural DP. An anonymous reviewer cites the following example from Pushkin:

(i) Odnaždy čelovek desjat' našix oficerov obedali
once people-GEN PL ten our-GEN PL officers-GEN PL lunching-PL
u Sil'vio.
at Sil'vio's
Once about ten of our officers were eating lunch at Sil'vio's.

Although speakers consulted found this agreement acceptable, they suggested that the plural sounded somewhat archaic and that a neuter verb would be preferable. Again, the noun here is *čelovek*, which for some reason allows for semantic agreement. Notice, however, that if approximative inversion cannot apply in argument DPs, then one would expect that at the stage of Old Russian described by Babby (1987), where numerals like *pjat'* were pure

the noun can apparently adjoin to QP but not to DP.⁷⁴ This assumption also explains why an approximative inversion phrase cannot antecede *drug druga*.

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

About five students were helping each other on the exam.

Although there is nothing semantically wrong with (100), both options are equally unacceptable, since adjunction of N requires a QP but the reciprocal requires a DP. Further corroboration of the fact that approximate inversion constructions are QPs is that they similarly cannot appear in any of the other obligatory DP positions discussed in this section; compare e.g. (101) with (96):

- (101) Ženščin pjat' *staralis'/*staralos' kupit' ètu knigu.
women-GEN PL five tried-PL/N SG to-buy this book
 About five women tried to buy this book.

The gloss again indicates that (101) is semantically well-formed.

Approximative inversion can also be used to support our analysis of the two possibilities in (84) in terms of the contrast between QP and DP. Approximative inversion forces taking the QP option when a paucal numeral is followed by a masculine animate noun; compare (102) with (84):

- (102)a. Ja videl soldata cetyre.
I saw soldiers-PAUC four

Ns and the paucals were pure As, approximative inversion should not have been possible. As far as I can tell, this appears to be true, although I have not examined the documents in any great detail. Wayles Browne and Laurie Langlois (personal communication) tell me that sources such as Drovnikova (1985, p. 66) and Bogusławski (1966, pp. 92 and 109) do not cite any approximative inversion examples before the early-mid sixteenth century. My main point in introducing the approximative inversion construction is to show that it is sensitive to the QP/DP dichotomy, although there clearly remain many open questions about its nature which are beyond the scope of this paper; cf. also note 74.

⁷⁴ Approximate inversion is however possible with adjunct DPs. This possibility also exists for adjunct PPs, with the noun adjoining directly to the PP, as in *dnja čerez dva*, 'days-PAUC in two', but is for some reason unavailable for PP arguments. This (imperfect) argument/nonargument asymmetry suggests an analysis in terms of adjunction to maximal projections since, following Chomsky (1986b), adjunction is limited to nonarguments. Why adjunction to argument QPs should be exempt from this is unclear; cf. Mel'čuk (1985) for details.

- b. *Ja videl soldat četyrëx.
I saw soldiers-GEN PL four-GEN

Since the animacy rule only applies to DPs but adjunction cannot take place to argument DPs, (102b) cannot be derived, as desired. Wayles Browne (personal communication) informs me that Ukrainian 'two', 'three', 'four' also provide interesting confirmation of this account. In this language the paucal numerals take nominative plural nouns, e.g. *dva dolary* 'two dollars-NOM PL'. In this respect it is unlike Russian but like Polish, as treated in the next section. However, when approximative inversion applies the genitive re-emerges, e.g. *dolariv dva* 'dollars-GEN PL two'. This is a welcome result, supporting my contention that approximative inversion applies only to argument QPs.⁷⁵

Whatever the reason for the adjunction restrictions exhibited by approximative inversion, a final important point is that this construction is absent in Serbo-Croatian. This fact follows from my claim that numeral phrases are never maximally QPs in this language. That this is not an accidental correlation is further suggested by the lack of the approximative inversion construction outside of East Slavic in general, since my tests applied to the other languages indicate that, outside of East Slavic, all numeral phrases are DPs. In the next section, I turn to one such language, Polish, and show how this particularly problematic language can be understood in a way consistent with my general approach.

4. EXTENDING THE ANALYSIS TO POLISH

In this paper I have argued for two intersecting parametric contrasts between quantified phrases in Russian and Serbo-Croatian. These are summarized in (103).

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

DPs obligatorily raise to IP-specifier position in order to receive nominative case; QPs do not. These oppositions extend proposals due to Babby

⁷⁵ Browne adds that Byelorussian, in which the paucal numerals behave similarly and which also has approximative inversion, does not change the noun from NOM to GEN, citing the example *praz dni dva* 'in days-NOM PL two'. Notice here that, unlike in Russian, the numeral does not adjoin to the PP; cf. note 74. Further investigation of this mysterious East Slavic construction is clearly required.

(1987) and Pesetsky (1982), thereby accounting for a range of differences between the two languages. The parametric approach thus supports their original analyses of Russian.

However, the important question of whether the parameterization in (103) can accommodate quantified phrases in the other Slavic languages remains. Support for the analysis of the differences between Russian and Serbo-Croatian might be drawn from these languages, provided they can be treated as variations on the above theme. Unfortunately, the behavior of quantified phrases in Polish presents several *prima facie* problems for the account of variation developed in this article. Concentrating as before on the type instantiated by *pięć* ‘five’ that assigns GEN-Q, we see that such quantified phrases are inconsistent with either pattern described so far.⁷⁶ In particular, most relevant tests indicate that quantified phrases in Polish are DPs, not QPs. With respect to tests for whether GEN-Q is structural or inherent, on the other hand, the data provided by speakers and reference grammars are sometimes in conflict, suggesting that the system is in flux and that whether GEN-Q is structural or inherent is to some extent a property of specific lexical items. After presenting the intricacies of the Polish system, I shall discuss how they can be understood within the range of the two parametric choices argued for above.

So far as I can tell, there is never any choice as to the verb form. With numerals that assign GEN-Q, the verb must always be in the neuter singular, as shown in (104).⁷⁷

- (104)a. Pięć kobiet głosowało przeciwko
five-NOM women-GEN PL voted-N SG against
Wałeśie.
Walesa-DAT
- b. Pięciu studentów głosowało przeciwko
five-GEN students-GEN PL voted-N SG against
Wałeśie.
Walesa-DAT

⁷⁶ The numerals *jeden*, *dwa*, *trzy*, *cztery* ‘one, two, three, four’ are adjectival in form and function. They thus agree with the head noun in case and, where possible, gender. As subjects, they also take agreeing verbs – the plural for *dwa*, *trzy*, *cztery* ‘two, three, four’ and the singular for *jeden* ‘one’. Higher numerals are similar to *pięć* ‘five’ as described in the text.

⁷⁷ Note that the form *pięciu* in (104b) reflects the fact that the head noun is masculine human. I return to the significance of this shortly.

Unlike in Russian, and even Serbo-Croatian, the plural option is never available.⁷⁸ This would seem to demonstrate that such quantified phrases are invariably QPs. However, they pass all the other subject/DP tests catalogued in section 3, such as controlling gerunds and infinitives and antecedent reflexives. Consider the following example of gerund control:⁷⁹

- (105) Pięć kobiet weszło do pokoju śpiewając.
five women-GEN PL entered-N SG to room-GEN singing

This shows that the DP option must therefore be available, drawing into question my initial contention that these are QPs.

Although, as in the other languages, in accusative positions the numeral assigns GEN-Q, in oblique positions the material following the numeral appears in the appropriate oblique case and the numeral declines and agrees, as in (106).

- (106)a. z pięcioma stołami
with five-INST tables-INST PL
 b. o pięciu kobietach
about five-LOC women-LOC PL

The fact that the oblique case spreads throughout the entire phrase implies that these must be DPs. I therefore conclude that Polish quantified phrases are only DPs and that some other explanation for the impossibility of plural agreement in (104) must be sought. Further corroboration of my rejection of the QP hypothesis for Polish can be found in the absence of the Russian approximative inversion construction in (99), since in this respect Polish also patterns like Serbo-Croatian.

Turning now to the issue of whether GEN-Q is structural or inherent in Polish, a similar conflict arises. Although the examples in (106) show that it can be structural, as in Russian, the fact that demonstratives may appear in the genitive before the numeral, as in Serbo-Croatian, argues that it is also inherent:

⁷⁸ An anonymous *NLLT* reviewer points out that Suprun (1963, pp. 140–141) found two Polish examples (out of a written corpus of 650 examples) with plural agreement with numeral phrases containing numbers ‘five’ and greater. Suprun regards these as deviations from the general rule of nonagreement, in which the remote possibility of semantic agreement occurs due to extraneous factors such as unusual distance between the subject and the verb. Speakers consulted judged both examples as unnatural and stilted in the modern spoken language; one was 19th century prose.

⁷⁹ This example is drawn from Dziwirek (1990), to which the reader is referred for further evidence that Polish quantified phrases display subject properties.

- (107) Tych pięć kobiet czyta książkę.
these-GEN PL five women-GEN PL reads-3SG book-ACC

Assuming the same structure as before, I maintain that the demonstrative in (107) moves to D after GEN-Q has been assigned and that the QP headed by *pięć* 'five' is assigning inherent case to its complement NP. We are thus in a quandary, since the evidence suggests that GEN-Q may be both structural and inherent in Polish. As we shall soon see, this conclusion is corroborated by the fact that genitive *tych* in (107) is not the only option.

Any approach to Polish that essentially treats it like Serbo-Croatian with respect to the choices in (101) leaves several empirical inconsistencies to be addressed. It turns out, however, that a single stipulation can account for all the divergencies from the Serbo-Croatian pattern. My solution is to claim that GEN-Q, be it structural or inherent, is only assigned in accusative DPs in Polish. Although I am unable to explain this stipulation, it is morphologically motivated and makes all the correct predictions about Polish's exceptionality. In order to see this, let us reconsider the form of the numeral in (102) – nominative *pięć* with a feminine noun and genitive *pięciu* with a masculine human (or VIRILE) one. Why should this discrepancy exist? It turns out that the only way to analyze these forms consistently is to treat them both as accusative.⁸⁰ The reason is that the accusative is syncretic with either the genitive or the nominative, depending on whether or not the noun is virile. Consequently, quantified subjects in Polish must be analyzed as accusative rather than nominative, as follows:

- (108) [_{DP:ACC} [_{QP} Q [_{NP:GEN-Q} . . .]]]

Although surprising, given that subjects are otherwise nominative in Polish, the assumption that GEN-Q is only assigned in accusative DPs readily explains all of the above phenomena, in addition to the morphological idiosyncracies of quantified subjects.

In particular, the reason that verbs never show plural agreement becomes absolutely trivial and straightforward: verbs only agree with DPs in the nominative, never the accusative.⁸¹ The neuter singular is thus the only viable option; even the possibility of marked semantic agreement, as in Serbo-Croatian, is virtually ruled out. Strong support for this approach

⁸⁰ See Schenker (1971) for arguments that quantified subjects in Polish are actually accusative. Although their accusative status seems incontrovertible, I can think of no structural reason why quantified subjects in Polish should be so marked.

⁸¹ See Dziwirek (1990, 1991) for detailed arguments that agreement is only with nominative subjects in Polish.

can be drawn from further data not yet mentioned. Although for most speakers prequantifiers in Polish appear only in the genitive, several reference grammars cite the alternative possibility of NOM PL.⁸² The form in question could however equally well be regarded as ACC PL. I interpret this to mean that GEN-Q may optionally be structural, so that the prequantifier may move out of the domain of the QP before GEN-Q is assigned. Surprisingly, even those speakers who accept this option only allow the verb to appear in the neuter singular, as in (109b).

- (109)a. Tych pięć kobiet pojechało do
these-GEN PL five women-GEN PL went-N SG to
 Warszawy.
Warsaw-GEN
- b. Te pięć kobiet pojechało do
these-NOM/ACC PL five women-GEN PL went-N SG to
 Warszawy.
Warsaw-GEN

This is in striking contrast to the pattern found in Russian (15), where the nominative demonstrative forces subject-verb agreement. If, however, we analyze the quantified phrase as accusative, then the failure of agreement follows immediately under the assumption that only nominative DPs can trigger subject-verb agreement. Note here that in making this claim I am crucially interpreting the *te* ‘these’ option in (109b) as an instance of ACC PL rather than NOM PL, contrary to traditional views. Thus in the modern standard language GEN-Q is inherent, although in older styles it was apparently structural, and this relatively recent change is still in some flux.

These assumptions have no other effect on the analysis. In oblique positions the accusative DP is disallowed, since the Theta-Criterion calls for the appropriate oblique case. Hence in (106), for example, the numeral agrees and is adjectival, as in Russian. The structure in (108) cannot be used, since the accusative DP will not satisfy the lexical requirements of the oblique case assigner and, by assumption, in Polish QPs only occur in accusative DPs. The Serbo-Croatian pattern is therefore disrupted.

Although the source of this accusative is unclear, it is worth noting that quantified subject DPs must raise to DP^\wedge position. This can be shown by their inability to support long-distance extraction, unlike Russian QP sub-

⁸² See Corbett (1983, pp. 218 and 240, note 3) and references therein.

jects, which I argued to be VP-specifiers. Polish exhibits the standard subject-object ECP asymmetry, as in (110).

- (110)a. Jaką książkę_i chcesz, żeby Janek przeczytał e_i?
which book-ACC you-want that Janek-NOM read
- b. *Jaki człowiek_i chcesz, żeby e_i przeczytał tę książkę?
which person-OM you-want that read this book-ACC

Interestingly, quantified subjects pattern like other subjects, so that (111) has the status of (108b) rather than (108a).

- (111) *Ilu studentów_i chcesz, żeby e_i przeczytało
how-many students-GEN PL you-want that read-N-SG
 tę książkę?
this book-ACC

This indicates that the quantified phrase must move from DP* to DP[^] position regardless of the fact that it bears accusative case. Thus, even if quantified subjects, for whatever reason, inherently bear accusative case in VP-specifier position, they are still in need of some further licensing.⁸³

I have argued that there is some vacillation in Polish as to whether GEN-Q is structural or inherent, although it is only assigned in accusative DPs and quantified phrases are consistently DPs regardless. The view that the status of GEN-Q fluctuates is also supported by the behavior of collective numerals in Polish, used for mixed gender groups of people, children and some animals. According to Schenker (1966, pp. 241–243), these items function like other cardinals except that they still govern GEN-Q in INST contexts, just as in NOM/ACC postions.⁸⁴ He thus contrasts accusative and instrumental (112) with dative and locative (113).

- (112)a. Mam pięciorgo dzieci.
I-have five-ACC children-GEN PL

⁸³ By ‘inherently’ I do not mean that this accusative is any different from the regular [−oblique] ACC, but rather that it is not structurally motivated. Freidin and Sprouse (1991) propose that inherently case-marked NPs in Icelandic still must move to subject position in order to be licensed; Sigurðsson (1991) argues that an NP must, in addition to having case, also be in a lexically governed position to be overt. See Zaenen, Maling and Thráinsson (1985) for an analysis of quirky case constructions in Icelandic.

⁸⁴ Schenker also classifies the genitive as agreeing rather than governing, as in *od pięciorga dzieci* ‘from five-GEN children-GEN PL’. Since it is impossible to tell the source of the genitive on the noun on the basis of the morphology, I include this with the other regular obliques.

- b. Jadę z pięciorgiem dzieci.
I-go with five-INST children-GEN PL

- (113)a. Pięciorgu dzieciom się nudzi.
five-DAT children-DAT REFL bored
 b. Siedzę przy pięciorgu chorych dzieciach.
I-sit by five-LOC sick-LOC PL children-LOC PL

This can be explained by assuming that, of the oblique forms, only the instrumental *pięciorgiem* in (110b) assigns inherent GEN-Q.⁸⁵ Interestingly, not all speakers share this judgment, some deeming (113) unacceptable and replacing it by (114).

- (114)a. Pięciorgu dzieci się nudzi.
five-DAT children-GEN PL REFL bored
 b. Siedzę przy pięciorgu chorych dzieci.
I-sit by five-LOC sick-GEN PL children-GEN PL

For such speakers all forms of collective numerals presumably govern inherent GEN-Q.⁸⁶ They have thus regularized the previously mixed system that characterizes collective numerals in the literary standard.

5. CONCLUSION

To summarize, I have extended Pesetsky's QP hypothesis and Babby's idea that GEN-Q is a structural case to handle conflicting data in other Slavic languages by regarding these as independent parametric choices. The option of alternatively analyzing a numerically quantified phrase as a QP or DP is instantiated only by Russian, whereas the issue of whether the genitive of quantification is treated as structural or inherent seems to show more variation, and the Polish facts indicate that this parameter is to some extent lexically driven. Let me conclude by speculating why this variation might exist. Babby (1987) demonstrates that originally numerals such as

⁸⁵ In Franks (1985), this and related facts are accounted for in terms of the idea that INST is the most marked case, bearing positive values for all case features, and is thus most resistant to change. Government by collective numerals in the instrumental reflects the adnominal origin of GEN-Q, as discussed by Babby (1987).

⁸⁶ Alternatively, one might consider these to be nouns taking the adnominal genitive, like nouns derived from numerals with the -ka suffix, e.g. *piątka* 'five'. Notice that they are distinguished from the NOM/ACC form by containing the -org- suffix (with the variant -ojg in collectives *dwoje* 'two', *troje* 'three' and *oboje* 'both'). However, the NOM/ACC form must also be analyzed as assigning GEN-Q, since it occurs with genitive prequantifiers: *tych pięciuoro dzieci* 'these-GEN PL five children-GEN PL'.

'five' were nouns, and as such took genitive NP complements, but later came to be reanalyzed as quantifiers. This change in categorial status raised the problem of whether to treat GEN-Q as inherent or structural. Since this case marking is not associated with any particular theta-role, but does nonetheless have some semantic properties in that it reflects quantifier scope, it is not a canonical instance of either inherent or structural case. Hence, both treatments were conceivable, and in Russian GEN-Q was assimilated to the structural cases and in Serbo-Croatian it was assimilated to the inherent cases, whereas Polish represents a mixed system. This 'neither fish nor fowl' account lends, I think, some plausibility to the idea that it might have a different status in the various languages. Additionally, the change from N to Q also raised the problem of how this element was to be combined with the nominal material in its scope. While the most direct approach was to regard the entire phrase as a DP, Russian also developed the possibility of analyzing it as a QP. If this approach to quantified phrases in Slavic is correct, then the QP/DP and structural/inherent choices vary independently, and all four possibilities might potentially be realized. Evidence for the structural/inherent dichotomy is fairly strong, since older, more conservative Polish goes one way and modern standard Polish the other.⁸⁷ The QP option is somewhat less clearly motivated, although one would expect to find a dialect exactly like Russian except that GEN-Q is inherent.

I argued that the structural/inherent dichotomy is an artifact of the Jakobsonian case feature [oblique], and thus ultimately depends on nothing more than what morphological case a DP bears. GEN-Q is thus a [-oblique] genitive. A consideration of the properties of distributive *po*-phrases in Russian supported this idea with the postulation of a [-oblique] DAT-Q. The syntax of *po* also corroborated and elaborated structural details of the DP analysis. Finally, the internal subject hypothesis was used, in conjunction with the idea that heterogeneous numeral phrases can be QPs in Russian, to account for a variety of contrasts between DP and QP subjects. Two important aspects of this analysis were that it explains why (i) the same contrasts are not found in languages in which

⁸⁷ Sorbian behaves similarly to Polish, except that in oblique contexts quantifiers neither show overt agreement nor block percolation; cf. Fasske (1987). This gives rise to such constructions as *z tří tysac wojakami* 'with three thousand soldiers-INST PL' and *z tými pjet' zralymi jabłukami* 'with these-INST, PL five ripe-INST PL apples-INST PL'. Interestingly, this property also extends to classifier nouns, as in *z kusk papjeru* 'with piece paper-INST', demonstrating that such nouns are true quantifiers. Such classifiers may also function nominally, in which case they assign GEN like any other noun: *z kuskom papjery* 'with piece-INST paper-GEN'. This is telling evidence for an independent quantifier category, with its own morphological characteristics.

numeral phrases are always DPs and (ii) why heterogeneous numeral phrases can be subjects of third singular neuter transitive verbs, a fact suppressed in other analyses that make use of QPs.

In describing Russian, the term ‘non-agreeing’ was used to refer to the third singular neuter option, although the analysis ultimately led to the conclusion that this form actually reflects syntactic agreement with an expletive subject, rather than with the QP in VP-SPEC position. This is to be distinguished from ‘semantic agreement’, which was used to refer to the choice of the plural option despite the availability of a syntactically appropriate singular agreement.⁸⁸ Although differentiating these two strategies is not always easy, I have argued that Russian differs from the other languages considered in that it offers two kinds of syntactic agreement, depending on whether the quantified phrase is a QP or a DP, whereas in the other languages quantified phrases are always maximally DPs, so that any variation in agreement is semantically motivated. Consequently, variation in Russian has interpretive consequences and can be a stylistic matter, whereas variation in the other languages is regarded as deviation from the norm.

Many details of these and other quantifier systems in Slavic remain to be worked out, and it is my hope that the speculations offered in this article will lead to further research into the idiosyncracies of quantification in Slavic and refinement of the principles and parameters model.

REFERENCES

- Abney, Steven: 1987, *The English Noun Phrase in its Sentential Aspect*, unpublished Ph.D. dissertation, MIT.
- Aoun, Joseph, Norbert Hornstein, David Lightfoot and Amy Weinberg: 1987, ‘Two Types of Locality’, *Linguistic Inquiry* 18, 537–577.
- Avrutin, Sergey: 1992, ‘Movement of Bound Variables’, *Third Leiden Conference for Junior Linguists*, Leiden, The Netherlands, pp. 1–16.
- Babby, Leonard: 1980a, ‘The Syntax of Surface Case Marking’, in W. Harbert and J. Herschensohn (eds.), *Cornell Working Papers in Linguistics* 1, Department of Modern Languages and Linguistics, Cornell University, pp. 1–32.
- Babby, Leonard: 1980b, *Existential Sentences and Negation in Russian*, Karoma Publishers, Ann Arbor.
- Babby, Leonard: 1984, ‘Case Conflicts and Their Resolution’, in W. Harbert (ed.), *Cornell Working Papers in Linguistics* 6, Department of Modern Languages and Linguistics, Cornell University, pp. 1–21.
- Babby, Leonard: 1985, ‘Prepositional Quantifiers and the Direct Case Condition’, in M. Flier and R. Brecht (eds.), *Issues in Russian Morphosyntax*, Slavica Publishers, Columbus, Ohio, pp. 91–117.

⁸⁸ This does not hold for the paucal numerals which, in Serbo-Croatian and Polish at least, take plural (or paucal) syntactic agreement; cf. notes 28 and 76, respectively.

- Babby, Leonard: 1986, 'The Locus of Case Assignment and the Direction of Percolation', in R. Brecht and J. Levine (eds.), *Case in Slavic*, Slavica Publishers, Columbus, Ohio, pp. 170–219.
- Babby, Leonard: 1987, 'Case, Pre-Quantifiers, and Discontinuous Agreement in Russian', *Natural Language and Linguistic Theory* 5, 91–138.
- Bailyn, John and Edward Rubin: 1991, 'The Unification of Instrumental Case Assignment in Russian', *Cornell Working Papers in Linguistics* 9, 99–126.
- Baker, Mark: 1988, *Incorporation*, University of Chicago Press, Chicago.
- Bernstein, Judy: 1991, 'DPs in French and Walloon', *Probus* 3, 101–126.
- Bogusławski, Andrzej: 1966, *Semantyczne pojęcie liczebnika i jego morfologia w języku rosyjskim*, Ossolineum & PAN, Wrocław.
- Borras, F. M. and R. F. Christian: 1971, *Russian Syntax*, 2nd edition, Clarendon Press, Oxford.
- Chomsky, Noam: 1981, *Lectures on Government and Binding*, Foris, Dordrecht.
- Chomsky, Noam: 1982, *Some Concepts and Consequences of the Theory of Government and Binding*, MIT Press, Cambridge, Massachusetts.
- Chomsky, Noam: 1986a, *Knowledge of Language: Its Nature, Origin, and Use*, Praeger, New York.
- Chomsky, Noam: 1986b, *Barriers*, MIT Press, Cambridge, Massachusetts.
- Chvany, Catherine: 1975, *On the Syntax of BE-Sentences in Russian*, Slavica Publishers, Columbus, Ohio.
- Chvany, Catherine: 1986, 'Jakobson's Fourth and Fifth Dimensions: On Reconciling the Cube Model of Case Meanings with the Two-Dimensional Matrices for Case Forms', in R. Brecht and J. Levine (eds.), *Case in Slavic*, Slavica Publishers, Columbus, Ohio, pp. 107–129.
- Corbett, Greville: 1978, 'Numerous Squishes and Squishy Numerals in Slavonic', in B. Comrie (ed.), *Classification of Grammatical Categories*, Linguistic Research, Inc., Edmonton, pp. 43–73.
- Corbett, Greville: 1979, 'Adjective Movement', *Nottingham Linguistic Circular* 8, 1–10.
- Corbett, Greville: 1983, *Hierarchies, Targets and Controllers: Agreement Patterns in Slavic*, Pennsylvania University Press, University Park.
- Crockett, Dina: 1976, 'The distributive *po* in Contemporary Russian', in T. Magner (ed.), *Slavic Linguistics and Language Teaching*, Columbus, Slavica, pp. 153–163.
- Dickey, Stephen: 1992, 'Serbo-Croatian Distributive *po*', paper presented at the Midwest Slavic Conference, Columbus, OH.
- Drovnikova, Larisa Nikolaevna: 1985, *Istorija čislitel'nyx v russkom jazyke*, Izd. Dal'nevostočnogo universiteta, Vladivostok.
- Dyla, Stefan: 1984, 'Across the Board Dependencies and Case in Polish', *Linguistic Inquiry* 16, 701–705.
- Dziwirek, Katarzyna: 1990, 'Default Agreement in Polish', in K. Dziwirek, P. Farrell and E. Mejias-Bikadi (eds.), *Grammatical Relations: A Cross-theoretical Perspective*, CSLI, Stanford, pp. 147–163.
- Dziwirek, Katarzyna: 1991, *Aspects of Polish Syntax*, unpublished Ph.D. dissertation, UCSD.
- Fasske, Helmut: 1987, 'Bemerkungen zur Syntax quantifizierender Lexeme (am Beispiel des Sorbischen)', *Zeitschrift für Phonetik, Sprachwissenschaft und Kommunikationsforschung* 40, 82–91.
- Fowler, George: 1987, *The Syntax of the Genitive Case in Russian*, unpublished Ph.D. dissertation, University of Chicago.
- Fowler, George: forthcoming, 'Oblique Passivization in Russian', *Slavic and East European Journal*.
- Franks, Steven: 1985, *Matrices and Indices: Some Problems in the Syntax of Case*, unpublished Ph.D. dissertation, Cornell University.
- Franks, Steven: 1986, 'Case and the Structure of NP', in R. Brecht and J. Levine (eds.), *Case in Slavic*, Slavica Publishers, Columbus, Ohio, pp. 220–243.

- Franks, Steven: 1990, 'On the Status of Null Expletives', *Lingua* **81**, 1–24.
- Franks, Steven: 1993, 'On Parallelism in Across-the-Board Dependencies', *Linguistic Inquiry* **24**, 509–529.
- Franks, Steven: in press, *Parameters of Slavic Morphosyntax*, Oxford University Press, New York.
- Franks, Steven and Norbert Hornstein: 1992, 'Secondary Predication in Russian and Proper Government of PRO', in R. Larson, S. Iatridou, U. Lahiri and J. Higginbotham (eds.), *Control and Grammar*, Kluwer, Dordrecht, pp. 1–50.
- Freidin, Robert: 1992, *Foundations of Generative Syntax*, MIT Press, Cambridge, MA.
- Freidin, Robert and Leonard Babby: 1984, 'On the Interaction of Lexical and Syntactic Properties: Case Structure in Russian', in W. Harbert (ed.), *Cornell Working Papers in Linguistics* 6, Department of Modern Languages and Linguistics, Cornell University, pp. 71–103.
- Freidin, Robert and Rex Sprouse: 1991, 'Lexical Case Phenomena', in R. Friedin (ed.), *Principles and Parameters in Comparative Grammar*, MIT Press, Cambridge, MA, pp. 392–416.
- Giusti, Giuliana: 1991, 'The Categorial Status of Quantified Nominals,' *Linguistische Berichte* **136**, 438–454.
- Greenberg, Gerald and Steven Franks: 1991, 'A Parametric Approach to Dative Subjects and Second Datives in Slavic', *Slavic and East European Journal* **35**, 71–97.
- Grimshaw, Jane: 1991, 'Extended Projection', ms., Brandeis University.
- Halle, Morris: 1990, 'An Approach to Morphology', *Northeast Linguistics Society* **XX**, Graduate Students Linguistic Association, University of Massachusetts, Amherst, Massachusetts, pp. 150–184.
- Jakobson, Roman: 1936/1971, 'Beitrag zur allgemeinen Kasuslehre: Gesamtbedeutungen der russischen Kasus', *Travaux du Cercle Linguistique de Prague* **VI**, reprinted in *Selected Writings* II, Mouton, The Hague, 154–183.
- Jakobson, Roman: 1958/1971, 'Morfologičeskie nabljudenija nad slavjanskim skloneniem', in *American Contributions to the IV International Congress of Slavists*, reprinted in *Selected Writings*, II, Mouton, The Hague, 154–183.
- Johnson, Kyle: 1991, 'Object Positions', *Natural Language and Linguistic Theory* **9**, 577–636.
- Koopman, Hilda and Domioique Sportiche: 1988, 'Subjects', ms., UCLA.
- Koopman, Hilda and Dominique Sportiche: 1991, 'The Position of Subjects', *Lingua* **85**, 211–258.
- Larson, Richard: 1985, 'Bare NP Adverbs', *Linguistic Inquiry* **16**, 595–621.
- Leko, Nedzad: 1987, *Syntax of Noun Headed Structures in Serbo-Croatian and Corresponding Phrasal Structures in English*, unpublished Ph.D. dissertation, Indiana University.
- Łojasiewicz, Anna: 1979, 'O budowie wyrażeń z przyimkiem po dystrybutywnym', *Polonica* **5**, 153–160.
- Mel'čuk, Igor': 1985, *Poverxnostrnyj sintaksis russkix čislovych vyraženij*, Wiener Slawischer Almanach Sonderband 16, Institut für Slawistik der Universität Wien, Vienna.
- Neidle, Carol: 1982, *The Role of Case in Russian Syntax*, unpublished Ph.D. dissertation, MIT.
- Neidle, Carol: 1988, *The Role of Case in Russian Syntax*, Kluwer, Dordrecht.
- Ouhalla, Jamal: 1990, 'Sentential Negation, Relativised Minimality and the Aspectual Status of Auxiliaries', *The Linguistic Review* **7**, 183–231.
- Ouhalla, Jamal: 1991, *Functional Categories and Parametric Variation*, Routledge, London.
- Padučeva, Elena: 1985, *Vyskazyvanie i ego sootnesennost' s dejstvitel'nost'ju*, Nauka, Moscow.
- Pesetsky, David: 1982, *Paths and Categories*, unpublished Ph.D. dissertation, MIT.
- Perlmutter, David: 1978, 'Impersonal Passives and the Unaccusative Hypothesis', *Proceedings of the Fourth Annual Meeting of the Berkeley Linguistics Society*, Berkeley, California, pp. 157–189.

- Pullum, Geoffrey: 1988, 'Citation Etiquette Beyond Thunderdome', *Natural Language and Linguistic Theory* 6, 579–588.
- Ritter, Elizabeth: 1991, 'Two Functional Categories in Noun Phrases: Evidence from Modern Hebrew', in S. Rothstein (ed.), *Perspectives on Phrase Structure: Heads and Licensing, Syntax and Semantics* 25, Academic Press, New York, pp. 37–62.
- Rizzi, Luigi: 1990, *Relativized Minimality*, MIT Press, Cambridge, Massachusetts.
- Sand, D. E. Z.: 1971, *Agreement of the Predicate with Quantitative Subjects in Serbo-Croatian*, unpublished Ph.D. dissertation, Univ. of Pennsylvania.
- Schenker, Alexander: 1966, *Beginning Polish*, Yale University Press, New Haven.
- Schenker, Alexander: 1971, 'Some Remarks on Polish Quantifiers', *Slavic and East European Journal* 15, 54–60.
- Shlonsky, Uri: 1991, 'Quantifiers as Functional Heads: A Study of Quantifier Float in Hebrew', *Lingua* 84, 159–180.
- Sigurbsson, Halldór: 1991, 'Icelandic Case-marked PRO and the Licensing of Lexical Arguments', *Natural Language and Linguistic Theory* 9, 327–363.
- Speas, Margaret: 1990, *Phrase Structure in Natural Language*, Kluwer, Dordrecht.
- Suprun, A. E.: 1959, *O russkix čislitel'nix*, Frunze, Kirgizskij gosudarstvennyj universitet.
- Suprun, A. E.: 1963, 'Zametki po sintaksisu pol'skix čislitel'nyx', *Pytannja slov'lansk'oho movoznavstva* 7–8, 135–145.
- Szabolcsi, Anna: 1991, 'The Noun Phrase', ms., UCLA.
- Toman, Jindřich: 1992, 'Kase as a Functional Projection', ms., University of Michigan.
- Travis, Lisa: 1984, *Parameters and Effects of Word Order Variation*, unpublished Ph.D. dissertation, MIT.
- Valois, Daniel: 1991, *The Internal Structure of DP*, unpublished Ph.D. dissertation, UCLA.
- Williams, Edwin: 1980, 'Predication', *Linguistic Inquiry* 11, 203–238.
- Zaenen, Annie, Joan Maling and Höskuldur Thráinsson: 1985, 'Case and Grammatical Functions: The Icelandic Passive', *Natural Language and Linguistic Theory* 3, 441–483.

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Department of Linguistics
 322 Memorial Hall
 Indiana University
 Bloomington, IN 47405
 franks @ UCS.Indiana.edu.