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**[Formal]
Approaches
to [Slavic]
Linguistics**

*The College Park
Meeting*

1994

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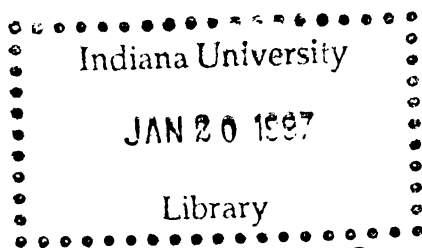
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*The College Park Meeting
1994*

edited by
Jindřich Toman



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The editor would like to thank the Department of Linguistics of the University of Maryland, above all David Lightfoot, for providing an inspiring environment for the workshop. Sincere thanks go also to Ian Roberts, who kindly followed the organizers' invitation to participate in the workshop with a key-note address.

The Editor

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Inflectional Morphology and Theta Role Suppression

Leonard H. Babby Princeton University

1.0 Introduction

Recent work on theta theory and argument structure (AS) has made it possible to propose truly explanatory analyses for many aspects of the relation between morphology and syntax.¹ This paper deals with the representation of argument structure, the morpholexical rules that operate on AS (altering the basic inventory and distribution of its theta roles), the mapping of derived argument structure onto syntactic (X-bar) structure, and, most important, the role that individual suffixes play in the alteration of a predicate's initial of AS.

The role played by **derivational** morphology in the alteration of a predicate's initial (base) AS has received a great deal of attention in the recent literature (e.g., the role of affixation in passive and causative derivations). We shall be concerned here with the relation between **inflectional** morphology and AS, which has received far less attention. The paper's main hypothesis is that there are inflectional suffixes in many languages that have two uses, a canonical (primary) use, which does not affect the base predicate's AS, and a noncanonical (secondary) use, which affects the realization of the predicate's theta roles in certain highly restricted ways. The latter use thus mimics the effects normally associated with derivational affixation, blurring still further the traditional distinction between derivational and inflectional morphology (see DiSciullo and Williams 1987:69; Lapointe 1979). Our goal here is to demonstrate the explanatory power of the proposed dual-function analysis of inflectional suffixes by looking at the following Russian phenomena: (i) the neuter singular third person short form suffix **-o** in its canonical predicate-agreement role in "personal" sentences and its noncanonical role in the derivation of impersonal sentences (see (3)); (ii) the parallel neuter singular third person long form suffix **-oc** in its canonical role as an attributive-agreement suffix and in its

noncanonical role in the derivation of what we shall refer to below as **-oc** nominalizations (see the examples in (9))(see Babby 1973 and 1975c for a case-theoretic analysis of the morphosyntactic differences between the long and short forms of adjectives and participles; see Bailyn 1993 for a different proposal); (iii) a theta-theoretic interpretation of the canonical and noncanonical uses of the **-SJA** suffix on basic transitive verbs; (iv) the two functions of the third person plural suffix.

2.0 **Basic Assumptions.**

We shall assume the theory of word structure and theta role assignment proposed in DiSciullo and Williams 1987 and Williams 1994. Most important for our analysis of the Russian inflectional suffixes mentioned above are the following two assumptions. (i) Affixes may have their own lexical entries and AS (for example, productive morphological causativization can be analyzed in terms of a causative suffix that has its own external agentive argument and takes the lexical predicate along with its entire initial AS as its "complement"). (ii) Unlike the definition of head at the phrasal level, the head of the word is defined as the right-most constituent of the word. This definition holds as long as we recognize the notion of "relativized head": if the head lacks a certain property that is essential for the well-formedness of its maximal projection, this property can be supplied by the head's complement (see Williams 1994).

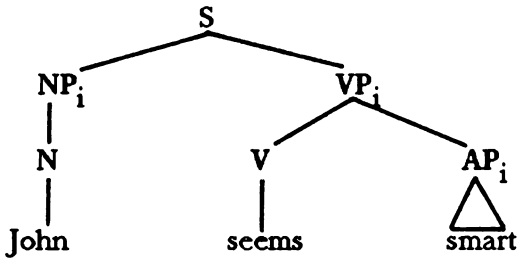
At the center of the controversy over the relation between morphology and syntax is the question of precisely where affixation takes place. According to the Autonomy Hypothesis (Bowers 1984; Williams 1994 refers to it as "atomicity"), which forms the basis of the analyses proposed below, affixation occurs exclusively at the word level (see S. Anderson 1982 for a different view). Thus the word is autonomous in the sense that its internal structure is opaque with respect to the effects of syntactic rules: they can neither add morphological material or features to the word nor can they extract or rearrange the internal constituents of the word. The Autonomy Hypothesis, if applied consistently,

requires that we reconsider a number of basic morphosyntactic phenomena. For example, subject-verb agreement cannot be treated as a rule that copies certain features of the subject noun onto the verb, where they are "morphologically realized" as the appropriate ending (see Babby 1976). Under the Autonomy Hypothesis, subject-verb agreement must be conceived as **checking** the inflectional features (gender, number, person, etc.) of fully formed words rather than as a syntactic rule that copies these features from subjects onto adjective and verbal stems (see Chomsky 1981).²

The Autonomy Hypothesis does not claim, however, that word structure and phrase structure are entirely isolated from each other. For example, features supplied by morphemes percolate to the maximal projection of the word, which is itself the head of the phrase at the next level; for discussion of the ways word structure and phrase structure communicate, see Bowers 1984, Babby, to appear. Thus each linguistic level has its own distinct set of primitives and rules for combining them, and the output of the rules of one level forms the primitives of the next highest level: morphemes (stems (-X), affixes) combine to form words (X), which are primitives at the phrasal level; words combine to form phrases (maximal projections of words (XP)); phrasal maximal projections combine to form clauses.

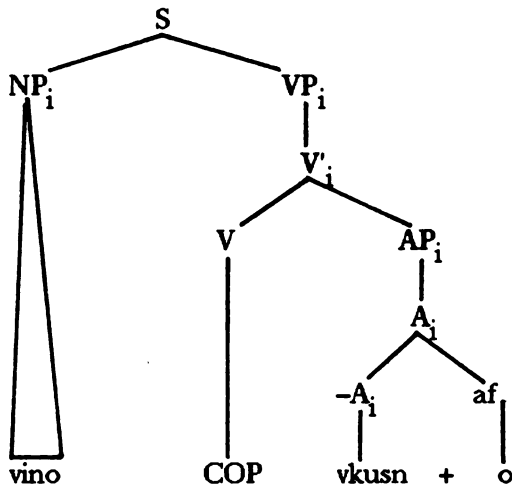
Theta theory allows two kinds of relations: theta-role assignment and functor relations. A functor on X is defined as anything that combines with X without changing its theta structure. Williams (1994:220) observes that function composition "obtains when the head of the complement juncture does not have an external argument: the external argument of the complement becomes the external argument of the whole juncture." (1) is an example of function composition at the syntactic level. **Seems**, which is the head of VP, has no external argument; thus the external argument of the adjective ("i" designates its index) is percolated to VP and then, at the clause level, is assigned to the subject NP under predication. Our claim is that function composition in Russian operates at the word level as well.

(1)



Inflectional suffixes in their canonical use are functors. (2) is a schematic representation of (canonical) subject-predicate agreement (e.g. **Vino vkusno** 'the-wine (neut-sg-nom) is good (neut-sg)'). ("COP" stands for the copula **byť** 'be,' which in Russian is phonologically null in the present tense).

(2)



The inflectional affix (af = **-o**) combines with the adjective stem (**-A**) in word structure, which is the domain of X-bar structure dominated by the lexical category **A** in (2). Since af, which is the head of the word by virtue of its position, does not have its own external theta role, the external theta role index i of the adjective stem percolates to the maximal projection of the word (**A**); this is

the word-level instantiation of function composition. The *i* index then percolates from the phrasal head *A* to its maximal projection *AP* and then to *VP* (this is possible since the copula, which is the head of *VP*, does not have its own external theta role to pass up), forming a one-place *VP* predicate; the *i* index is then assigned to the subject *NP* under predication in clause structure. Williams (1994:209) defines theta-binding as follows: *X* is theta bound if there is a theta role *c*-commanding *X* and coindexed with *X*. It is in this sense that the canonical use of agreement inflectional morphology involves the establishment of a binding-relation between the subject and the verb or predicate adjective (see (2)).

Our main hypothesis is that in their noncanonical use, the suffixes **-o** (in impersonal sentences) and **-oe** (in nominalizations) are not functors since they induce syntactic structures which do not have this theta-binding relation between the subject and the verb. This is because, as we shall argue below, the non-canonical use of these suffixes invariably involves **suppression** of the predicate's external theta role, and no coindexation is therefore possible between the subject and the verb, which is criterial in the definition of theta-binding (for discussion of the suppression of theta roles and the notion of implicit theta roles, see Grimshaw 1990, Brody and Manzini 1988). In other words, the suffixes **-o** and **-oe** in their noncanonical use both head word-level maximal projections to which the stem's external theta role index *i* does not percolate.

3.0 Noncanonical Use of the **-o** Suffix

If a predicate has an initial external theta role, special morphology is normally required when this theta role is not realized as the syntactic subject. For example, in both passivization and nominalization, the verb's external theta role is suppressed (more specifically, made implicit); this explains why in Russian the suffix **-en-** is used in both constructions (see Babby 1993a:37–40) and why both constructions have the same optional instrumental-case "argument adjunct", which is licensed by a suppressed external theta role (see Grimshaw 1990 for discussion of argu-

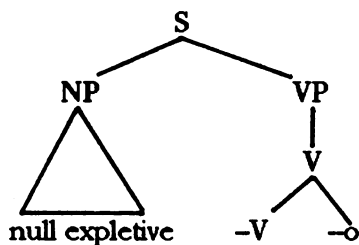
ment adjuncts). For example: **Vosstanie podavl-en-o imi** 'The rebellion was repressed by them' and **podavl-en-ic imi vosstanija** 'the repression of the rebellion by them.' In the case of impersonalization, the predicate's external theta role is eliminated from the derivation rather than being made implicit; in Russian, the neuter third person singular suffix **-o** is affixed to the verb or adjective in impersonals. Our claim is that **-o** affixation in the derivation of impersonal sentences should be analyzed as part of impersonalization, a morpholexical rule that eliminates the external theta role from the predicate's AS, rather than being analyzed as a form of "default" agreement that occurs when there is no subject for the verb to agree with, as was often proposed in the earlier literature (see Babby 1976:258 and 1974 for discussion). The default analysis is not consistent with the Autonomy Hypothesis since it requires that affixation be directly dependent upon the syntactic structure. The following are examples of typical Russian impersonal sentences (the adjective **polno** 'full-of' assigns genitive case to its complement).

- (3) a. V restorane vsegda polno inostrancev.
 in restaurant:masc always full:neut-sg foreigners:gen-pl
 'The restaurant is always full of foreigners'
- b. V bare okazalos' pusto.
 in bar:masc turned-out-to-be:neut-sg empty:neut-sg
 'The bar turned out to be empty'
- c. Otdača byla takaja, što ego sbilo s nog.
 recoil:fem was such that him knocked:neut-sg off feet
 'The recoil was so strong that it knocked him off his feet'
- d. Ego tošnilo ot zapaxa.
 him:acc-masc nauseated:neut-sg from smell:gen-masc
 'The smell nauseated him'

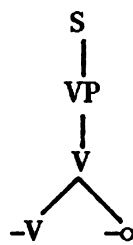
(**Otdača**, which is feminine singular, cannot be construed as the (pro) subject of the verb **sbilo** in the subordinate clause in (3c) because it is neuter singular; see Babby 1994 for a theta-theoretic analysis of adversity impersonal sentences like (3c)).

Essentially two kinds of impersonal predicates can be identified in Russian: (i) lexical impersonals, whose initial AS specifies the absence of an external theta role and external categorial argument (see (3d)); these verbs never have an overt subject, and (ii) derived impersonals, whose initial AS contains an external theta role (normally an agent) which is eliminated by the lexical rule of impersonalization (see (3a) and (3c); see Babby 1989 for discussion). There appears to be general agreement that impersonalization invariably involves the elimination of the predicate's external theta role. But this is where the agreement ends. Two competing representations of the morphosyntax of derived impersonal sentences in Russian are found in the literature: the GB analysis (e.g., Sobin's 1985 analysis of transitive impersonal passives in Ukrainian), and the subjectlessness hypothesis proposed in Babby 1975a, 1975b, 1989 and 1994, which allows for the possibility of zero-place predicates in natural language. They are schematically represented in (4a) and (4b) respectively. Note that in both representations the verb stem's external theta role index *i* is missing and, therefore, no *i*-index is available to percolate to VP (cf. (2)).

(4) a.



b.



According to the GB analysis, all clauses in all languages have a subject NP position (see the Extended Projection Principle in Chomsky 1981, 1986). Thus English impersonal sentences require the overt expletive *it*, which is the only lexical item that can fill a subject position to which no theta role is assigned, because sentences with lexically unfilled NPs are ill-formed. Since Russian impersonal sentences have no overt subject noun,

the Extended Projection Principle forces us to assume that there is a neuter singular null expletive heading the obligatory subject NP and, therefore, that the neuter singular affix $-\text{o}$ in Russian impersonals is simply an instance of ordinary subject-predicate agreement (cf. agreement with the null feminine singular "pro" subject in sentences like: **Ona pogljadela na nego tak, slovno (pro) umoljala (pro) počadit' ee.** 'She looked at him as though (she) was begging (him) to spare her'). However, if the neuter singular suffix $-\text{o}$ in impersonal sentences is explained in terms of agreement with a null expletive, that means that the elimination of the predicate's initial external theta role in Russian impersonal sentences is anomalous because it is accomplished by a lexical rule that is not accompanied by affixation. I have presented a number of different arguments in Babby 1975b, 1989 and 1994 that impersonal sentences in Russian are in fact subjectless, as in (4b) (there is no empirical evidence for either a subject position or a null neuter subject noun for the predicate to agree with in impersonal sentences like those in (3)). Rather than reproduce the argumentation from these articles, I will present new data from related languages that argue in favor of treating $-\text{o}$ in Russian as an "impersonal ending" whose affixation is **directly** associated with the elimination of the predicate's external theta role.³

This discussion of subjectlessness must not, however, obscure our main point: what is important here is the nature of the relation between the inflectional suffix that is used in impersonal sentences and the absence of the external theta role specified in the predicate's initial AS. Our hypothesis is that this relation is direct and systematic.

3.1 Impersonal Sentences in Ukrainian and Lithuanian.

Ukrainian is an East Slavic language that is very closely related to Russian. Like Russian, it employs the suffix $-\text{o}$ in impersonal sentences (cf. (5)), but, unlike Russian, it uses the suffix $-\text{e}$ (a contraction of the long form $-\text{oe}$) when the subject NP of a personal sentence is headed by an overt neuter singular noun (cf. (6)).

((5a) and (5b) are impersonal transitive passives; see Sobin 1985, Babby 1989 for discussion.)

- (5) a. Litak zbyto (*zbyte).
 airplane:acc-masc-sg shot-down:-o shot-down:neut-sg
 'The airplane has been shot down'
- b. Rabotu vykonano (*vykonane).
 work:acc-fem-sg completed:-o completed:neut-sg
 'The work has been completed'
- c. S'ohodni dušno (*dušne)
 today warm-o warm:neut-sg
 'It is warm today'
- (6) a. Sino skošene (*skošeno).
 hay:nom-neut-sg mown:neut-sg
 'The hay has been mown'
- b. Pole zasijane (*zasijano) zernom.
 field:nom-neut-sg sown:neut-sg with-wheat
 'The field has been sown with wheat'

The suffix $-\text{ø}$, which is historically the neuter singular short form, has been specialized in modern Ukrainian for use in impersonal sentences, which have no overt subjects, just as in Russian; in other words, $-\text{ø}$ has become an impersonal ending in Ukrainian. The null-expletive analysis applied to Ukrainian requires not only that there be a subject NP in overtly subjectless sentences like those in (5) and that this subject NP be obligatorily headed by a null expletive; it also requires that this null expletive be the only noun in the language that induces $-\text{ø}$ agreement, i.e., it requires that we posit what amounts to a "fourth gender" for one null lexical item. Thus while the null neuter singular expletive analysis may seem plausible in Russian because of the homophony of the neuter singular ending $-\text{ø}$ and the impersonal ending $-\text{ø}$, it is far less plausible in Ukrainian, where this homophony has been eliminated.

Lithuanian evidence against the null expletive + agreement analysis of impersonal sentences is particularly convincing. While Lithuanian has lost all its neuter nouns (they were dis-

tributed among the masculine and feminine nouns), it has maintained what was historically the neuter singular predicate agreement suffixes for use in impersonal sentences, which have no overt subject noun, just as in Russian and Ukrainian (see (7)): **gražu** is historically the neuter singular form of the adjective (**gražus** is masculine and **graži** is feminine).

- (7) a. Čia labai gražu.
 here very beautiful:neut-sg
 'It is very beautiful here'
 b. Man šalta.
 me:dat cold:neut-sg
 'I am cold (= I feel cold)'

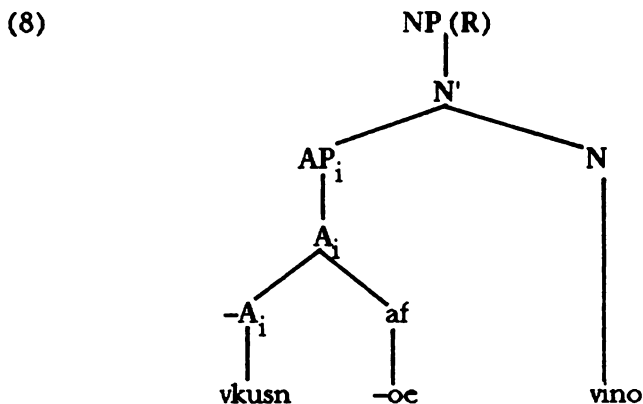
If we claim that a sentence like (7a) has a null expletive subject, then we must also assume that this null pronoun imposes its own unique agreement suffix on the predicate (cf. Ukrainian) or, alternatively, that it is the only neuter noun in the language.

The situation is in Russian essentially the same as that in Ukrainian and Lithuanian; it is only the homophony of the neuter singular agreement morphology and the impersonal suffix in Russian that obscures this. What appears to have happened is that these three languages have all developed an impersonal ending from a neuter singular inflectional suffix, and that its function is to mark the elimination of the external argument from the predicate's initial AS as part of a morpho-lexical rule that is analogous to more familiar lexical rules like passivization and nominalization, which also alter a predicate's AS by displacing its external argument and marking this alteration with a specific suffix. This proposal is patently better than the null expletive + agreement analysis because it requires fewer empirically unsupported assumptions, i.e., a subject NP in sentences that cannot have an overt subject, null expletives in languages which do not have overt expletives, and special agreement patterns needed exclusively to account for these null categories.

4.0 Canonical Use of the *-oe* Suffix

We shall argue in this section that the neuter singular long form attributive suffix *-oe*, parallel to the neuter singular short form predicate suffix *-o*, has both a canonical (functor) use and a non-canonical use, the latter affecting the realization of the predicate's external theta role.

The canonical use of *-oe* suffixation can be illustrated by the internal structure of the NP *vkusnoe vino* 'good (nom-neut-sg) wine (nom-neut sg)' in (8); R is the external argument of NPs (see Williams 1992, 1994 and Grimshaw 1990 for discussion).



The adjective or participle stem *-A* combines with the *-oe* suffix at word level; since *-oe*, which is the head of the word, has no external argument of its own, the external theta-role index *i* of the stem percolates to the maximal projection of the word (*A*) under function composition (cf. (2)). At the phrase-level, the *i* index on *A*, the head of the phrase, percolates to *AP*, the maximal projection of the adjective phrase. The external argument of *AP* is satisfied inside the maximal projection of *NP* by the head noun (*vino*), which is its sister in (8). Thus it is never the case that the external argument *i* of a long form *AP* is passed up to the maximal projection (*NP*) of a noun phrase in which *AP* has an attributive function. This entirely uncontroversial fact will turn

out to play a crucial role when it comes to deciding between the two rival hypotheses proposed below to account for the noncanonical use of the **-oe** suffix.

It was demonstrated in Babby 1973 and 1974 that the distribution of the long and short forms of the adjective in Russian is to be explained in terms of case. Long forms have a case feature while short forms do not, which accounts for their syntactic distribution: long forms can occur NP internally, where case is required. Short forms occur in VP positions where case is not assigned; this is why short forms of the adjective and participle have an exclusively predicate function in modern Russian (see Babby 1973 and 1975c for discussion of the predicate use of long form adjectives).

4.1 Noncanonical Use of the **-oe** Suffix.

The examples in (9) illustrate the noncanonical use of the **-oe** suffix: these adjectives and participles have the same case and syntactic distribution as NPs, and are referred to in the traditional literature as substantivized adjectives (see Lopatin 1967). It is important to note at the outset that this use of the **-oe** suffix cannot be accounted for in terms of an elliptically deleted neuter singular head noun or pro (e.g., an overt head noun or pronoun cannot be introduced in (9b): **zarabotannoe** 'what is earned' (nom-sg-neut) refers to money and **den'gi** 'money' is pluralia tantum in Russian).⁴

- (9) a. Anna otkryla porazitel'noe: Čexovyx dva.
 Anna discovered amazing:neut-sg Čexovs:gen-pl two
 'Anna discovered an-amazing-fact: there are two Čexo
 b. V buduščem postarajus' obxodit'sja
 in future I-will-try to-get-along-on
 zarabotannym.
 what-I-have-earned:inst-neut-sg
 'In the future I will try to get along on what I have earned'
 c. Ona vernula otcu ukradennoe.
 she returned to-father what-had-been-stolen:acc-neut-sg

- 'She returned to her father everything that had been stolen'
- d. V našej žizni byvaet vsjakoe.
 in our life occurs all-sorts-of:neut-sg
 'All sorts of things happen in our lives'
- e. Prišla moda na irracional'noe.
 arrived vogue for irrational:neut-sg
 'The irrational has come into vogue'
- f. On sbrosil gnet nakopivšegosja.
 he cast-off burden what-had-accumulated:gen-neut-sg
 'He cast off the burden of all those things that accumulated'
- g. V skazannom mnoju est' svoj smysl.
 in said:loc-neut-sg by-me is its:reflex sense:nom-masc-sg
 'What was said by me makes sense'

4.2 Hypothesis I: Null-head Agreement.

Below we will briefly explore two plausible analyses of the **-oe** suffix's function in (9). The most obvious hypothesis is that the use of the **-oe** nominals in (9) is to be accounted for in terms of agreement with a null neuter third person singular head noun. This means in effect that the internal structure of, say, **zarabotannoe** 'what has been earned' in (9b) is essentially identical to the structure of the NP in (8), the only significant difference being that in (9b) the head of the NP is phonetically null. This proposal is initially attractive because it enables us to reduce all the uses of **-oe** to attributive agreement, i.e., there is no need under Hypothesis I to claim that **-oe** has a noncanonical use (this is parallel to the null expletive + agreement analysis of the **-o** suffix in impersonal sentences discussed above). But this analysis of **-oe** has a number of drawbacks. It requires a special null lexical item that cannot be identified with *pro*, the putative null neuter singular expletive that has been proposed to account for the occurrence of the **-o** suffix (see section 3 above), or any of the other null categories that have been proposed in the literature.

The most serious problem with the null-head hypothesis is semantic. Positing a null neuter singular lexical item with which the **-oe** adjective or participle enters into an attributive

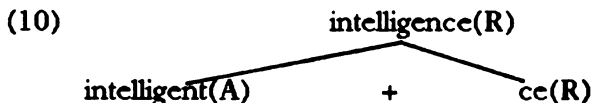
relation does not account for the meaning of **-œ** nominals: the reference of the **-œ** phrase in sentences like those in (9) appears to be that of the adjective or participle stem's external theta role, which could not be the case if **-œ** were modifying a head noun, overt or null. As we saw above in section 4.0, the external argument R of noun phrases, which determines the NP's reference, is not the same as the external theta role of an AP that modifies the head noun (e.g., the i-index of the adjective's external argument in (8) does not percolate to the maximal projection NP or serve as its reference). For example, the reference of **zarabotannœ** in (9b) is understood to be its external theta role (which is itself the initial direct internal "patient" theta role of the corresponding verb **zarabotat'** 'to earn,' from which it is derived; see the details below in section 4.2). If there were a null neuter singular head noun modified by **zarabotannœ** in (9b), we would not expect this NP to have the external theta role of **zarabotannœ** as its referent; it would be satisfied NP-internally in its modifying function. The hypothesis we shall propose in section 4.2 accounts for just these semantic facts.

4.3 Hypothesis II: **-œ** Nominalizations.

According to our second hypothesis, the **-œ** suffix in sentences like (9) has a secondary, noncanonical function that is radically different from its canonical modifying function represented in (8). Our claim is that **-œ** behaves like a typical nominalizing suffix. More specifically, **-œ** is affixed to adjective or participle stems as part of a morpholexical operation that introduces a new external argument R (which is the external argument of non-derived nominals as well), suppressing the stem's initial external argument. Thus, according to hypothesis II, the primary function of **-œ** suffixation in the derivation of deparicipial and deadjectival nominals like (9) is the conversion of theta role assigners (predicates) into theta role assignees (nominal arguments).

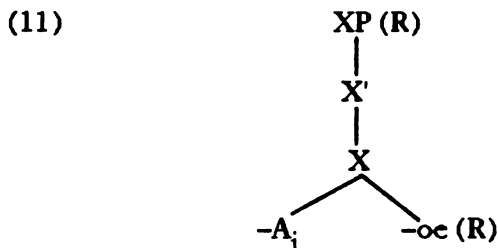
Williams' (1994:99) derivation of **intelligence** from **intelligent** is a particularly clear example of this kind of nominalization. He

notes that " the predicate **intelligent** is strictly a predicate and must assign its theta role. However, the form **intelligence** does not assign the theta role that **intelligent** assigns. In fact, it has "internalized" that theta role (call it the A-role) and supplied another one (call it the R role) that permits it to head a phrase that occupies an argument position." Williams represents this derivation as in (10).



Note that in (10) the new external argument R of the derived word is the external argument of the nominalizing suffix **-cc**.

The structure in (11) is a first approximation of the derivation of **-oc** nominals: *i* is the index of the adjective stem's external theta role (note that it does not percolate to XP); everything dominated by X is in the domain of word structure.



While Williams' account of **intelligence** nicely illustrates the essential properties of deadjectival nominalization, it cannot be taken over intact as a model for **-oc** nominalization. This is because, as noted above in section 4.2, the reference of **-oc** nominals appears to be the base adjective's external theta role; this is not true in the case of **-cc** nominals and cannot be captured in (11) as it stands.

The representation in (11) raises two crucial questions: (i) what category is X, and (ii) how can the external theta role *i* of the adjective (or participle) base (-A) be understood as the referent of

the XP phrase if it is suppressed ("internalized") as part of a nominalization operation that introduces R as the derived nominal's external argument (see (10) and (11))? The formalism needed to answer the second question has already been proposed in the literature (see Rappaport Hovav and Levin 1992, Grimshaw 1990: 125); the first question turns out to be more complex and we will return to it below after discussing the second question.

We need to briefly consider some other universal properties of nominalization before going on. The literature on nominalization has focused on what are referred to as event or action nominals (see Chomsky 1970, Comrie and Thompson 1985): the argument structure of the base verb is maintained intact except for the external argument, which is made implicit and can license an argument adjunct like the **by** phrase in English and the instrumental case NP in Russian. The referent of this kind of nominalization is the event that is denoted by the base verb. There is, however, another common type of nominalization, e.g., agentive nominalizations, instrument nominalizations, locative nominalizations, etc. (see Comrie and Thompson 1985 for a complete survey). All of these nominalizations have one property in common (as opposed to event nominalizations): the referent of the derived NP is one of the base verb's arguments, not the event denoted by the base verb; we will refer to this as "argument nominalization" (as opposed to event nominalization). Let us consider the so-called agentive or **-er** nominalization in English since it turns out to share a crucial property with **-oe** nominalization. Rappaport Hovav and Levin (1992:143) define **-er** nominals as entities "understood as the external argument of the verbs from which they are derived." This means that the external argument of the base verb stem (*i* in (11)) corresponds to the referent R of the nominal derived from it. For example, the nominal **killer** (=one who kills) has as its referent the external argument (agent) of the verb **kill**. **-oe** nominalization in Russian works in much the same way as **-er** nominalization: the external argument of the base predicate (adjective or participle) is made the referent of the entire nominal.

We can summarize as follows. **-oe** in its noncanonical use is typical of nominalizing suffixes: it both supplies the derived nominal with a new external argument R (its referent) and "internalizes" or suppresses the base adjective's external theta role *i*, making it part of the derived nominal's lexical semantics.⁵

One more step is needed to complete this picture. We must explain how the "internalized" external theta role of the adjectival base is contrued as the **-oe** nominal's referent if R has been made its external argument? Our answer to this question is based in Grimshaw's (1990:66) treatment of the derivation of adjectival passives. She suggests that **R binds one of the base predicate's arguments**, i.e.: "We can construct a system ... in which R is identified with an argument of the base. Which argument it is identified with is a function of the affix that is added, so the affix must specify which kind of argument it binds. Roughly, the affix **-ee** binds a patient argument, **-er** binds an external argument, and **-ion** binds something like a theme ..." (Grimshaw 1990:66). Thus affixation of the nominalizing affix **-oe** to the base adjective or participle introduces a new external argument R, which binds the stem's initial external argument, just as in the case of **-er** suffixation. This accounts explicitly for the impression that the referent of the whole derived nominal is the base participle or adjective's suppressed external argument.

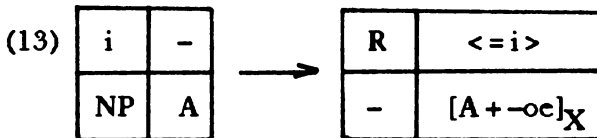
We can employ Grimshaw's notation to represent argument nominalization in Russian. If $(i(k))$ is an initial argument structure with an external argument *i* and an internal argument *k*, then the essentials of **-oe** and **-er** nominalization can be represented as in (12):

$$(12) (i(k)) \longrightarrow (R <= i > (i(k)))$$

The binding of the initial external argument *i* by the new external argument R, which is introduced as part of the nominalization operation in (12), is represented as $R <= i >$, i.e., "R binds *i*."

We will represent **-oe** nominalization below by means of the morpholexical rules proposed in Babby 1989, 1993a, 1993b, 1994); see (13). The top row designates the semantic arguments (theta

roles) and the bottom row the corresponding categorial arguments. There is one external argument (to the left of the predicate V, A, etc.). The rest are the nonexternal arguments: the internal arguments and, in the slot associated with the predicate, implicit arguments (in derivations involving passivization and event nominalization) and bound arguments (in argument nominalizations like (13)). In the morpholexical rule of **-oc** nominalization given in (13), R is the new external argument of the nominal and it binds the external argument *i* of the adjectival or participial stem in the derived AS on the right:



Placing < = *i* > in the vacant slot associated with [A + **-oc**] indicates *i* is internalized as well as bound by R (cf. passivization, in which *i* is made implicit, which can be defined in this formalism as being internalized without being bound (see (15) and Babby 1993a and 1993b for details). R does not have a corresponding categorial argument in (13), which captures the fact that nominals do not have their own external subject NPs (cf. (17) below). X stands for the syntactic category of [A + **-oc**], which we have not yet determined (cf. (11)); we discuss X below in section 4.5.

4.4 Departicipial **-oc** Nominalization.

We are now in a position to account for the formal and semantic properties of the highly productive class of departicipial **-oc** nominals like **zarabotannoc** 'what has been earned', **ukradennoc** 'what has been stolen', **privezennoc** 'what has been brought' (e.g., **Snjali privezennoc i napravilis' obratno** 'They unloaded what-had-been-brought (by them) and returned') etc., whose base is a passive participle in **-en-**. The initial AS of an agentive transitive verb like **privez-ti** 'to- bring' is given in (14). If no argument-changing morpholexical rules are applied to (14), it will project a

transitive sentence in the "active voice": the agent *i* will be the subject and the patient *k* the direct object.

(14)

i	-	k
NP	V	NP

The first lexical rule to apply to (14) in the derivation of deparicipial ~~oc~~ nominal is passivization, a morpholexical rule that suppresses the external theta role *i* by making it implicit (internalized) and adds the ~~cn~~ suffix to the verb stem, making it an ~~cn~~ (passive) participle stem. Passivization derives the AS in (15) from (14). (See Babby and Brecht 1975 and Babby 1993a for discussion of the nonpassive uses of ~~cn~~ participles)

(15)

-	i	k
NP	[V + cn-]	NP

Passive predicates are derived "raising (unaccusative)" predicates: if no other morpholexical rules are applied to them, their AS in (15) projects a sentence that has a subject NP which is not assigned a theta role; the direct object NP(*k*) moves to fill this "empty" subject position producing a canonical intransitive passive sentence (tense is realized by the copula).

The passive participle derived in (15) is a predicate passive participle (e.g. **privcz-cn** 'brought:masc-sg, **privcz-cn-a** 'brought:-fem-sg): it cannot be used attributively because it has no external theta role to assign; thus only the predicate short forms are possible (cf. ***privcz-cn-aja**).⁶ Russian has a separate morpholexical rule that converts a predicate passive participle to an attributive passive participle. This rule of "attributivization" applies to the AS in (15) and produces the attributive passive participle AS in (16) by externalizing the internal theta role *k*; this lexical operation is accompanied by affixation of the ~~n~~ suffix (see Babby 1993a: sec. 5 and 1994 for independent evidence that externalization of an internal argument may be accomplished by a

lexical rule).⁷ This attributivization rule does not affect the implicit status of *i* (cf. (15)).

(16)

k	i
-	[[V + en-] n-]

Note that the attributivization rule removes the external categorial argument NP in (15). This captures the fact that attributive ~~-cnn-~~ participles cannot be used as primary predicates, i.e., the external theta role *k* of an ~~-cnn-~~ participle cannot be assigned to an NP position in the syntax that is an external projection of the participle itself (cf. **Kniga (byla) pročítana / *pročítannaja** 'The book was read'). In other words, attributive participle phrases, like noun phrases, do not project their own external subject positions (cf. (13)).

The lexical rule of ~~-oc~~ nominalization can apply to the structure in (16) since it is a participle with an external theta role; this rule is not sensitive to whether the external theta role is initial (as with adjectives) or derived (as in the case of passive participles). It changes (16) into (17) by adding a new external argument *R*, which binds the participle stem's external theta role *k* (see (12) and (13)), and by affixing ~~-oc~~ to the derived ~~-cnn-~~ stem. This rule explicitly accounts for the fact noted above that it is the participle stem's external theta role that is the referent of the nominal: this is accomplished by the binding relation between *R* and *k* established by the nominalization rule. (*k*, which is the initial verb stem's internal argument, has been made the participle's external argument by the attributivization rule in (16); this explains why all deparicipial ~~-oc~~ nominals are formed on the ~~-cn-n-~~ stem rather than on the ~~-cn-~~ stem: e.g., *zarabotanoc, *ukradcnoc, *pivezcnoc etc.).

(17)

R	< = k > i
-	[[[V + en-] n-] oc]

This derivation of **-oe** nominals correctly predicts that participial **-oe** nominals can license argument adjuncts and that the argument adjunct is construed with *i*, not *k*. This follows from the fact that only *i*, the initial external argument, is implicit (see (18) and (9g)); $\langle = k \rangle$ is bound by *R* and, therefore, is not a potential licenser of argument adjuncts. (**perežitoe** (nom-neut-sg) in (18) is derived from the passive participle of **perežit'** 'to experience' and **avtorom** is the instrumental-case argument adjunct licensed by the participle's implicit agentive theta role *i*.)

- (18) *V sozdanii romana ogromnuju rol' igraet*
 in creation of-novel big role plays
perežitoe avtorom.
 experienced:neut-sg author:inst
 'What is experienced by the author plays a big role in the
 novel's creation'

Compare the internal structure of the **-oe** nominal in (17) with the structure of the corresponding homophonous neuter singular passive participle in (19), where the **-oe** suffix is used canonically as a functor, agreeing with the neuter singular noun it modifies (e.g. **privzennoe (imä) vino** 'the wine brought (by them)'): *i* is made implicit by the passive rule (see (14) → (15)) and *k* is externalized by the attributive-formation rule (see (15) → (16)); affixation of **-oe**, in its capacity as a functor (inflectional agreement suffix), does not affect the AS. (17) and (19) are radically different: (17) has the structure of a derived nominal and, like all nominals, it has its own independent reference (*R*); the attributive participle in (19) is still a predicate: it must assign its external theta role (*k*) and it has no independent reference.

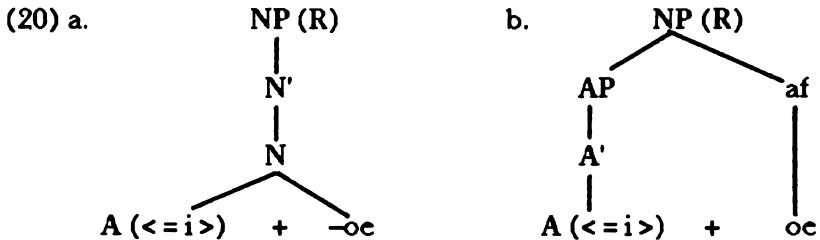
- (19)
- | | |
|---|----------------------|
| k | i |
| - | [[[V + en-] n-] oe] |

Aside from their argument structures, there is another crucial difference between (17) and (19): while [[[V + en-] n-] oe] in

(19) is an attributive passive participle, we still have not determined the syntactic category of the **-oc** nominal in (17), a task to which we turn in the next section.

4.5 The Syntactic Category of **-oc** Nominals.

Now we return to the first question posed above in section 4.3: what is the syntactic category of the word formed by the combination of [A + oc] ("A" can stand for an adjective or participle stem here), i.e., what is the value of X in (11)? Since we have argued above that **-oc** in its noncanonical function is a nominalizer that is affixed to an A stem as part of a morpholexical operation that adds a new external argument R, the external argument of nouns, we would naturally expect X in (11) to be a noun, i.e. X = N, and for **-oc** nominals to have the structure schematically represented in (20a) (R binds the external argument i of the base predicate A, just as in (12) and (13) above). According to (20a), **-oc** maps adjectives and participles (predicates) into nouns (arguments).



But (20a) cannot be the correct structure because it makes a totally wrong prediction: an **-oc** nominal does not project a phrase with the internal structure of a noun phrase; its phrasal projection has the internal structure of an adjective phrase. For example, the head of a **-oc** nominal phrase can be modified by **samoc**, which combines with adjectives to form the superlative in Russian: **On ne umel obespečivat' scbja [samym neobxodimym]** 'He wasn't able to provide himself with [what was most basic]'; **[Samoc užasnoe], čto on ne xočet pojtü k vraču** '[The most awful thing] is

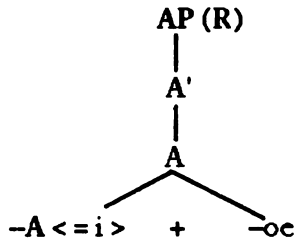
that he doesn't want to go to the doctor'. A second piece of evidence that **-oe** nominals do not have NP-internal structure is that certain types of modifiers of the head [A + **oe**] have adverbial rather than adjectival form, which is characteristic of VP and AP structure. For example: **Inogda [čisto / *čistoe ženskoe] beret v nej verx** 'Sometimes [the purely / *pure feminine] in her takes over' (see Babby 1974 for discussion of relation between adjectives and manner adverbs in Russian).

It would appear then that the **-oe** nominal is a "hybrid" category with the internal structure of an adjective (or participle) phrase and the syntactic distribution and independent reference of a noun phrase. This suggests a structure along the lines of (20b) (with R binding the external argument *i* of A). There is, however, an obvious problem with (20b): it is not compatible with the Autonomy Hypothesis. Its derivation combines a suffix (**-oe**) with a maximal phrasal projection (AP), i.e., here the suffix **-oe** maps adjective and participial phrases into noun phrases (cf. (20a), which maps adjective stems into nouns). Since maximal phrasal projections (XP) do not occur at the level of word structure, a derivation like the one in (20b) would require affixation to apply at the phrasal level, precisely the type of operation that violates the Autonomy Hypothesis (see Williams 1994 for extensive argumentation supporting the Autonomy Hypothesis). Another problem with (20b) is that the suffix **-oe** is the head of the NP.

There is, however, a perfectly straightforward solution to this last problem which is entirely in accord with the Autonomy Hypothesis: all we need do is let the value of X in (11) be A, which means that the projection of an [A + **-oe**] nominal will look like (21), with R binding *i*, the external argument of A (**-A** designates the adjective / participle stem; everything dominated by A in (21) is in the domain of word structure, everything dominating A is in phrase structure). According to (21), **-oe** nominals are adjective phrases with independent reference (AP(R)). The "hybrid" nature of **-oe** nominals referred to above is due to the **-oe** suffix itself. On the one hand, like all nominalizing suffixes, it supplies a predicate ([+V] category) with a new

external argument R, which accounts for the derived word's independent reference and the argument status of its maximal projection. On the other hand, unlike ordinary nominalizing suffixes, **-oe** does not supply the derived nominal with new categorial features that make it a noun (phrase) (cf. the **-ee** suffix in English, which introduces the [+N] [-V] features, which convert adjectives to nouns). Thus **-oe** nominals have the internal structure of a AP but the external distribution and argument status of an NP. Note too that (21) provides us with an explicit definition of the traditional grammatical notion of "substantivization" (i.e., AP(R)) vs. "nominalization" (i.e., NP(R), where NP is the projection of [V + af]). Below we shall look at the derivation represented in (21) in greater detail.

(21)



We must bear the following two points in mind when evaluating the proposal represented in (21). First, noun (phrase) and adjective (phrase) form a natural class: both are [+N] in the binary feature decomposition of syntactic categories that forms the basis of X-bar syntax. Second, **-oe** is a long form adjectival suffix and therefore, as noted above, obligatorily carries with it a case feature as well as gender and number features (short form (predicate) adjective forms do not have a case feature and cannot therefore occur in positions that are assigned case). Thus the categorial difference between nouns and long form adjectives is minimal. It boils down to the feature [V]: noun (phrase) is [-V] and adjective (phrase) is [+V]. Our claim is that [+N] categories other than noun can have R as external argument and, therefore, have independent reference, provided that they have gender, number, and case. In other words, long form adjectives and

participles are sufficiently "noun like" in their feature make up to receive a R external argument by means of the lexical rule of nominalization. Thus "nominalization" in its broadest definition is a lexical rule that supplies the external argument R to [+V] categories (adjective and verb), converting them from predicates to arguments (theta role assignees). What is special about **-oe** nominals is that they are not converted to nouns in the process.

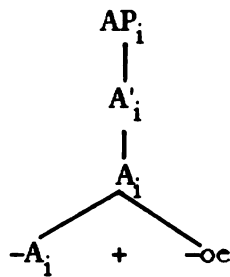
In the case of deverbal nominalizations, the suffix that the rule adds to the stem has its own external argument (R) and its own categorial features (i.e., [+N] and [-V]), which take precedence over the verbal bases's categorial features and percolate to the word's maximal projection ($X = N$) because the suffix is the head of the derived nominal and head features take precedence over the categorial features of the stem (see (10); **killer**; **ukrotit'** '(animal) tamer' < **ukrotit'** 'to tame'). In contrast, **-oe** nominalization involves only affixation of **-oe** to an adjectival or participial stem, the addition of the new external argument R, and the binding of i by R; no categorial features are changed. This is because the **-oe** suffix does not have its own categorial features. Now, since **-oe**, which is the head of the derived word, has no categorial features of its own to contribute to the derived word, they are provided by the stem (cf. the notion of "relativized head" in Williams 1994).

We can summarize this section as follows: what is special about "hybrid" **-oe** nominals is that they are "independent" APs, i.e., unlike canonical APs and like NPs, they have their own reference (R). This analysis accounts for all the morphosyntactic and semantic properties of **-oe** nominals enumerated above, as well as for the intuition that nominalization and substantivization are subtly different variations of the same basic operation, without having to claim that **-oe** nominals are headed by a null neuter head noun (see section 4.2) or that they are morphosyntactic anomalies, i.e., a case in which an affix (**-oe**) combines with a maximal phrasal projection (AP in (20b)) in violation of the Autonomy Hypothesis. This analysis also explains why **-oe** nominals are so readily listed in the dictionary as adjectives (and participles) functioning as nouns: like basic nouns, they

have independent reference as well as independent gender, number, and case, all of which are supplied by the **-oe** suffix in its noncanonical use.

In conclusion, let us compare the internal structure of the **-oe** nominal proposed in (21) with **-oe** in its canonical use in (22), where it is as a long form neuter singular nominative attributive adjective modifying a neuter singular noun (e.g. **krasnoc vino** 'red wine'):

(22)



The **-oe** suffix in its canonical use in (22) is a functor and the external theta role index i of the adjectival stem ($-A$) percolates to the maximal projection of the word A and from there to the maximal projection of the phrase AP , forming a one-place predicate. Although the adjective phrase in (22) has case and an external theta role i , it does not have independent reference (R) and therefore cannot assume the argument-like functions characteristic of the "substantivized adjective" in (21). In other words, in its canonical, attributive use in (22), the long form adjective is a predicate and it must discharge its external theta role. In its noncanonical use in (21), the adjective's external argument R is not assigned, i.e., **-oe** nominals are not predicates; they function the same way that nouns do. (see Williams 1994 for discussion of the role of R in the argument and predicate use of NPs). The adjectival stem's initial external argument i is construed as the referent of **-oe** nominals because it is bound by the external argument R , just as in all argument nominalizations (see section 4.3).

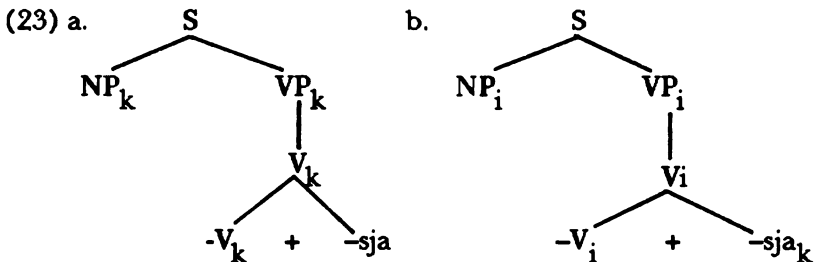
5.0 Summary and Conclusions

The primary purpose of this paper is to explore the dual function of certain inflectional suffixes rather than to analyze impersonalization and nominalization *per se*.⁸ Our main hypothesis is that in their noncanonical use these suffixes mimic the function of derivational suffixes, i.e., they are affixed to the base predicate's stem as part of a lexical operation whose goal is to alter the stem's argument structure; inflectional suffixes in their canonical use do not affect AS. While there are many theoretically interesting facets to this phenomenon, which considerations of time and space do not permit us to pursue, one point needs to be made before concluding. There appears to be a second type of suffix in Russian that also has both a canonical and noncanonical function; this second class of suffixes differs from the first in the following ways. Instead of the predicate's external theta role being eliminated (as with **-o** impersonalization) or suppressed by binding (as with **-oc** nominalization), one of the base stem's theta roles, either external or internal, is **assigned to the suffix itself** rather than to one of the predicate's categorial arguments (see DiSciullo and Williams 1987:71 for a preliminary discussion of this phenomenon with respect to subject-verb agreement in Breton).

Below I will briefly outline the analysis of **-SJA**, a suffix to which the verb's direct **internal** theta role is assigned in its noncanonical use. **-SJA** was historically a sentence-level reflexive enclitic pronoun that occupied the second (Wackernagel) position in the clause. It can be analyzed in modern Russian as a word-level enclitic morpheme with two allomorphs (**-sja** and **-s'**) that is affixed to a verb as part of a highly restricted number of morpholexical operations that affect the verb's AS. Its status as "bound" enclitic morpheme explains why it occupies the right-most position in the word despite the fact that it is not head of the word.

In its canonical function, which is highly productive (i.e., its occurrence need not be specified in the verb's lexical entry), the suffix **-SJA** is applied to transitive verb stems. Its function is to

induce percolation of the direct internal theta role index k to the word-level maximal projection of the verb (V); from there it is passed up to VP and then assigned to the subject NP by primary predication. The affixation of $-SJA$ in its canonical function thus has the effect of externalizing the verb's direct object. It overrides percolation of the verb's external theta role i to $V(P)$ and is responsible for the often noted fact that affixation of $-SJA$ detransitivizes the verb. Since a predicate can have only one external argument, affixation of $-SJA$ necessarily entails non-assignment of the verb's initial external theta role to subject position: it can either be made implicit, as in passive derivations (e.g., **Kem pisalis' takie kartiny?** 'Whom were pictures like these painted by?') or eliminated, as in the derivation of middle sentences (**Tkan' legko rastjagivactsja** 'This material stretches easily', **Voda ne szimaactsja, kak vozdux** 'Water doesn't compress like air', **Syroj tabak ploxo kuritsja** 'Damp tobacco does not smoke well (lit. ...smokes poorly)')(see Babby 1993a and 1993b for details). Note that this treatment of $-SJA$ affixation in passive and middle sentences does not require the syntactic rule of NP -movement, which, in other analyses, must move the direct object NP from its VP -internal position to a subject position that has not been assigned a theta role (see Williams 1994 for extensive argumentation against NP -movement). This canonical derivation of $-SJA$ can be schematically represented in (23a); the fate of the initial external argument i is left unspecified here.



In its noncanonical function, which is not productive (i.e., it needs to be sanctioned in the lexical representation of each verb),

the verb's internal direct theta role *k* is assigned to the *-SJA* suffix itself, and, in accordance with the Theta Criterion, cannot be realized categorially (creating the false impression that it has been suppressed or eliminated). The initial external theta role *i* is not affected when *-SJA* is used noncanonically: it is passed up to VP and assigned to the subject just as it is in the derivation of ordinary transitive sentences, in which the internal theta role *k* is assigned to the direct object NP. The noncanonical use of *-SJA*, which in effect creates "transitive *-SJA* verbs" (see Babby 1975a), can be represented schematically in (23b) (*i* and *k* are the indexes of the external theta role and the internal direct theta role respectively).

The structure proposed in (23b) correctly predicts that when the *-SJA* suffix is used noncanonically, the sentence should have the semantics of an ordinary transitive sentence in the active voice despite the fact that it has no direct object NP.⁹ This is because both the external theta role *i* and internal theta role *k* of a transitive verb have been assigned. The semantic properties of the verbs that license the noncanonical assignment of *k* to *-SJA* are discussed in Babby 1975a (where, however, a different analysis is proposed). Noncanonical use of *-SJA* is common when a verb selects a direct object NP that can be headed by just one particular noun, as in (24), (or to a small set of synonymous nouns) and is therefore predictable: the verb *nesti* 'carry' is used idiomatically only with the direct object *jajco* 'egg' to mean 'lay an egg.' If the direct object is nonspecific (nonreferential), then *k* is routinely assigned to the suffix *-SJA* rather than *jajco*; if the direct object is specific or modified, then *k* must be assigned to an object NP headed by *jajco*; see the examples in (24):¹⁰

- (24) a. Naša kurica nesetsja každyj den'.
 our hen:nom lays (an egg/eggs) every day
 'Our hen lays (eggs) every day'
- b. Naša kurica neset bol'šoe jajco každyj den'
 our hen:nom lays big egg:acc every day
 'Our hen lays a large egg every day'

A likely candidate for an inflectional suffix to which the verb's **external** theta role is assigned is the third person plural suffix in its noncanonical use in the derivation of what is referred to in traditional Russian grammar as an Indefinite–Personal sentence (*neopredelenno-ličnoe odnosostavnoe predloženie*). While this type of sentence cannot have an overt subject, it has an "understood subject" that is obligatorily construed as human and is unspecified for number (see the examples in (25)). (Note that a transitive verb affixed with –SJA in its noncanonical use can be said to have an "understood" direct object.)

This "understood" or "semantic" subject is, according to our analysis, the verb's initial external agentive theta role, which has been assigned to the inflectional suffix rather than to the subject NP, as it is in its canonical use.¹¹ This explains why Indefinite Personal sentences are felt to be the functional equivalent of passives in Russian: both involve "internalization" of the verb's external theta role *i*; but *i* is not implicit in Indefinite Personals as it is in passive sentences, and, therefore, does not license argument adjuncts.

- (25) a. *V dver' postučali, i v komnatu vletela Maša.*
 at door knocked:3-pl and in room flew Maša
 'Someone knocked at the door and Maša rushed in'
- b. *My zabyli ključ i byli vynuždeny razbudit' nočnogo švejčara, čtoby nam otkryli.*
 we forgot key and were forced to-wake night
 porter so-as-to for-us open:3-pl
 'We forgot the key and were forced to wake the porter to let us in'
- c. *Vy poljubite, i vas poljubjat.*
 you:nom will-fall-in-love and you:acc will-love:3-pl
 'You will fall in love and someone will love you'
- d. *Menja okliknuli i, obrnuvšis', ja uvidel Ivana.*
 me called:3-pl and, turning-around, I saw Ivan
 'Someone called me and, turning around, I saw Ivan'

This analysis is parallel in many respects to DiSciullo and Williams' (1987:71) treatment of verbal agreement morphology in Breton, where overt agreement morphology is affixed to the verb only when there is no overt subject (see Anderson 1982). They propose that the "agreement marker has the property of 'satisfying' the theta role assigned to the subject." It follows that if the external theta role is assigned to the verb itself, there can be no overt subject because, as predicted by the Theta Criterion, the verb is no longer capable of assigning a theta role to subject position: a theta role cannot be assigned twice in the same argument complex (see Williams 1994).

This paper has dealt with the crucial role played by theta theory and argument structure in the relation between morphology and syntax. It suggests that the properties of other poorly understood constructions in Russian and in other languages may be explained in terms of the noncanonical use of inflectional suffixes to alter the predicate's argument structure and, therefore, the syntactic structure that it projects.

Notes

¹ The following articles and books have played a particularly important role in the development of the ideas elaborated in this article: DiSciullo and Williams 1987, Williams 1981, 1992, and 1994, Bowers 1984, Grimshaw 1990, Rappaport Hovav and Levin 1992, Selkirk 1982, Wilkins 1988, Stowell and Wehrli 1992, Marantz 1984, Lieber 1992, Anderson 1982.

² Only the Autonomy Hypothesis is consistent with the types of mismatches between the agreement features of the subject and predicate that are regularly encountered in natural language. For example, see the discussion of hybrid adversity impersonal sentences in Babby 1994 (e.g., *Menja* (me:acc) *strela* (arrow:nom-fem) *ranilo* (wounded:neut) 'The-arrow wounded me'; the head of the subject NP is feminine while the verb is neuter).

³ Analyses in which impersonal sentences are claimed to have null subject nouns denoting "natural force" etc. are discussed in Babby 1994 (cf. Mel'čuk 1974).

⁴ While some of these *-oe* adjectives are listed in the dictionary, the vast majority are not. In other words, the *-oe* affixation illustrated in (9) is highly productive in modern Russian (see Lopatin 1967).

⁵ Grimshaw (1990:126) notes that in this respect (addition of R) nominalization is like causativization: a new external argument is added to the base AS and the initial external argument must be demoted so that the resulting predicate does not have two external arguments.

⁶ See Babby 1993a:34-36 for discussion of the derivation of *-enyj* adjectives like *plavl-en-yj* (*syr*) 'processed (cheese)', *plet-en-aja* (*korzinka*) 'wicker (lit. woven) (basket)', etc.

⁷ The **-n-** suffix is the most productive suffix in Russian for forming adjectives from nouns, e.g., **um** 'mind' → **um-n-yj** 'smart.'

⁸ I can find no substantive difference between saying that we are dealing with canonical/noncanonical (or primary/secondary) uses of the same suffix and claiming that we are dealing with two (historically related) homophonous suffixes.

⁹ In contrast, the structure in (23a) correctly predicts that when **-SJA** is used canonically, the sentence should have the semantics of an intransitive sentence. It is the existence of these two different derivations of **-SJA** verbs represented in (23a) and (23b) that is responsible for the ambiguity that is characteristic of **-SJA** verbs in Russian (see Babby 1975a).

¹⁰ Other verbs in this class are: **vysmorkat' nos** 'to blow one's nose/ **vysmorkat'sja** 'to blow one's nose', **potratit' den'gi** 'to spend money'/ **potratit'sja** 'to spend money' etc. For details see Babby 1975a and in progress. **-SJA** is also used noncanonically when the sentence has a reflexive meaning (i and k are coindexed) and when there is an understood nonreferential human direct object (e.g. **Sobaka kusaetsja** 'This dog bites (people)'). In all these cases the verb is understood transitively and is lexically restricted.

The semantics of the noncanonical use of **-SJA** can be explicitly accounted for in terms of the "incorporated constant internal argument" analysis proposed in Zubizarreta 1987:10 to explain the semantics of the intransitive use of transitive verbs like **eat** in English.

¹¹ There are other plausible analyses which we are not able to discuss here; e.g. see Mel'čuk's 1974 proposal that there is a null lexical item in the subject position in these sentences that accounts for all the sentence's formal and semantic properties. See Babby (in progress) for details.

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Optimality and Superiority: A new approach to overt multiple-*wh* ordering

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In this paper we account for Superiority effects in Bulgarian using mechanisms of Optimality Theory (Prince & Smolensky 1993), as applied to syntax by Grimshaw (1993a) and specifically to Superiority in Grimshaw (1993b). Our primary theoretical innovations are constraints to account for animacy and for certain surface effects of consecutive homophonous *wh* words, as well as constraints that serve to distinguish languages like Bulgarian—which front an indefinite number of *wh* phrases in overt syntax—from those that front one (as does English) or none at all (Chinese, for example).

1 Summary of the problem

Wachowicz (1974) introduced the generative enterprise to the violability of single *wh*-fronting as a universal, using Polish data.¹ Rudin (1988a; 1988b; 1989) shows that Bulgarian is different from the other Slavic languages, but like Romanian (and possibly Romany and Yiddish) in fronting all *wh* phrases to SpecCP in overt syntax; cf. Comorovski (1986; 1989) on Romanian and Lakova (1991) on Bulgarian. The other Slavic languages, Rudin (1988b) adds, front only once to SpecCP; any other *wh* phrases are adjoined to IP—essentially equivalent to Toman's (1981) pre-CP model.

1.1 Evidence for a single syntactic wh constituent in Bulgarian

Rudin's multiply-filled-SpecCP model is supported by several empirical distinctions between Bulgarian on the one hand, and the rest of Slavic on the other. Two such distinctions are shown here, with the Serbo-Croatian examples in (2) and (4) serving as representative of the other Slavic languages. While either order is allowed in (2), only one order is allowed in (1)—in which the *wh* phrases form an uninterrupted unit. Rudin (1988b) also shows that Bulgarian parentheticals behave similarly, in that they must follow all fronted *wh* phrases.²

Bulgarian

(1a) *Zavisi ot tova, ...*
koj kogo prāv e udaril.
 who whom first CL hit
 NOM ACC ADV 3.SG M.SG

(1b) *Zavisi ot tova, ...*
 **koj prāv kogo e udaril.*

Serbo-Croatian

(2a) *Zavisi od toga ...*
ko koga prvi udari?
 who whom first hit
 NOM ACC ADV M.SG

(2b) *Zavisi od toga ...*
ko prvi koga udari?

[= ex. (42), Rudin (1988b:467)] [= ex. (10a-b), Bošković (1994:6)]

‘It depends who hit whom first.’ (same gloss for both)

Additionally, Bulgarian requires **all** *wh* phrases to extract to a higher (non-*wh*) clause, as shown in (3). Extraction is required in (4), but only once—without specifying which *wh* phrase. Only Bulgarian requires all fronted *wh* phrases to appear together.

Bulgarian

(3a) *Koj kǎde misliš [če e otišǎl]?*
 who where think gone
 NOM ADV 2.SG C CL.M.SG

(3b) **Koj misliš [če kǎde e otišǎl]?*

(3c) **Kǎde misliš [če koj e otišǎl]?*

Serbo-Croatian

(4a) **Ko šta želite [da vam kupi]?*
 who what want you buy
 NOM ACC 2.PL C DAT 3.SG

(4b) *Ko želite [da vam šta kupi]?*

(4c) **Šta želite [da vam ko kupi]?*

‘Who do you think went where?’ ‘Who do you want to buy what?’

[= ex. (13), Rudin (1989:6)]

[= ex. (14), Rudin (1989:6)]

1.2 The Superiority Condition, as applied to Bulgarian

The Superiority Condition,³ proposed in Chomsky (1973), as applied to *wh*-movement, is the constraint in languages like English that assures that the syntactic subject and not the object is fronted if both are *wh* phrases. Rudin (1985; 1986; 1988a; 1988b; 1989) shows that there is a Superiority-like effect in Bulgarian, requiring specific ordering among multiply fronted *wh* phrases. That is, a fronted subject *wh* phrase must precede a fronted non-subject *wh* phrase (Rudin 1985:2; 1986:120, fn. 40). This is shown, for example, in (1a) or (3a) above. Rudin (1986:118) does, however,

mention that this generalization is “not entirely accurate”, offering the “rules of thumb” in (5), adding that (5a) and (5b) are exceptionless, but (5d) is not, as is evidenced by (6). As (7) shows, however, (5d) is strong enough to override (5e).

(5) **Rules of thumb for *wh* ordering in Bulgarian**

- a. NOM *koj* ‘who’ is always first;
- b. a *wh* word must precede a *wh* prepositional phrase containing the same *wh* word (including DAT *na kogo*);
- c. all else being equal, a human *wh* word precedes a non-human one;
- d. NOM/ACC *kakvo* ‘what’ tends to be second; and
- e. *wh* adverbials tend to be late in the series of *wh* phrases.

(6) *Koj na kogo kakvo e kazal?*
 who NOM to whom DAT what ACC CL 3.SG said M.SG
 ‘Who said what to whom?’ [= ex. (74b), Rudin (1986:116)]

(7) *Koga kakvo e kupil?*
 when what ACC CL 3.SG bought M.SG
 ‘When did he buy what?’ [= ex. (81b), Rudin (1986:119)]

In this paper we show that not only are (5d) and (5e) violable, so is (5a). Additionally, (5c) is, as worded, also violable. A more explicit system of constraints is presented below (in §5), allowing optional *wh* orders in some environments and rigid ones in others. First, however, an overview of the data (in §2-§3), followed by some new data from colloquial Bulgarian (in §4).

2 The simple clause with two *wh* phrases: NOM + ACC

The clearest data on the Superiority Condition have been clauses with a NOM *wh* external argument and an ACC *wh* direct object. Some *wh* questions in Bulgarian do apparently violate Superiority.

Three of the rules of thumb in (5) rely on the notion of animacy: (5c) directly, while (5a) and (5d) do so implicitly. The

data below show that (5a) is unviolated so long as *koj* is the external argument (or the only human argument; we return to such distinctions in §3.1). Suffice it to say that in transitive sentences *koj* ‘who’ is always first in the *wh* cluster, regardless of the *wh* direct object’s animacy, as shown in examples (8) and (9):

- (8a) *Koj kogo vižda?* (8b) **Kogo koj vižda?*
 who NOM whom ACC sees 3.SG
 ‘Who sees whom.’ [– ex. (55a-b), Rudin (1988b:473)]
- (9a) *Koj kakvo pravi?* (9b) **Kakvo koj pravi?*
 who NOM what ACC does 3.SG
 ‘Who does what.’ [– ex. (75a-b), Rudin (1988b:481-2)]

The datum heretofore missing from the literature, to our knowledge, is the multiple question with an inanimate *wh* external argument and a human *wh* internal argument. An agentive transitive predicate like *hit* shows this most effectively. In English such questions must conform to the Superiority Condition, as shown:

- (10a) *What hit whom?* (10b) **Whom (did) what hit?*
- (11a) *I know what hit whom.* (11b) **I know whom what hit.*

Regardless of embedding, as is the case in (11), the (a) examples are the only grammatical means of expressing such questions.⁴

In Bulgarian either both orders in (12) are acceptable, or— with certain informants— one or the other is more natural. Our informants all find both (12a) and (12b) **minimally** acceptable:⁵

- (12a) *Kogo kakvo e udarilo?* ‘What hit whom?’
 whom ACC what NOM CL 3.SG hit N.SG
- (12b) *Kakvo kogo e udarilo?* ‘What hit whom?’
 what NOM whom ACC CL 3.SG hit N.SG

Embedding the *wh* clause within another clause (not shown here) does not appear to affect our informants’ judgments. It is also

worth mentioning that informants tend to try a number of other truth-value equivalents of (12), primarily by trying to passivize the question. This makes sense, considering the general tendency in Slavic for the NOM external argument of a transitive verb to be interpreted as an Agent, as well as another tendency—across human language—for an inanimate subject **not** to be an Agent.

While the data are somewhat murky, a few conclusions can be drawn: First, it looks as if a purely syntactic Superiority account does not receive any support here. Next, it is likely that our informants had never encountered data like (12), in which animacy and Superiority are teased apart. Regardless of which view one takes about how parameters are set, it can safely be said that animacy and Agent-hood may never have been differentiated during acquisition with positive evidence. We return to this issue (in §5.2) below.

3 Other syntactic combinations of *wh* phrases

3.1 *NOM + DAT*

We distinguish between two types of DAT arguments: expressions of Goal and Experiencer theta (= thematic, = semantic) roles:

3.1.1 *NOM Agent + DAT Goal*: Not surprisingly, a NOM external argument must precede a DAT internal argument when both are *wh* expressions, as is shown in (13):

(13a) *Koj na kogo e dal ximikalkata?*
 who NOM to whom DAT CL 3.SG gave M.SG pen-the ACC

(13b) * *Na kogo koj e dal ximikalkata?*

‘Who gave the pen to whom?’ [≠ ex. (6), Rudin (1985:2)]

3.1.2 *NOM Theme + DAT Experiencer*: There are also constructions in which the DAT expresses the Experiencer theta role while the NOM expresses the Theme role. Example (14) shows that two human *wh* phrases with these respective cases and roles can have either order. The theta-to-case permutation in (13) cannot be tested with a non-human internal argument, because such dative arguments are recipients, which are, at the very least, animate, requiring the use of *na kogo* ‘to whom’ (instead of some case form of the *kakvo* stem).

(14a) *Koj na kogo mu xaresva?*
 who NOM to whom DAT CL DAT.3.SG is-pleasing 3.SG

(14b) *Na kogo koj mu xaresva?*
 (literally) 'Who is likable to whom?'

Both forms in (14) are acceptable, though some informants favor one or the other. Example (15) has non-human *kakvo* as Theme:

(15a) *??Kakvo na kogo mu xaresva?*
 what NOM to whom DAT CL DAT.3.SG is-pleasing 3.SG

(15b) *Na kogo kakvo mu xaresva?*
 (literally) 'What is likable to whom?'

Comparing (15) to (14) reveals that a human DAT Experiencer *wh* phrase is not obligatorily ordered with respect to a *wh* **human** NOM Theme, but should be first when the *wh* Theme is **non-human**.

In (15) the strong preference is for the human (Experiencer) *wh* phrase to be uttered first. These examples, in addition to the *what-hit-whom* examples in (12), suggest the following: First, Superiority holds if the NOM *wh* phrase is both the external argument and human. If a *wh* external argument is non-human or if a human NOM *wh* phrase is not the external argument, then another *wh* word can optionally appear first. When the NOM *wh* phrase is neither human nor the external argument, and there is a human *wh* Experiencer, then the strong preference is for the NOM *wh* phrase not to be initial. Our constraints below (in §5.1) capture these seemingly disjoint generalizations.

3.2 ACC direct object + DAT indirect object

Especially interesting in the recent literature are the proposed structures of the DAT and ACC internal arguments of a verb. Certain recent proposals, most notably in Bailyn (1995), argue that the DAT indirect object (IO) is the complement of V while the ACC DO is generated in SpecVP. Our data in this area do not add to the picture *per se*. But we do add one crucial clarification to one apparent DAT-ACC asymmetry in the Superiority literature on Bulgarian. Much of the work on Superiority accounts for the apparent lack of ordering

of DO and IO *wh* phrases using the generative notions “minimal domain” and “m-command”, which both essentially render the DO and IO positions equidistant to their common SpecCP destination. The examples in (16) show a three-place predicate with all of its arguments human, and with only the DO and the IO as *wh* phrases.

(16a) *Kogo na kogo e pokazal Ivan?*
 whom ACC to whom DAT CL 3.SG showed M.SG Ivan NOM

(16b) **Na kogo kogo e pokazal Ivan?*
 ‘Whom did Ivan show to whom?’ [= ex. (5), Rudin (1985:2)]

It looks as though the DO must be superior to (or higher in the syntactic tree than) the IO. We return to this issue (in §4) using data from colloquial Bulgarian, showing that there is no syntactic *wh*-ordering requirement in (16), but merely a surface constraint, and this factor can be conveniently controlled for in colloquial Bulgarian.

3.3 The order of *wh* arguments and *wh* adverbials

Rudin’s (1986) last rule of thumb—“adverbs tend to be late in the series of *wh* phrases,” = (5e) above—is just that: a tendency. The placement of *wh* adverbials requires only a minor amendment to the description so far: Syntactically speaking, *wh* adverbs behave identically to *kogo* ‘whom’ (ACC) or *kakvo* ‘what’ (NOM or ACC). That is, NOM *koj* ‘who’ precedes a *wh* adverb, whereas *kogo* ‘whom’ and *kakvo* ‘what’ (regardless of grammatical relation) are not ordered relative to *wh* adverbs.

Consistent with the data above, NOM *koj* ‘who’ must precede a *wh* adverbial:

(17a) *Koj kak pātuva?* ‘Who travels how?’
 who NOM how travels 3.SG (i.e., by what conveyance)

(17b) **Kak koj pātuva?*

(18a) *Koj kǎde šte spi?* ‘Who will sleep where?’
 who NOM where MODAL sleeps

(18b) **Kǎde koj šte spi?*

- (19a) *Koj zašto ti xaresva?*
 who NOM why CL.DAT.2.SG is-pleasing 3.SG
- (19b) **Zašto koj ti xaresva?*
 ‘Who do you like why?’

The ACC *wh* word *kogo* ‘whom’ appears in either order with a *wh* adverbial. Bošković (1994 and p.c.) reports that whereas the order in (20a) is always acceptable, his informants judge the other, adverbial-initial order less than perfect, ranging from slightly bad (?) to near ungrammaticality (?/*), often depending on exactly which *wh* adverbial is used. We have the elicited judgments here.⁶ We leave this issue open for future research. We might add only that our informants were usually able to accept orders such as those in (20b), but only after conceptualizing the necessary, non-neutral context. We do not consider questions with multiple *wh*-adverbials.⁷

- (20a) *Kogo kade ste videli?*
 whom ACC where CL.2.PL saw PL
- (20b) *Kade kogo ste videli?*
 ‘Whom did you see where?’

Regardless of case, *kakvo* ‘what’ and *wh* adverbials are not ordered:

- (21a) *Kakvo koga e kupil?*
 what ACC when CL.3.SG bought M.SG
- (21b) [= (7)] *Koga kakvo e kupil?*
 ‘When did he buy what?’
- (22a) *Kakvo kade raste?* ‘What grows where?’
 what NOM where grows 3.SG
- (22b) *Kade kakvo raste?* ‘What grows where?’

To summarize the *wh* adverbials, the only requirement on their order—with regard to *wh* arguments—is that NOM *koj* ‘who’ must precede them. Note that *koj* is not always required to appear first (cf. (14b) above). The relative ordering of a *wh* adverbial is

free so long as the only other *wh* phrases are ACC *kogo* ‘whom’, DAT *na kogo* ‘to whom’, or NOM/ACC *kakvo* ‘what’.

3.4 Ordering of subsequent (non-initial) *wh* constituents

We turn now to whether the second and third (or more) *wh* phrases are ordered. We repeat some of the polemics on this issue here briefly: According to Rudin (1988b:472), a NOM *wh* word must precede an ACC *wh* word and “when a Wh-word indirect object is also present, the order of the three Wh-words must be subject, direct object, indirect object” [p. 472], providing the example in (23a).

(23a) *Koj kogo na kogo e pokazal?*
 who NOM whom ACC to whom DAT CL 3.SG showed M.SG

(23b) **Koj na kogo kogo e pokazal?*
 ‘Who showed whom to whom?’ [= (54c), Rudin (1988b:473)]

Dimitrova-Vulchanova (1992:45) responds that “the order of DO and IO Wh-constituents is not fixed”, providing the following:

(24a) *Koj kakvo na kogo kaza?*
 who NOM what ACC to whom DAT said 3.SG

(24b) *Koj na kogo kakvo kaza?*
 ‘Who said what to whom?’
 [= ex. (80a-b), Dimitrova-Vulchanova (1992:45)⁸]

Dimitrova-Vulchanova is right. There is no *a priori* precedence restriction between direct and indirect objects in Bulgarian.

Nevertheless, the examples in (23)—and, for that matter, (16)—are restricted to a single ordering of *wh* elements. We offer a non-syntactic, non-discourse, non-functionalist explanation of the distribution in (23) and (24). Namely, a “low-level, PF-leg, surface-output” constraint. Note that (16b) and (23b) both have the sequence *na kogo kogo* (literally ‘to whom whom’). Recall Rudin’s (1985:118) second rule of thumb: “A *wh* word must precede a *wh* prepositional phrase containing the same *wh* word (including DAT *na kogo*)” [= (5b)]. We expound on this observation in the next section using additional colloquial data.

4 Comparison with the colloquial register

So far we have shown that **na kogo kogo* 'to whom whom' is ruled out by consecutive *wh* homophones. Rudin (1986:9) briefly mentions that *kogo* 'whom' is sometimes replaced by *koj* 'who' in colloquial speech, similar to the replacement of *whom* with *who* in English. Judgments of colloquial data vary, but for some of our informants the DAT is expressed as *na koj*, literally 'to who', while the ACC often remains as *kogo* 'whom', especially when NOM *koj* 'who' also appears in the *wh* cluster or if the sentence is pragmatically strange, as in the *what-hit-whom* examples in (12). The *wh* vocabulary of this colloquial register is outlined in (25):

(25) **Colloquial Bulgarian:**

a.	NOM	b.	ACC	c.	DAT
	<i>koj</i>		<i>kogo</i> or <i>koj</i>		<i>na koj</i>
	'who'		'whom' 'who'		'to who'

This *wh* sublexicon has a way of avoiding successive instances of *kogo* 'whom', but does cause the DAT-NOM sequence *na koj koj* (literally 'to who who'). Both (literary) *na kogo kogo* and (colloquial) *na koj koj* are ruled out. We show this by repeating any of the data with a differing grammaticality judgment when *na kogo* 'to whom' is replaced by *na koj* 'to who'. (In extremely colloquial examples like *Koj koj trjabva da sluša?* 'Who has to obey who?', where *koj* is also ACC, the two instances of *koj* are forced together. Such examples are apparently preferable to leaving one in situ.)

Literary Bulgarian (repeated)

(14a) *Koj na kogo mu xaresva?*

(14b) *Na kogo koj mu xaresva?*

Colloquial Bulgarian

(26a) *Koj na koj mu xaresva?*
 who NOM to who DAT CL DAT.3.SG is-pleasing 3.SG

(26b) **Na koj koj mu xaresva?*

(literally) 'Who is pleasing to who?'

Compare also the counterparts in (16) and (27); their (b) examples show that there is no syntactic Superiority at play here.

Literary Bulgarian (repeated)

(16a) *Kogo na kogo e pokazal Ivan?*

(16b) **Na kogo kogo e pokazal Ivan?*

Colloquial Bulgarian

(27a) *Kogo na koj e pokazal Ivan?*
 whom ACC to who DAT CL 3.SG showed M.SG Ivan NOM

(27b) *Na koj kogo e pokazal Ivan?*

(literally) ‘Whom did Ivan point out to who?’

Finally, compare the counterparts in (23) and (28):

Literary Bulgarian (repeated)

(23a) *Koj kogo na kogo e pokazal?*

(23b) **Koj na kogo kogo e pokazal?*

Colloquial Bulgarian

(28a) *Koj kogo na koj e pokazal?*
 who NOM whom ACC to who DAT CL 3.SG showed M.SG

(28b) *Koj na koj kogo e pokazal?*

(literally) ‘Who pointed out whom to who?’

Clearly the contrasts between these two registers of Bulgarian suggest that syntax is not involved in ruling out (16b) or (23b)—or, for that matter, the colloquial example in (26b).

Some sort of constraint is required to rule out sequences such as **na kogo kogo* and **na koj koj*. In none of the examples so far is this constraint violated. This type of constraint is not unheard-of in other languages. Kornfilt (1986) proposes the “Stuttering Prohibition” to rule out consecutive sequences of a compound marker and possessive marker in Turkish, which can be homophonous. Ross (1972) proposes a “Doubl-*ing*” surface

constraint for English. Napoli (1976) describes how two clitics in Italian, usually both pronounced [si], when together are pronounced [çi si]. There is also a similar sort of effect in Russian and Polish nominalizations, where there is a strong tendency against two arguments with the same case (see, for example, Dziwirek 1993, Rappaport 1992). We call this constraint STARHOM.⁹

A final note on the colloquial examples in this section: In all the sets compared here—(14) with (26), (16) with (27), and (23) with (28)—one register has an optional order while the other has only one allowed order. That is, all of the example pairs have syntactically unordered *wh* clusters that are further restricted as in one or the other register due to consecutive homophony. We have not shown, therefore, that consecutive homophony can override Superiority, only that it can further restrict the set of grammatical outputs of a different grammar component.

5 Formal definitions, constraints proposed

Prior to proposing any more constraints we summarize the data:

- A *wh* external argument has at least the option of appearing first:
 - If the *wh* external argument is non-human (i.e., *kakvo*), and there is a human *wh* internal argument, then the *wh*-ordering is optional (as in example (12) above).¹⁰
 - If the *wh* external argument is human (i.e., *koj*), then it must appear first in the *wh* cluster (cf. (8), (9), (13) or (17)¹¹).
- If the external argument is not a *wh* phrase, as in (16) and (20)-(21), then there can be any ordering in the *wh* cluster.
- If there is no external argument of any kind (regardless of whether the external argument is a *wh* phrase), and:
 - if two (or more) *wh* phrases are human, as in (14), then any of the human *wh* phrases can be first in the *wh* cluster.
 - if both (or all) *wh* phrases are non-human, as in (22), then any of these can be first in the *wh* cluster.
 - if there is only one human *wh* phrase, as in (15) and (18)-(19), then that *wh* phrase must appear first in the *wh* cluster.

5.1 The notions “*sorting key*” and “*subject*”

One proposal in the literature is that the first *wh* phrase in a clause is a “*sorting key*”; we interpret this to mean formally that the *sorting-key wh* phrase represents the left-hand column of items in a logical function (i.e., the column the items of which may not recur).

(29) **Kuno’s Sorting Key Hypothesis**

“In a multiple *wh* question, the leftmost *wh*-word represents the key for sorting relevant pieces of information in the answer.” [Kuno & Takami (1993:112), citing Kuno (1982)]¹²

Indeed, the Bulgarian data above show that wherever there is a syntactic ordering requirement (that is, ignoring consecutive homophony) a *wh* phrase may be required to be only **first** in a cluster (i.e., never required to be second, third, or last in the cluster). Whereas some of the Rules of Thumb in (5) describe how some *wh* phrases **tend** to be second or late in the series, none of them absolutely requires such non-initial orderings.

It is also worth pointing out that in a single-*wh*-fronting language like English a *wh* phrase in situ must be dependent on a preceding (fronted) *wh* phrase. This means that a *wh* clause licenses only one *wh* phrase, the *sorting key*. Any others are dependent on the *sorting key*.¹³ We adopt the approach to Superiority in Williams (1994:191ff), which relies on time-line precedence. The only difference between English and Bulgarian is that dependent *wh* phrases must also front in overt syntax. In both languages such dependent *wh* phrases must still follow (i.e., appear to the right of) the *sorting key*. (We return to the formal constraints distinguishing these two language types below.) We adopt the *Sorting Key Hypothesis* and Williams’s proposal that *wh* dependence is subsumed in the *Leftness Condition*, and that they are unviolated (i.e., part of “*Gen*” in Prince & Smolensky’s 1993 model).

A brief excursus on what the sentential subject is will also clarify the proposals below: In the talk version of this paper at FASL-3 we assumed that the clausal subject is whichever NP is in the NOM case. Thanks to a suggestion by Željko Bošković, we now assume otherwise (although perhaps not in keeping with his exact intention): NOM is assigned by default; DAT and ACC are assigned

to specific internal arguments by virtue either of their position within VP (or, possibly in the case of the DAT, idiosyncratically in the lexicon). This entails that any external argument (*in situ*) bears NOM case. So does any internal-argument Theme not already assigned ACC. The canonical subject position, SpecIP, no longer functions just as a Case-assigning position, but as a marker of some sort of prominence, perhaps following Izvorski (1993). The structural positions of crucial significance are the following:

(30) [CP [IP X [PrP X [VP ... Xⁿ ...]VP]PrP]IP]CP

Pr[edicate]P is a “VP shell”, a projection that generates an external argument if there is one; cf. Bailyn (1995) and Bowers (1993) for further details. Each instance of X in (30) represents a position (or, inside VP, position_g) where *wh* phrases are located (prior to *wh*-movement). An external argument is projected in SpecPrP, while adverbials and internal arguments are within VP. While we do not make the crucial arguments for the VP-internal status of adverbs here (or, for that matter, specify where within VP they are positioned), our analysis functions properly under this (albeit vague) assumption. We posit no particular order within VP in our structures. Furthermore, SpecIP is filled as the result of a pre-*wh*, Move-Alpha operation. We propose the following constraints:

(31) **SUBJSUP**: Fill SpecIP with the highest XP within IP.

If there is a PrP, then the highest XP is SpecPrP, the external argument. If there is no PrP, then all constituents are within VP and none of these is higher than any other; any VP-internal constituent can be moved to SpecIP in such a structure to satisfy SUBJSUP.

(32) **SUBJHUM**: SpecIP must be human.

SUBJHUM is a constraint that formalizes the interaction of pragmatics with syntax; Optimality Theory is especially suited to such interface constraints. Neither of the constraints in (31) and (32) refers to *wh*-hood. A non-*wh* external argument in SpecIP, for example, will satisfy both of these constraints.

We further assume a canonical (structural) version of the Superiority Condition, worded here in terms of (29) above:

- (33) **SORTSUP**: The structurally highest *wh* phrase (in an A[rgument] position) must be the sorting key.

SORTSUP merely insures that the *wh* phrase arboreally highest (prior to any *wh*-movement) appear first (leftmost) in overt syntax. The interaction of these three constraints is exemplified in §5.2 below. By “*wh*-movement” we do **not** mean “movement to SpecCP”; we follow Grimshaw (1993a, b), which argues (using data primarily from English) that there is no separate CP projection if SpecIP is occupied by a *wh* phrase.¹⁴

5.2 The tableaux

A representative of each of the structure types summarized at the start of §5 is assessed using Optimality-theoretic tableaux. The three constraints in (31) through (33) correspond to columns on the right side of each tableau. (STARHOM, from §4, is not shown, since it is unviolated in all the remaining data; cf., however, n. 16 below) Likely candidates are arranged in rows. A star (*) in any cell signifies that the candidate form fails that constraint column. A check mark (✓) signifies that there is no violation; a dollar sign (\$) marks each tableau’s optimal candidate(s).

(34) [~ (8)]

			SORT SUP	SUBJ SUP	SUBJ HUM	
a.	[_{IP} k _o j _i	[_{PrP} N _P t _i	[_{VP} ...k _o g _o j...]]		✓	✓
\$	[_{IP} k _o j _i k _o g _o j	[_{PrP} N _P t _i	[_{VP} ...w _h t _j ...]]	✓		
b.I	[_{IP} k _o g _o j	[_{PrP} k _o j _i	[_{VP} ...N _P t _j ...]]		*	✓
	[_{IP} k _o g _o j k _o j _i	[_{PrP} w _h t _i	[_{VP} ...N _P t _j ...]]	✓		
b.II	[_{IP} k _o j _i	[_{PrP} N _P t _i	[_{VP} ...k _o g _o j...]]		✓	✓
	[_{IP} k _o g _o j k _o j _i	[_{PrP} N _P t _i	[_{VP} ...w _h t _j ...]]	*		

Three candidates are displayed in (34). The lower two candidates correspond to possible structures underlying the bad word order in (8b). For ease of exposition, we have listed each candidate in (34)

in two tiers: The top tier is the structure “before” *wh*-movement, while the lower tier reflects the structure at overt syntax.

Candidate (34a) satisfies all three constraints: *koj* ‘who’ is human and base-generated higher than *kogo* ‘whom’. As such, this *wh* phrase satisfies both SUBJHUM and SUBJSUP. Additionally, since it is in SpecIP (i.e., the arboreally highest *wh* phrase in the clause) *koj* also satisfies SORTSUP. Candidate (34b.I) fails SUBJSUP because the lower argument is NP-moved to SpecIP. Candidate (34b.II) satisfies SUBJHUM and SUBJSUP, but—due to the precedence of *kogo* ‘whom’—causes the (pre-*wh*) lower *wh* phrase to be interpreted as the sorting key, in violation of SORTSUP.

In the remaining tableaux we show only the input to *wh*-movement. All of the candidates we show go on to undergo *wh*-movement in accordance with SORTSUP. For this reason, only SUBJSUP and SUBJHUM columns appear in the remaining tableaux.

Tableau (35) is similar to (34). The only difference is that candidate (35b) also fails SUBJHUM.

(35) [≈ (11)]			SUBJ SUP	SUBJ HUM
a.	\$	[_{IP} koj _i [_{PrP} NP _{t_i} [_{VP} ...kakvo _j ...]]]	√	√
b.		[_{IP} kakvo _j [_{PrP} koj _i [_{VP} ...NP _{t_j} ...]]]	*	*

Tableau (36) presents several possibilities: It may well be that the average Bulgarian-speaker has never encountered the positive evidence to rank SUBJSUP and SUBJHUM. If a speaker has not encountered such (pragmatically odd) data, then there is no way for these constraints to be ranked. It is also possible that other focus-type constraints are at play. We leave open the implications.

(36) [≈ (12)]			SUBJ SUP	SUBJ HUM
a.	\$	[_{IP} kakvo _j [_{PrP} NP _{t_i} [_{VP} ...kogo _j ...]]]	√	*
b.	\$	[_{IP} kogo _j [_{PrP} kakvo _j [_{VP} ...NP _{t_j} ...]]]	*	√

Tableau (37) has a non-*wh* human external argument NP-moved to SpecIP.¹⁵ The forms in (37) are the “input” to *wh*-movement. While NP-moving any of the arguments to SpecIP satisfies SUBJHUM, only *Ivan* can be so moved to satisfy SUBJSUP.

(37) [≈ (16)]	SUBJ SUP	SUBJ HUM
a. \$ [IP Ivan _i [PrP NP _{t_i} [VP... kogo _j ... na kogo _k ...]]]	✓	✓
b. [IP kogo _j [PrP Ivan _i [VP... NP _{t_j} ... na kogo _k ...]]]	*	✓
c. [IP na kogo _k [PrP Ivan _i [VP... kogo _j ... NP _{t_k} ...]]]	*	✓

Because *Ivan* satisfies both of the NP-movement constraints, either *wh* phrase is then free to be sorting key. The structures in (38a-b) correspond to the two optional results of *wh*-movement applied to (37a). Both forms in (38), in turn, satisfy SORTSUP.¹⁶

(38a) [Cp kogo_j na kogo_k [IP Ivan_i [PrP NP_{t_i} [VP... *wh*_{*t_j*}... *wh*_{*t_k*}...]]]]

(38b) [Cp na kogo_k kogo_j [IP Ivan_i [PrP NP_{t_i} [VP... *wh*_{*t_j*}... *wh*_{*t_k*}...]]]]

The remaining tableaux assess the structures with no external argument of any kind (i.e., without any Pr projection).

(39) [≈ (14)]	SUBJ SUP	SUBJ HUM
a. \$ [IP ko _{j_i} [VP... NP _{t_i} ... na kogo _j ...]]]	✓	✓
b. \$ [IP na kogo _j [VP... ko _{j_i} ... NP _{t_j} ...]]]	✓	✓

Tableau (39) shows two candidates which satisfy both of the NP-movement constraints. Since both *wh* phrases are internal arguments, they are equally superior in the syntactic tree. This means that NP-moving either one of them to SpecIP satisfies SUBJSUP. Additionally, since both are human, SUBJHUM is also satisfied. Whichever one is NP-moved to SpecIP then satisfies SORTSUP. The tie on all constraints predicts that two optimal, and therefore attested, forms result.

(40) [~ (22)]		SUBJ SUP	SUBJ HUM
a. \$	[_{IP} kakvo _i [_{VP} ...NP _{t_i} ...kǎde _j ...]]]	✓	*
b. \$	[_{IP} kǎde _j [_{VP} ...kakvo _i ...NP _{t_j} ...]]]	✓	*

Tableau (40) shows the same structure as (39), but without any human *wh* phrases. Here, too, there is more than one optimal form due to a tie on each constraint. Note that “tie” does not just mean “both candidates satisfy”—the two candidates actually both violate SUBJHUM. They nonetheless tie (i.e., fare equally) on both constraints, forcing there to be more than one attested form.

In our last tableau there is the same structure again as in (39) and (40), but with only one human *wh* phrase.

(41) [~ (18)]		SUBJ SUP	SUBJ HUM
a. \$	[_{IP} koj _i [_{VP} ...NP _{t_i} ...kǎde _j ...]]]	✓	✓
b.	[_{IP} kǎde _j [_{VP} ...koj _i ...NP _{t_j} ...]]]	✓	*

To summarize this section, while each of the constraints in (31) through (33) is required in order to yield the correct output, it is nonetheless impossible to rank these three constraints relative to each other. This is because the classic “kitty-corner” distribution of check marks and stars, shown in (42), is absent. We therefore leave the three constraints unranked.

(42)	CONSTRAINT A	CONSTRAINT B
a. \$ <i>Attested/optimal candidate</i>	✓	*
b. <i>Ungrammatical candidate</i>	*!	✓

5.3 Differentiating Bulgarian from English from Chinese

How then do we differentiate Rudin’s [+ Multiply Filled SpecCP] languages—Bulgarian and Romanian—from those which front only one *wh* phrase, like English? Moreover, how can these two

language groups be differentiated formally from languages like Chinese, which front no *wh* phrases? We adopt the model in Grimshaw (1993b), which makes use of the following constraints:

- (43) **STAY** [Grimshaw (1993b:1)]
Star trace (= the Economy of Derivation).
- (44) **OPSPEC** [Grimshaw (1993a:1, 1993b:1)]
All operators must be in some Spec position.

Grimshaw also suggests that “either unmoved *wh* phrases are not Operators, as assumed in work on the ‘Wh Criterion’ ... or we must revise OPSPEC to, say, TOPSPEC” [Grimshaw (1993b:15)]. We follow the former lemma of her suggestion, defining only the sorting key as “operator”; all other (dependent) *wh* phrases are nonetheless required to be in the same specifier position as the sorting key at overt syntax. We define the constraint as follows:

- (45) **DEPSPEC** Any *wh* phrase dependent on the sorting key must adjoin to the sorting key in overt syntax.

With the constraints in (43) through (45) a crude typology is possible: STAY is ranked so highly in Chinese as not to allow even one *wh* phrase to front (cf. Huang 1982 for the details). We therefore posit the ranking in (49):

- (49) **Chinese:** STAY » { OPSPEC , DEPSPEC }

The English-Bulgarian difference is that English fronts just one *wh* phrase, the sorting key, while Bulgarian fronts them all:

- (50) **English:** OPSPEC » STAY » DEPSPEC
- (51) **Bulgarian:** { OPSPEC , DEPSPEC } » STAY

A final note on the other Slavic languages, which Rudin (1989) posits as having one *wh* word in SpecCP, with the rest perhaps adjoined to IP. We would essentially classify these languages with English, which fronts one *wh* phrase. We further

speculate, following the spirit of Yokoyama's (1986) treatment of Russian, that the remaining *wh* phrases, being inherently "low-content" information, are fronted as part of the discourse-influenced constituent order, often referred to as "theme-rheme" structure. That is, all the Slavic languages except Bulgarian have only single syntactic *wh*-fronting. This also explains why such languages cannot front more than one *wh* phrase to a higher clause.¹⁷

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Notes:

¹ The following abbreviations are used in this paper: ACC[usative]; ADV[verb]; Agro(P): object-agreement (phrase), a functional category; C(P): complementizer (phrase); CL[itic]; DAT[ive]; DO: direct object; F[eminine]; I[nflection] (a functional category), IP: inflection phrase; IO: indirect object; LSA: Linguistic Society of America; M[asculine]; N[neuter]; NP: noun phrase; NEG[ation]; NOM[inative]; p.c.: personal communication; PF: phonetic form; PL[ural]; P(P): preposition (phrase); Pr(P): predicate (phrase); SG: singular; Spec[ifier]; t[race]; V(P): verb (phrase); *wh*: (non-yes/no) interrogative; X⁽ⁿ⁾: position(s); XP: any maximal projection; 1, 2, 3: first-, second-, third-person.

² Rudin (1988b:461-2) also uses clitic placement to contrast Bulgarian from the rest of Slavic, showing the contrast in (i) and (ii):

(i) Bulgarian

Koj kakvo na kogo e dal?
 who what to whom CL gave
 NOM ACC DAT 3.SG M.SG

(ii) Serbo-Croatian

Ko je što kome dao?
 who CL what to-whom gave
 NOM 3.SG ACC DAT M.SG

'Who gave what to whom?' (for both) |~ ex. (29, 31), Rudin (1988b:462), resp.]

Only these orders are allowed (except for switching the non-initial *wh* phrases in both). Rudin (1988b) points out that these data constitute a valid argument only against multiply filled SpecCP in Serbo-Croatian, not for multiply filled SpecCP in Bulgarian. Bulgarian *e* must always procliticize to the tensed verb, so its position is irrelevant for this test. Cf. also Avgustinova (1994) and Dimitrova-Vulchanova (1992) regarding the verb-proclitic status of Bulgarian auxiliaries and pronouns.

One Bulgarian clitic that **does** not require procliticization to the verb, *li* (y/n question), must nonetheless follow all *wh* phrases. [This is a correction of ex. (25) in Rudin (1994), which **incorrectly** reports *?'Koj li kogo e udaril? 'Who on earth killed whom?'*; the use of *li* in *wh* questions renders an emphatic, 'on earth' or 'the hell' meaning, and is difficult to get in multiple-*wh* questions. But if this question were uttered, it would be *Koj kogo li e udaril?'*]

Another possible distinction between Bulgarian and the rest of Slavic is the prosodic phrasing of multiply fronted *wh* phrases. Cichocki (1983:58, citing G. Dogil p.c.) reports that in Polish when more than two *wh* phrases appear clause-initially there is an intonational boundary between the first *wh* phrase on the one hand and all the subsequent *wh* phrases. Our preliminary (non-instrumental) tests suggest that there is no such intonational boundary in Bulgarian *wh* clusters.

³ "No rule can involve *X, Y* in the structure ...*X...[a...Z...-WYZ...]*... where the rule applies ambiguously to *Z* and *Y* and *Z* is superior to *Y*." [Chomsky (1973:246)]

⁴ In §5 we propose constraints that (a) require SpecIP to be occupied by the highest constituent (namely: the external argument) and (b) require SpecIP to be occupied by a human constituent. Whereas these constraints are **not** crucially ranked in Bulgarian, (12) and (13) would rank SUBJSUP » SUBJHUM for English.

⁵ Unless otherwise noted, all examples were elicited by us.

⁶ Specifically, judgments depend on whether *wh* phrases are S- or VP-adverbials.

⁷ In this paper we do not consider multiple-*wh* questions with only adverbial *wh* phrases, aside from the preliminary observation that such questions tend to require the conjunction *i* 'and' between the two clause-initial *wh* phrases. [Cf. also n. 17.]

⁸ Dimitrova-Vulchanova also reports the order *Na kogo koj kakvo kaza?* [her ex. (80c)], which was not in the earlier draft of her paper. Our informants judge this order to be "awkward" at best, not used in neutral contexts. She does add that "the only preferred position within the sequence is that of the subject *wh*-constituent" [p. 45].

⁹ Additionally, we offer yet another phenomenon: In the construct *One can't not go to work, you know!*, it's impossible to replace the contraction *can't* with the separate words *can not*: **One can not not go to work, you know!*, primarily because of the consecutive **not not* homophones.

¹⁰ The careful reader may have noticed that we have not presented any examples of a non-human *wh* external argument with any of the other *wh* phrases being non-human. Two such examples come to mind: First, there is the question with NOM and ACC non-human arguments, both of them *kakvo* due to the ambi-case status of this *wh* word. It is impossible to determine which *kakvo* is first in the *wh* cluster. (If both of these *wh* phrases appear clause-initially, then there is the additional factor of consecutive homophony: *Kakvo kakvo e udarilo?* 'What hit what?'; in fact such an example was presented during questions following our talk at FASL-3). Second, there is the *wh* question with *kakvo* as the external argument as well as a *wh* adverbial. We have elicited the following:

- | | | | | | | | | | |
|-----|-------|-------|-----|--------|------|-------|-------|-----|--------|
| (i) | Kakvo | kāde | te | udari? | (ii) | Kāde | kakvo | te | udari? |
| | what | where | you | hit | | where | what | you | hit |
| | NOM | ADV | ACC | 3.SG | | ADV | NOM | ACC | 3.SG |

Our informants tend to favor (ii). We have no explanation for this.

¹¹ We assume, non-crucially, that the NOM argument in (17) is generated as the external argument, while that of (18) is generated VP-internally.

¹² Kuno & Takami (1993) have modified Kuno's original (1982) wording of this hypothesis using the word "leftmost" instead of "fronted", in order to account for *wh* adverbials which they posit as being base-leftmost-generated. For our purposes their revision likewise serves a purpose, distinguishing the very first *wh* phrase from any

subsequent ones (in a multiply fronted *wh* cluster). The wording in (29) also serves to unify Bulgarian with single-*wh*-fronting languages like English; in each the first or only “leftmost” *wh* phrase is the sorting key. We leave aside until §5.3 why languages like Chinese (and Japanese) do not move any *wh* phrases overtly.

¹³ Unfronted *wh* phrases can also be dependent on higher-clause *wh* sorting keys or be “discourse-linked” (see Williams 1994:191-195 and Pesetsky 1987). We limit this paper to context-free *wh* questions not embedded in other *wh* clauses.

¹⁴ Our present proposal is not crucially inconsistent, in most respects, with the earlier assumptions in Rudin (1988b; 1989), that all *wh* phrases are fronted to SpecCP. Crucially, our present model **requires** (based largely on the arguments above in §1) that all *wh* phrases be in the Spec of the topmost projection (i.e., SpecIP or SpecCP) in overt syntax (or, in the case of *wh*-extraction, as in (3), the same destination-specifier position). Both Grimshaw’s and Rudin’s proposals agree on one environment: If a non-*wh* element occupies SpecIP, then a CP projection is required. In such a case tensed V (with its clitics) moves to C. Izvorski (1993) proposes yet a third configuration: all interrogative *wh* phrases are fronted to the Spec of a split-I projection (F[ocus]P); that is, no **interrogative** *wh* phrases are fronted to SpecCP (but **relative-clause** *wh* phrases are).

One argument in favor of Grimshaw’s model is the following: Note that the summary at the beginning of §5 is not entirely straightforward (“If there is no external argument of any kind ... and if there is only one human *wh* phrase, as in (15) and (18)-(19), then that human *wh* phrase must appear first in the *wh* cluster.”). Actually, the “only ... human *wh* phrase” in (15) or (18) is the only human argument of any kind. In (19), however, there is also another human argument, the 2.SG.DAT clitic pronoun *ti*. Recall as well that SUBJHUM does not discriminate as to *wh*-hood. If *ti* is NP-moved to SpecIP instead of *koj* ‘who’ in (19), then SUBJHUM (and SUBJSUP) would be satisfied and then both *wh* phrases would be movable to SpecCP, with either one as sorting key satisfying SORTSUP. This appears to be true. In the overall assessment, however, NP-moving *koj* to SpecIP satisfies more constraints than if *ti* were so moved, as shown in the following structures:

- (i) $[IP]_{\text{SpecIP}} \text{koj}_i \text{ zašto}_j \ll_{VP} \dots NP_{ti} \dots \text{wh}_j \dots \text{ti}_k \dots \ll_{VP} \ll_{IP} \ll_{CP}$
- (ii) $\ll_{CP} \ll_{\text{SpecCP}} \text{koj}_i \text{ zašto}_j \ll_{IP} \ll_{\text{SpecIP}} \text{wh}_i \ll_{VP} \dots NP_{ti} \dots \text{wh}_j \dots \text{ti}_k \dots \ll_{VP} \ll_{IP} \ll_{CP}$
- (iii) $\ll_{CP} \ll_{\text{SpecCP}} \text{koj}_i \text{ zašto}_j \ll_{IP} \ll_{\text{SpecIP}} \text{ti}_k \ll_{VP} \dots \text{wh}_i \dots \text{wh}_j \dots NP_{tk} \dots \ll_{VP} \ll_{IP} \ll_{CP}$
- (iv) * $\ll_{CP} \ll_{\text{SpecCP}} \text{zašto}_j \text{ koj}_i \ll_{IP} \ll_{\text{SpecIP}} \text{ti}_k \ll_{VP} \dots \text{wh}_i \dots \text{wh}_j \dots NP_{tk} \dots \ll_{VP} \ll_{IP} \ll_{CP}$

All four structures satisfy each of SUBJSUP, SUBJHUM and SORTSUP. SUBJSUP is satisfied equally, since all constituents movable to SpecIP are equidistant to it, all within VP; SUBJHUM is satisfied in each because either *koj* ‘who’ or *ti* ‘to you’ is NP-moved to SpecIP; finally, SORTSUP is satisfied in each because a) if *koj* is selected to be in SpecIP (prior to any *wh*-movement), as in (i) and (ii), then *koj* is also leftmost in overt syntax; or b) *ti* is in SpecIP, as in (iii) and (iv), and either *wh* phrase is equidistant to SpecCP, satisfying SORTSUP equally.

How then is (iv)—the unattested order—ruled out? STAY, in (43), selects (i) over any of (ii) through (iv). While it is not clear how STAY is assessed, it is obvious that example (i), with only two movements (one *wh*- and one NP-movement), violates STAY less than any of (ii), (iii) or (iv) (which each undergo one extra *wh*-movement). Thus, the unattested order in (iv) is ruled out. In addition, the fact that (i)

is more optimal than either (ii) or (iii) is also an argument in favor of Grimshaw's (1993a) build-a-CP-only-when-necessary model (cf. nn. 16 and 17).

¹⁵ While we do not show the tableaux for (20) and (21) here, their distribution of stars and checks is the same. We assume that the inaudible external argument pronominal in (20) and (21) behave like *Ivan* in (16) and (37) (in the relevant respects).

¹⁶ In the tableaux, we use whichever register (colloquial or literary) that conveniently eschews any obfuscation caused by consecutive homophony. Note that (38a-b) correspond to (16a-b) respectively, and that (16b) is bad, due to STARHOM (cf. §4). This is controlled for in their colloquial counterparts in (27).

Recall from (16) that *Ivan* is clause-final on the surface. We rely on V-to-C movement to yield the post-verbal position of *Ivan*. V-to-C occurs, however, only when a CP is formed, which, under Grimshaw's and our account, (cf. nn. 14 and 17) only happens when SpecIP is non-*wh*. This supports Grimshaw (1993a) even more.

¹⁷ Since presenting this paper and circulating it in 1994 we have learned of two other treatments of Slavic multiple-*wh* phenomena: Golden (1995) reports multiple *wh*-extraction in Slovene; Przepiórkowski (1994) also finds that multiple adjunct-*wh* phrases in Polish must be conjoined using *i* 'and' and reports Polish data with the complementizer *że* 'that' which suggest (to us) a SpecIP analysis for the subject *wh* phrase, along the lines of Grimshaw (1993a; 1993b); cf. nn. 14 and 16. We have also learned of the following two Optimality-theoretic approaches to the three-way *wh*-fronting typology in (49) through (51): Ackema & Neeleman (1995) and Legendre *et al* (1995). These works have apparently arrived at their conclusions independently. We refrain from entertaining these other works' arguments here. For posterity, however, we list these works below.

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Integrating Telicity, Aspect and NP Semantics: The Role of Thematic Structure

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0 Introduction

Slavic languages have a rich inventory of verb affixes that typically have syntactic and semantic effects on the argument structure of the derived verb. Although verb affixes function as operators on verbs, they often restrict the interpretation of certain nominal arguments in a way in which determiners in a nominal construction do. This intriguing fact has not been systematically described in the relevant literature. I propose that verb predicate operators that determine the aspect (perfective and imperfective) of verb predicates also function as "lexical" quantifiers (in the sense of Partee, 1990) over episodic predicates and their arguments. In particular, they bind the variable introduced by the Incremental Theme NP providing it with a quantificational force and/or closely related notions, such as boundedness and definiteness.

The hypothesis, which is supported by the linguistic evidence from Czech, draws on Krifka's programmatic proposal (1986, 1989 and 1992) and the notion 'Incremental Theme' introduced by Dowty (1988, 1991), who in turn follows some proposals in Hinrichs (1985) and Krifka (1986, 1989). The Incremental Theme is one of the contributing properties of the Proto-Patient role. It is characterized by its association with the argument that influences the telic or atelic interpretation of a given complex verb predicate.

My findings contribute not only to the reservoir of facts that suggests that thematic roles are required in the statement of linguistic generalizations, but also they are directly related to the research on quantification and semantic typology initiated by Partee, Bach and Kratzer (1987). They propose that the variety of means by which quantification is expressed in natural languages, can be divided into two main morphosyntactic classes: D-quantification and A-quantification. This distinction can be approximately described as a

distinction between quantification expressed by determiners within NPs, and quantification expressed by various non-NP means at the level of a verb, a VP or a sentence. The class of A-quantifiers includes adverbs of quantification, auxiliaries, affixes, for example.

1 The Czech data

1.1 Definiteness and boundedness

The best examples for the influence of verb morphology on the semantic properties of nominal arguments can be found in sentences that contain undetermined mass and plural NPs that function as DOs, as is shown in (1):

(1) a.

Pil^I *víno.*
 drank-SG wine-SG-ACC
 'He was drinking (the) wine.'

(1) b.

Vypil^P *víno.*
 PREF-drank-SG wine-SG-ACC
 'He drank up (all) the wine.'

(1a) and (1b) contain the same undetermined mass DO-NP *víno* 'wine'. Formally, these two sentences only differ in aspect, marked on their main verbs. Nevertheless, there is a significant difference in the interpretation of their DO-NPs.

(1b) with the prefixed perfective verb *vypil*^P entails that the event ended when the Agent finished drinking all the wine. The speaker presupposes that the hearer can identify the relevant portion of wine in the discourse. In this most natural, single event, interpretation, *víno* 'wine' is *bounded*, *referentially specific* (or *definite*) and *universally quantified*. This interpretation is often associated with the referential use of definite descriptions in languages like English. This observation is significant in the light of the fact that Czech, like most Slavic languages, has no overt article system.

By contrast, (1a) with the imperfective verb *pil*^I suggests that there was an *unbounded* amount of wine. The unbounded meaning is enhanced if imperfective sentence (1a) is used progressively. The use of the mass DO-NP *víno* 'wine' here most closely corresponds to English undetermined mass NPs or mass NPs with the unstressed partitive determiner 'some'.

A similar interaction also takes place between aspectual operators and undetermined plural DO-NPs, as is shown in (2a) and (2b):

(2) a.

Jedl^I ořechy.
ate-SG nuts-PL-ACC
'He was eating (the) nuts.'

(2) b.

Snědl^P ořechy.
PREF-ate-SG nuts-PL-ACC
'He ate (all) the nuts.'

To summarize, the above examples show that the quantificational and definiteness interpretation of undetermined mass NPs must be the effect of verb aspect, since the above pairs of sentences minimally differ in aspect marked on the verbs, there are no other expressions in the environment of the undetermined mass NPs that could be responsible for this interpretation and undetermined mass NPs on their own are standardly considered to be unbounded.

Although the correlation between perfective aspect with the definite and universal interpretation of the DO-NP is well-known in Slavic linguistics¹, it has not been systematically investigated. In particular, the problem is to account for those cases in which the perfective aspect **must** be correlated with nominal arguments that are interpreted as bounded, referentially specific (definite) and universally quantified (as in (1b) and (2b)), and *also* for those cases in which it **need not** or even **must not**. The last case is illustrated in the following pair of sentences, in which the difference in aspect is not necessarily correlated with a different interpretation of DO-NPs. Crucially, the DO-NP in perfective sentence (3b) does not have a referentially specific and universally quantified interpretation:

(3) a. *Slyšel^I hlasy na chodbě.*
heard-SG voices-PL-ACC on corridor
'He heard (some) voices in the corridor.'

- (3) b. *Uslyšel^P hlasy na chodbě.*
 PREF-heard-SG voices-PL-ACC on corridor
 'He (suddenly) heard (some) voices in the corridor.'

1. 2 Quantification

In the previous section, it was observed that verb predicate operators have semantic effects that are comparable to those of articles and to the quantifiers 'all' or 'whole' (universal) and 'some' (partitive). In addition, verb predicate operators may have effects that are comparable to other quantifiers, both strong and weak (cf. Barwise and Cooper 1981), and various expressions of measure and quantity. Two well-known cases are illustrated by (4) and (5).

- (4) *Napil^P se kávy.*
 PREF-drank-3SG REFL coffee-SG-GEN
 'He drank some coffee.'

The prefix *na-* in (4) *napil^P se kávy* 'drink some coffee' functions as a vague quantifier with respect to the object 'coffee', meaning approximately 'the set of groups with at least *n* members each, where *n* qualifies as a large number by some contextually relevant standard'. In other words, the contribution of the prefix *na-* is close to the meaning of the English vague quantifiers 'many', 'much', 'a lot (of)'.

In (5) the prefix *po-* is responsible for the distributive reading that concerns the subject argument:

- (5) *Šálky se porozbijely^P v myčce.*
 cups-PL-NOM REFL PREF-broke-PL in dishwasher
 '(All) the cups broke in the dishwasher.' [one by one]

Quantificational phenomena comparable to those illustrated by the examples in this section have only recently been noticed and described in some non-Indo-European languages (cf. Partee, Bach, Kratzer, 1987, Partee, 1990). However, Slavic derivational verb affixes have not been studied from the point of view of the current theory of quantification. Yet the idea that derivational verb affixes convey various quantificational and closely related notions is certainly implicit in

the copious literature on 'Aktionsarten' (German for 'manners of action'), in the sense used in the traditional Germanic and Slavic linguistics (cf. Agrell, 1908 and Isačenko, 1962, for example) with reference to the categorization of the semantic contribution of individual verb affixes to the meaning of derived verbs. The vast number of studies on Aktionsart classes in this narrow morphological sense is a virtual trove of invaluable observations that implicitly confirm the existence of such effects (for the Czech data, see, for example, Petr 1986).

2 Previous approaches

2.1 D-quantification and A-quantification

The observation that verb predicate operators seem to function as determiners and various expressions of quantity and measure with respect to nominal arguments is by no means unique to Czech and other Slavic languages. Similar observations have been made in such typologically distinct languages as Japanese (Takashi, p.c.), Hindi (Singh 1991), Eskimo (Bittner 1991), American Indian languages (cf. Jelinek 1988), Warlpiri and Gun-djeyhmi (cf. Partee 1990:16-17), to give just a few examples.

Recent research on quantification initiated by Partee, Bach and Kratzer (cf. Partee, Bach and Kratzer 1987; Partee 1990, and others) has opened new fruitful venues for the investigation of this phenomenon. They assume that NP quantification is not universal. Quantificational phenomena in natural languages can be divided into two main syntactic and semantic classes: *D-quantification*, which is typically expressed in the NP with determiner quantifiers, and *A-quantification* expressed at the level of the sentence or VP with sentence adverbs (*usually, always*), "floated" quantifiers (*each*), auxiliaries, affixes, "argument-structure adjusters", for example. D- and A-quantifiers with the same quantificational force differ in that the D-quantifier counts individuals, whereas the corresponding A-quantifier counts "cases" (Lewis 1975).

Partee (1990) illustrates the influence of verb morphology on nominal arguments with the Czech prefix *po-*, as in *pomalovat* 'to

paint all over X', 'to cover X with paint':

- (6) *Pomaloval*^P *stenu*^v (*hesly*).
 PREF-painted-SG wall-SG-ACC (slogans-PL-INSTR)
 'He covered the wall (with slogans).'

The prefix *po-* has here a completive meaning that is "in a certain sense quantificational but is certainly to be captured at a lexical rather than a syntactic level" (Partee 1990:19). Another example of this type of "quantificational mechanism" is Warlpiri example (7) with the partitive preverb *puta-*:

- (7) *Ngapa o-ju puta-nga-nja*.
 water AUX-1sg PART-drink-IMP
 'Just drink some (not all) of my water!'

Any attempt at describing the influence of verb morphology on nominal arguments should address the following two issues:

The first concerns the conditions under which a given verb predicate operator extends its semantic effects over a particular nominal argument or arguments.

The second concerns the non-compositional nature of the data (in particular, in such examples as (2), (4) - (6)). They challenge the hypothesis that the meaning of sentences can be derived in a systematic way by applying compositional semantic rules to independently motivated syntactic structures.

In what follows I will focus on the partitive-holistic, bounded-unbounded, definite-indefinite interpretation of nominal arguments that is determined by verb aspect.

2. 2 Krifka

2. 2. 1 Lattice theory and thematic roles

Krifka (1986, 1989 and 1992) proposes that the influence of verb aspect on the interpretation of nominal arguments depends on the lexical semantics of a certain classes of verb predicates². He proposes that the relevant predicates denote events that stand in a one-to-one relation to one of their participants or objects³. The relevant object undergoes a

gradual change of state in distinguishable consecutive stages and its extent its intrinsically tied to the extent of the event.

To illustrate this point, take the following example. When we drink a glass of wine, the quantity of wine in a glass gradually decreases in lockstep with the progress of the drinking event. The incremental change in the quantity of wine allows us to monitor the progress of the drinking event. When the glass becomes empty, the drinking event necessarily comes to an end. In short, the decreasing quantity of wine in a glass is intrinsically tied to the delimitation of the drinking event.

Krifka (1986, 1989 and 1992) formally represents this observation within an event semantics that is enriched with *lattice* structures. He assumes that the domains of objects and events constitute two non-overlapping sorts of entities, each of which has the structure of a complete join semi-lattice⁴.

For example, a NP like *a glass of wine* denotes a quantity of wine that has various proper parts which are quantities of wine of various sizes, none of which, however, is itself the main quantity denoted by *a glass of wine*. On Krifka's view, the part structure of the quantity of wine is modeled as a lattice of objects. Similarly, an event denoted by the VP *drink a glass of wine* has a part structure modeled as a lattice of subevents, none of these is itself an event that is described by the same VP *drink a glass of wine*. The intuition that we can correlate the part structure of a glass of wine with the part structure of the event of drinking that glass of wine in a one-to-one fashion is represented by means of a homomorphic mapping between the two respective lattices⁵.

Building on the independently motivated assumption that thematic roles are relations between objects and events, Krifka introduces a new thematic role, **Gradual Patient**, for objects that stand in a one-to-one relation to events (e.g., objects denoted by NPs like *a glass of wine* in *drink a glass of wine*). This amounts to the claim that a part of the meaning of verbs like *drink* is modelled by means of a homomorphism between algebraically structured denotations of the Gradual Patient argument and the event. The single most important properties of the

Gradual Patient that mediate between event and object are: the mapping-to-events ("MAP-E") and mapping-to-objects ("MAP-O"). The former says that every part of the glass of wine being drunk corresponds to a part of the drinking event. The latter says that every part of a drinking of a glass of wine corresponds to a part of the glass of wine.

The homomorphism hypothesis motivates not only the influence of verb predicates on the interpretation of nominal arguments in Czech and Polish (cf. Krifka 1986, 1989 and 1992), but also the converse case, which is far more well-known, namely, the influence of nominal arguments on the telic (bounded) and atelic (unbounded) interpretation of VPs and sentences⁶, as is shown in (8):

- (8) a. *Mary drank a glass of wine.* telic
 (8) b. *Mary drank wine.* atelic

Given that *drink* is a homomorphic predicate, in (8a) it maps the denotation of its Gradual Patient argument, *a glass of wine*, into the event of drinking a glass of wine. Since *a glass of wine* denotes a bounded entity, the VP *drink a glass of wine* denotes a bounded event, as well. Similarly in (8b), the mass NP *wine* gives rise to the unbounded interpretation of the VP *drank wine* (cf. Krifka 1986, 1989 and 1992)

Krifka's Gradual Patient role was adopted by Dowty (1989, 1991) under the label 'Incremental Theme'. I will use Dowty's term, because it is widely accepted in the current research on thematic roles and argument selection. Examples of verbs that take the Incremental Theme argument are (cf. Dowty 1991:568ff.): *build a house, write a book, knit a pullover, destroy a presidential finding, eat a sandwich, paint a house, polish a shoe, proofread an article, play a sonata; copy a file, read a book, memorize a poem; enter, exit, reach, leave, depart, abut, abandon; melt, emerge, submerge, deflate, bloom, vaporize, decompose* .

2. 2. 2 Aspect, telicity and NP semantics

In order to motivate the influence of verb predicates on the interpretation of nominal arguments in Czech and Polish (Krifka 1986, 1989 and 1992), Krifka makes two further assumptions in addition to

the notion of 'Gradual Patient' (Dowty's 'Incremental Theme') and the formal apparatus within which it is embedded:

(i) Undetermined NPs in Czech are ambiguous between a definite and an indefinite interpretation. This is captured by a syntactic rule 'NP → N' that is associated with two semantic interpretations, a definite and an indefinite one. For example, the Czech undetermined mass NP *vīno* is ambiguous between 'wine' or 'the wine'. In the definite reading, *vīno* is bounded, while in the indefinite reading, it is unbounded. Singular count NPs like *hruška* mean 'a pear' or 'the pear' and they are bounded in both the definite and indefinite reading.

(ii) The perfective operator can only be applied to a bounded verb predicate, while the imperfective operator to an unbounded one (cf. Krifka 1989:187; 1992:50). In other words, perfective expressions are telic and imperfective expressions are atelic.

Krifka's explanation for the definite interpretation of undetermined NPs with mass nouns in perfective sentences, such as (1b), is as follows: The perfective aspect "forces" a bounded, or telic, interpretation of the complex verb predicate (cf. (ii)). Given the homomorphism hypothesis, the verb predicate "forces" a bounded interpretation of the NP associated with the Incremental Theme (cf. Krifka 1992:50). Since undetermined NPs with mass nouns in Czech are by definition bounded only if they also have a definite interpretation (cf. (i)), undetermined NPs with mass nouns in perfective sentences, such as (1b), are definite.

Two main objections can be raised against Krifka's compositional account. First, the assumption that undetermined NPs in Czech are ambiguous between a definite and an indefinite interpretation lacks empirical motivation. Second, Krifka's account is problematic, because it presupposes the following equations: telic = perfective and atelic = imperfective.

Despite its problems, Krifka's is the most promising analysis of the influence of aspect on nominal arguments in Slavic languages to date. Building on Krifka's proposal, I will outline an alternative analysis of the Czech data that avoids the two problems that weaken Krifka's account.

In what follows I will show, among other things, how my account differs from Krifka's. First, I draw a clear line between telicity and aspect. The categories of telicity and aspect are characterized in terms of part-whole relations, and related concepts like boundedness, that are grounded in the theory of mereology. Second, the definite/indefinite distinction is orthogonal to the bounded/unbounded distinction. Third, undetermined NPs in Slavic languages, and in other languages that lack an overt article system, are not ambiguous between the definite and indefinite interpretation. In such languages the (in)definiteness category does not belong to the system of grammatical categories, but rather the definite and indefinite readings arise as a result of the interaction of a number of lexical and grammatical categories and pragmatic principles of interpretation. That is, all occurrences of undetermined mass and plural NPs are alike in terms of syntactic structure and semantic interpretation.

3 Suggested analysis

3.1 General approach

(9) Hypothesis: Verb predicate operators function as quantifiers whose scope extends over episodic predicates and their arguments. They bind the variable introduced by the Incremental Theme NP and provide it with quantificational force and related meanings.

Such predicate operators typically function as "argument-structure adjusters" (cf. Partee 1990), as they have syntactic and semantic effects on the argument structure of predicates to which they are applied. One of their salient properties in Slavic languages, in particular, is to induce aspect (perfective and imperfective) shifts.

Corollary 1: In the scope of a perfective operator, the variable associated with the Incremental Theme NP has a universal quantificational force, meaning approximately 'all (of a whole) x'. In the scope of an imperfective operator, the variable associated with the Incremental Theme NP has a partitive force, meaning approximately 'part of x'.

Corollary 2: Verb operators with idiosyncratic lexical meanings often incorporate various kinds of quantificational meanings (e.g., distributivity, vague quantificational meaning 'many', 'much', 'a lot (of)') and closely notions, which also constrain the interpretation of the variable introduced by the Incremental Theme NP.

The description of the influence of verb aspect on the interpretation of nominal arguments proposed here exploits the following information encoded in the lexicon:

1. thematic structure of verbs;
2. lattice-theoretic representation of objects and events;
3. semantic characterization of telicity and aspect (perfective-imperfective);
4. inherent lexical semantic properties of nouns, in particular their subcategorization on the basis of the distinctions 'count/mass', 'singular/plural' and 'bounded/unbounded'.

This information is independently motivated and needed elsewhere in grammar. As in many current approaches to syntax⁸, I assume that much of the information about the combinatorial properties of words is encoded in the lexicon. Complex lexical information can be represented as a taxonomic system of lexical types. It is organized on the basis of a small number of word types in cross-cutting hierarchies that classify all the words on the basis of shared syntactic, morphological, semantic and pragmatic properties. The shared types of lexical information are stated only once in a single place in the lexicon. This has the advantage that the amount of idiosyncratic information stipulated in individual lexical entries is significantly reduced, because we can factor out from the individual lexical entries those properties that can be predicted from their membership in lexical types.

3. 2 Characterization of telicity and aspect

3. 2. 1 Telicity vs. aspect

Examples like (10) in which telicity and aspect interact best illustrate the claim that we need to draw a clear line between these two categories:

- (10) *Psať dopis.*
 wrote-SG letter-SG-ACC⁹
 'He was writing a/the letter.'

The telic (or bounded) predicate *psať dopis* 'write a/the letter' in (10) describes a situation that involves a final state at which the whole letter exists (result state). Following Krifka's and Dowty's proposal, the telic nature of the predicate 'write a/the letter' is motivated by the assumption that 'write' entails a homomorphism and the NP associated with its Incremental Theme, 'a/the letter', is bounded.

If the imperfective operator were only applicable to atelic (or unbounded) verb predicates, as Krifka assumes¹⁰, then *psať dopis* 'write a/the letter' in (10) would have to be atelic. Since the NP 'letter' is count (or bounded), this would contradict Krifka's and Dowty's claim that bounded NPs associated with the Incremental Theme give rise to the telic interpretation of verb predicates. To avoid this contradiction, we could assume that singular count NPs (and bounded NPs in general) that are linked to the Incremental Theme undergo a 'count-to-mass' (or 'bounded-to-unbounded') shift in the scope of the imperfective operator. Clearly, this would be counterintuitive and undesirable. Furthermore, imperfective sentences like (10) can be used not only to convey incomplete events, but also, due to their unmarked nature, completed events, that is, they can be used with the completive meaning carried by aspectually marked perfective sentences. All of this suggests that we need to abandon the claim that the imperfective operator is only applicable to atelic verb predicates.

What we have in (10) is, of course, a manifestation of the well-known 'imperfective paradox' (cf. Dowty 1972, 1977, 1979) or 'imperfective puzzle' (cf. Bach 1986)¹¹. A *sine qua non* of any adequate aspect theory is to account for this paradox or puzzle. It can be summarized in the following question: A given situation is part of a telic (bounded) event type. How can we describe its truth conditions if there never was, is, or will be the corresponding whole telic event that the situation is part of? The statement of truth conditions is further complicated if the situation involves an object that comes into existence throughout its course. That is, sentences like 'John was writing a/the letter' entail no existential quantification over 'a/the letter', and such

sentences can be felicitously uttered even if there never was, is, or will ever be the whole letter. Since Dowty (1972, 1979) various intensional accounts have been proposed to account for the progressive construction in English and other languages. Krifka's purely extensional account that presupposes a 'one-component' theory of aspect (i.e. telic=perfective and atelic=imperfective) cannot do justice to all the complexities of the progressive.

2. 2. 2 Telicity

The telic/atelic distinction is often elucidated in terms of part-whole relations, and such notions as boundedness, and by drawing structural parallels to the spatial domain of objects (cf. Talmy 1978; Talmy 1986; Bach 1986; and many others). Examples are given in the following table:

TABLE 1

unbounded	bounded
UNDETERMINED PLURAL AND MASS NP <i>apples</i> <i>wine</i>	SINGULAR COUNT NP <i>an/the/one apple</i> <i>a glass of wine</i>
ATELIC <i>Mary drank wine</i> <i>Mary was in New York</i>	TELIC <i>Mary drank a glass of wine</i> <i>Mary arrived</i>

Such structural parallels are taken to reflect the parallels in the cognitive structuring of space and time (cf. Talmy 1978; Talmy 1986).

It has often been observed¹² that there is an affinity between the properties of situations that have their counterparts in the spatial domain of objects, on the one hand, and the mereological predicate logic, on the other hand. Mereology (or the logic of part-whole relations) is based on a binary 'part' relation and a single operation of forming a new individual out of several individuals. It provides a

unified account of mass NPs, singular and plural count NPs and of certain properties of verbal expressions. According to Bach (1981:70), telic situations "are antisubdivisible and nonadditive", while atelic situations "lack these properties". Telic situations like an arriving are *antisubdivisible* (cf. Bach 1981:70), for it holds that "no proper part of one event can be an event of the same kind" (Bach 1981:70). Similarly, bounded entities denoted by such NPs as *an apple, five apples, a glass of wine* are antisubdivisible. This property is not shared by atelic situations and unbounded entities. Two or more atelic situations, or unbounded entities, of the same kind add up to one atelic situation, or to one unbounded entity, of the same kind. Bach (1981:70) calls this property *additivity*. The sum of two distinct telic situations, or bounded entities, of the same kind is never a situation, or bounded entity, of the same kind.

3. 2. 3 Characterization of Slavic aspect

As Bach (1986) proposed, mereological part-whole relations can also serve as the basis for the characterization of aspect. The characterization of telicity and aspect in terms of the same mereologically-based concepts has the advantage that it allows us to motivate their interaction in a straightforward way. Moreover, it allows us to incorporate aspect, in the sense of perfective-imperfective distinction, into Krifka's lattice-theoretic framework.

3. 2. 3. 1 Imperfective aspect

Leaving aside its habitual and iterative uses, the imperfective aspect has two main contextually determined uses: **progressive** and **non-progressive** (cf. Comrie 1976; Timberlake 1982, 1985).

Following Bennett and Partee (1972) and later researchers on aspect, in particular Bach (1986), I assume that the characterization of progressivity involves the notion of partitivity. Within an event semantics that draws on the theory of mereology, Bach (1986) extends Link's (1983) lattice analysis of mass and plural NPs to the denotata of VPs and sentences. Following Bach's (1986) mereologically-based account, the meaning of the progressive aspect (or the progressive use of the

imperfective) can be captured in terms of a *proper part* relation: the progressive *requires* that the denoted situation *not* be viewed in its entirety.

In its progressive use, Slavic imperfective aspect overlaps with the English progressive. Consider a sentence like (11):

- (11) *Psal*¹ *dopis*.
 wrote-SG letter-SG-ACC
 'He was writing a/the letter.'

The Slavic imperfective aspect is the unmarked member in the aspectual distinction, that is, sentences with imperfective verbs can be also used if the speaker intends to convey the fact that a certain event took place "without any implication of progressive or habitual meaning" (Comrie 1976:113)¹³. In this non-progressive or durative (Timberlake 1982, 1985) reading, (11) can be felicitously used in a situation in which it is understood by the interlocutors that the writing event was completed. However, the explicit encoding of this fact by means of the corresponding perfective verb *napsal*¹⁴ is avoided, because it is considered irrelevant for the communicative purposes.

In sum, the usage range of the imperfective aspect not only comprises progressivity, but it also covers what is typically conveyed by the perfective aspect¹⁴. The imperfective aspect, including both its progressive and non-progressive use, can be then characterized in terms of a *part-of* relation. The 'part-of' relation is to be understood as 'not necessarily proper part of', as the Slavic imperfective *allows for* the denoted situation not to be viewed in its entirety.

(12) The imperfective operator has a **partitive** function with respect to the situation denoted by a verb predicate in its scope. We need to distinguish two cases:

- (i) a 'part-of' relation is understood as 'not necessarily proper part of', it *allows for* the denoted situation not to be viewed in its entirety. (Example: the Slavic imperfective.)
- (ii) a 'part-of' relation is understood as 'a proper part of', it *requires* that the denoted situation not be viewed in its entirety. (Example: the English progressive.)

3. 2. 3. 2 Perfective aspect

Perfective verbs are bounded (or telic). According to the type of boundary lexicalized by perfective verbs, we may divide perfective verbs into three main classes.

A. Perfective verbs that focus on the tail end or (the crossing of) the **final boundary** of a full-fledged situation, as the prefix *do-* in *dopsat*^P *dopis* 'to finish writing a/the letter'.

B. Perfective verbs that encode the beginning of a situation (inchoatives) in particular, if they are derived from imperfective verbs denoting atelic states and processes. In *rozesmát*^P *se* 'to start laughing', 'to burst out laughing', the prefix *roz-* and the verb root denote an event that comprises the **initial boundary** and phase of a situation which itself can be denoted by the atelic imperfective verb *smát*^I *se*¹⁵.

These two classes suggest that in describing the semantics of perfectivity a distinction must be drawn between a situation leading up to its inherent culmination phase or final boundary and a situation leading up to the beginning of another situation¹⁶.

C. Perfective verbs that are derived with affixes that have a function comparable to measure expressions in the nominal domain. For instance, the prefix *za-* in *zaplavat*^P *si* 'to have a [relatively short] swim' extracts a portion of the situation denoted by the simple imperfective verb *plavat*^I 'to swim'. In addition, it also provides a quantitative evaluation of the temporal duration of a situation. We may dub this the **bilateral delimitation** of a situation or a *portion-extracting* function (cf. Talmy 1986).

The characterization of perfectivity in terms of the notion of a boundary has a long tradition in Slavic linguistics¹⁷. It ties in with another traditional characterization of perfectivity as indicating "the view of a situation as a single whole", as Comrie (1976:16) puts it¹⁸. The connection is easy to see. By encoding the final-boundary of a situation, perfective verbs evoke the rest of the situation. With perfective verbs that encode the initial boundary of a situation, we find that the culmination phase/final boundary of a situation S_1 that leads up to the beginning of a situation S_2 is identical with the initial

phase/boundary of S_2 . Hence, in the case of inchoative perfective verbs, the situation viewed 'as a single whole' is the situation at the intersection of S_1 and S_2 . If a perfective verb indicates that a situation took place within certain temporal boundaries, within a certain 'measure of time', all parts of a situation are presented as a single whole. Following mainly Comrie (1976), I propose the following characterization of the perfective operator:

- (13) The perfective operator has a **holistic** function with respect to the situation denoted by a verb predicate in its scope.

3. 3 The perfective aspect and undetermined mass and plural DO-NPs

3. 3. 1 The perfective operator and Incremental Theme

Let us go back to (1b). The prefix *vy-* serves here to derive the perfective verb *vypil^P*: with the meaning 'to drink completely', 'to finish drinking' or 'to drink up'. At the same time, the perfective aspect can be viewed as a kind of universal quantifier with respect to the variable introduced by the Incremental Theme NP 'wine'. Notice that we cannot assert without contradiction:

- (14) **Vypil^P víno z této sklenky, ale trochu vína v ní, ještě je.*
 *'He drank up the wine from this glass, and yet there still is some wine in it.'

This strongly suggests that the perfective operator takes scope over both the verb and Incremental Theme argument. If "HOL" stands for the holistic meaning associated with the perfective operator, we can roughly represent this situation as: HOL-V + Incremental.Theme = HOL(V + Incremental.Theme)

3. 3. 2 Holistic meaning and boundedness

In general, if a situation (or an object) is viewed in its entirety, there must be some limits imposed on its temporal (or spatial) extent, it must be bounded. In short, 'all of a whole (entity)' requires a 'whole (entity)'. In the domain of the denotation of verbal predicates this

amounts to the claim that perfective predicates are telic (or bounded).

3. 3. 3 Homomorphism

The observation that a perfective operator functions as a modifier of the NP *víno* 'wine' can be explained, if we assume that *vypít^P* 'to drink up' is a homomorphic predicate mapping the described event and its subevents into some quantity of wine and its subparts. Consequently, if the perfective verb has a holistic, and hence bounded interpretation, the Incremental Theme 'wine' must have a holistic and bounded interpretation, as well.

Notice that in a Czech perfective construction with an undetermined mass or plural NP linked to the Incremental Theme, the main lexical verb alone carries both the information about aspect and telicity. The verb alone determines the perfective interpretation of the sentence and the quantificational interpretation of the Incremental Theme argument.

3. 3. 4 The correlation of bounded and definite interpretation

It is *not* the perfective aspect itself that requires that undetermined mass and plural NPs linked to the Incremental Theme be definite (cf. also Krifka, 1992). Rather the perfective aspect only requires that they have a universal, 'all (of a whole) entity' interpretation. The 'all (of a whole) entity' interpretation in turn presupposes the existence of 'a whole *bounded* entity'.

Just in case the Incremental Theme NP in the scope of a perfective aspect is an undetermined plural or mass NP, the assignment of the universal or totality 'all'/'whole' interpretation presupposes that there is some contextually identifiable bounded referent that is asserted to be completely subjected to the denoted event. Such a contextually identifiable bounded referent will typically be high on an individuation and a definiteness scale (but see comments on the contribution of the prefix *na-* in section 3.3.6). This ultimately motivates the correlation 'perfective aspect - definite Incremental Theme NP', provided the Incremental Theme NP is undetermined and unbounded.

The contextually determined bounded or count use of mass nouns may correspond to a 'portion' of the stuff denoted by them. This interpretation is licensed if the speaker assumes that the hearer can identify the relevant portion on the basis of the sentence-internal context, the external context of the utterance or the discourse-level linguistic context. The verb *drink* evokes the general knowledge that beverages are usually packaged, served and consumed in containers--glasses, cups, mugs, pots, bottles--which have a certain standard or conventional size. For example, the count use of the mass noun 'wine' in (1b) can be replaced by 'glass of wine', an individuator term indicating the relevant portion (a kind of classifier) and a mass use of the noun.

The speaker who utters a sentence like (1b) may presuppose that the hearer can *uniquely identify* a *specific* portion of wine in the discourse. The definiteness or referential specificity in this highest degree, however, is not always required. It is sufficient that the referent of *viño* 'wine' in (1b) is a member of a certain identifiable set (cf. Comrie 1981:128): it is the set of portions determined by conventional containers in which wine is served. The speaker may presuppose that the hearer knows that the referent is some individuated entity or other in this set.

With plural nouns the contextually determined bounded sense may not always be obvious. The reason is perhaps that we do not always have an appropriate "classifier" or individuator term that would provide us with a conventional way of referring to groups of books, houses, applications, etc. If a perfective sentence requires that its undetermined plural NP is bounded, because it is associated with the Incremental Theme, and if the requisite bounded sense is not readily identifiable, the whole sentence may sound odd. This oddity is avoided, if the plural noun in question occurs in a construction with a determiner, a prepositional phrase and/or a relative clause that explicitly restrict its domain of reference to a bounded set of individuals. In the following examples, "#" indicates 'acceptable, but not preferred or frequent':

- (15) a. *Postavil^P #domy / dva domy.*
 'He built houses / two houses.'
- (15) b. *Napsal^P #knižky / několik knížek pro děti.*
 'He wrote books / several books for children.'
- (15) c. *Napsal^P #žádosti / hodně žádostí.*
 'He wrote applications / a lot of applications.'

3. 3. 5. 1 The obligatory occurrence of the definite article

The claim that the perfective aspect is correlated with the bounded and definite Incremental Theme argument can be supported with the data from Bulgarian. In Bulgarian, the use of the enclitic definite article *-to* is in such cases obligatory, as is shown in (16):

- (16) *Toj izpi^P *kafe / kafeto.*
 he-NOM PREF-drank-SG *coffee-ACC / coffee-DF-ACC
 'He drank up (all) the coffee.'

Similarly, in a comparable English construction with the resultative verb *to drink up* the definite article is required. Compare *He drank up *wine* vs. *He drank up the wine*.

3. 3. 5. 2 Nominal arguments that are not linked to the Incremental Theme role

The hypothesis (9) correctly predicts that 'voices' in (17) does not have a universal and definite interpretation. (17) cannot mean 'He (suddenly/unexpectedly) heard all the voices in the corridor.'

- (17) *Uslyšel^P na chodbě hlasy.*
 PREF-heard-SG on corridor voices-PL-ACC
 'He (suddenly/unexpectedly) heard (some) voices in the corridor.'

The prefix *u-* serves to derive the perfective verb, which in turn contributes the completive or holistic meaning to the interpretation of (17). However, the perfective aspect of (17) does not function as a quantifier with respect to the variable introduced by the DO-NP 'voices', because 'voices' is not associated with the Incremental Theme role, but rather with the Stimulus role.

To take another example, in (18) the DO-NP 'coal' is associated with the traditional Theme or Patient role, however, it is not the Incremental Theme.

- (18) *Prinesť*^P *ze sklepa* *uhliť*.
 PREF-carried-SG from-PREP basement-SG-GEN coal
 'He brought (some) coal from the basement.'

Clearly, it is not the amount (or any other property) of coal that is intrinsically tied to the delimitation of the denoted motion event. The 'object' that stands here in a one-to-one relation to the event is the Path. The prepositional phrase 'from the basement' indicates its beginning. The holistic effect of the perfective operator concerns the Incremental Path Theme. In other words, (18) entails that the whole Path was traversed by the Agent. This explains why the perfective aspect does not require the universal ('all', 'whole') and bounded interpretation of the DO-NP in (18).

Notice that unlike the examples given in (15), (17) and (18) are perfectly acceptable, even though the plural DO-NPs 'voices' and 'coal' are undetermined. It should be emphasized that in both (17) and (18), 'voices' and 'coal' can have a universal, bounded and definite interpretation, but it will stem from other contextual factors than aspect and verb semantics.

3. 3. 6 The bounded/unbounded distinction is orthogonal to the definite/indefinite distinction

The assignment of a definite interpretation works *in tandem* with the assignment of a universal (or holistic), and therefore also bounded, interpretation to undetermined mass and plural NPs associated with the Incremental Theme role. The correlation 'perfective aspect - definite Incremental Theme argument' is weakened or preempted if it is not the perfective aspect that is solely responsible for the holistic and bounded interpretation of the Incremental Theme argument. A case in point is the situation in which

THE INCREMENTAL THEME NP IS HEADED BY AN INHERENTLY BOUNDED NOUN.

- (19) *Napsal^P nový dopis.*
 PREF-wrote-SG new-SG-ACC letter-SG-ACC
 'He wrote a/the new letter.'

One possible motivation for this is as follows: Since *dopis* 'letter' is an inherently bounded noun, we need not identify its referent in the discourse in order to assign the holistic interpretation to it: that is, the writing of all of its parts was completed. This opens up the possibility for the NP *dopis* 'letter' in (19) to have an indefinite interpretation. The fact that the bounded interpretation is compatible with both the definite and indefinite interpretation suggests that the bounded/unbounded distinction is orthogonal to the definite/indefinite distinction.

Another case is the following one:

THE INCREMENTAL THEME NP IS A MEASURE NP.

- (20) *Vypit^P šálek kávy / láhev piva / jedno pivo.*
 'He drank (up)/had a cup of coffee / a bottle of beer / one beer.'

Measure NPs like 'a cup of coffee' or 'a bottle of beer', 'one [portion of] beer' are typically low in referential specificity. For example, we do not usually talk about a specific yard, a pint of beer, a cup of coffee (cf.: "the yard", "the pint of beer", "the cup of coffee"), we count such entities, but we do not take an interest in them individually as discrete particular participants in an event.

Finally, the requirement that the Incremental Theme NP must be an undetermined mass and plural NP to be eligible for the definite interpretation induced by the quantificational effect of the perfective aspect is a necessary, but not a sufficient condition. Examples in which such Incremental Theme NPs in the scope of perfective aspect are not assigned a definite interpretation are the following ones:

DERIVATIONAL VERB OPERATORS THAT SERVE TO DERIVE PERFECTIVE VERB FORMS INCORPORATE VARIOUS QUANTIFICATIONAL AND CLOSELY RELATED NOTIONS.

(cf. Collary 2 in (9)). Take, for example, the prefix *na-*, as in *nabrat^P vodu* 'draw (in) some water', *nachytat^P ryby* 'catch some fish', *nasbírat^P jahody* 'pick some strawberries', *naspořit^P peníze* 'save some money', *napéct^P chleba* 'bake bread', *namažit^P lívance*

'make pancakes', *navyráběť^P spotřební zboží* 'produce consumer goods'. The prefix *na-* here contributes the notion of gradual amassing or accumulation to the meaning of the verb it modifies¹⁹. It functions as a vague measure expression ('large or sufficient quantity') with respect to the Incremental Theme argument. This can be shown by the fact that the Incremental Theme can be modified with weak quantifiers like 'many/much', 'few/little' and 'some' (cf. Milsark 1974). However, it cannot be modified with strong quantifiers like 'every', 'each', 'all' (cf. Milsark 1974) and with definite numeral specifiers, because they clash with the notion of vague measure expressed by the prefix *na-*. This is illustrated by (21):

- (21) *Nakoupil^P hodně / koš / ?pět jablek.*
 PREF-bought-3SG a-lot-of/ basket-SG-ACC/ ?five apples-PL-GEN
 'He bought a lot of / a basket of / five apples.'

The Incremental Theme argument of *na-*verbs is not only low on an individuation scale, but also on a definiteness (contextual identifiability) scale. For example, if a question like 'Where did you buy these postcards?' introduces 'postcards' into the domain of discourse, we cannot appropriately answer with the verb *nakoupit* 'buy', because it takes a DO-NP whose referent is relatively low on a definiteness scale. Instead, the appropriate answer would contain the perfective verb *koupit* 'buy':

- (22) *?Nakoupil^P / Koupil^P jsem je v kiosku.*
 ?PREF-bought-SG/bought-SG am-AUX them-PL-ACC in kiosk
 'I bought them in the kiosk.'

3. 4 The imperfective aspect and undetermined mass and plural DO-NPs

3. 4. 1 The imperfective operator and Incremental Theme

Both (1a) and (1b) contain a homomorphic predicate mapping the event and its subparts into the object denoted by the Incremental Theme 'wine' and its subparts. The only difference between (1a) and (1b) is in verb aspect. The homomorphism hypothesis motivates the observation the imperfective operator functions as a partitive modifier

with respect to the Incremental Theme argument. Schematically, this can be represented as PART-V + Incremental.Theme = PART(V + Incremental.Theme). If an imperfective sentence like (1a) is used progressively, the Incremental Theme argument has a clearly partitive and unbounded meaning, paraphrasable with ‘part of’ or ‘some’ (unstressed). Given that the Incremental Theme ‘wine’ in (1a) is unbounded, (1a) is unbounded or atelic, as well.

3. 4. 2 The co-occurrence of the features ‘unbounded’ and ‘definite’

It is important to emphasize that the unbounded interpretation of undetermined mass NPs does not preempt their definite interpretation. For example, imperfective sentence (23) suggests that there was an unbounded amount of wine that is clearly identifiable in the discourse:

(23) *Pil víno, co mu jeho neúnavný hostitel stále doléval.*

‘He was drinking the wine that his tireless host kept pouring [into his glass].’

Such examples provide further support for my claim that the definite/indefinite distinction is orthogonal to the bounded/unbounded distinction (see also section 3. 3. 6 for other examples). Furthermore, they clearly invalidate Krifka’s suggestion to regard undetermined mass NPs in Czech as ambiguous and to postulate the ‘indefinite and unbounded’ meaning as one of their meanings.

3. 4. 3 Supporting evidence

3. 4. 3. 1 Nominal arguments that are not linked to the Incremental Theme role

The imperfective operator functions as a partitive modifier only with respect to the Incremental Theme argument, but not with respect to other arguments, such as traditional Patients, for example. (24) does not entail that only a part of the book was subjected to the event of holding, while other parts were not. Knowing what ‘holding x (in someone’s hands)’ means we also know that in most situations the question whether a part of x or the whole of x was held does not arise.

(24) *Držel^I v ruce knihu.*
 held-SG in-PREP hand-LOC book-SG-ACC
 'He was holding a/the book in his hand.'

3. 4. 3. 2 Quantification and numerical specification

There are systematic restrictions on the quantification and numerical specification of the Incremental Theme argument in imperfective sentences. To illustrate this point consider the following examples:

(25) a. strong quantifiers

Pil^I (?)všechnu kávu.
 drank-SG (?)all-SG-ACC coffee-SG-ACC
 'He was drinking (?)all the coffee.'

(25) b. weak quantifiers and numerical-specifiers

Pil^I (??)hodně kávy / (?)dvě kávy.
 drank-SG (??)a-lot-of coffee-SG-GEN / (?)two coffees-PL-GEN
 'He was drinking a lot of coffee / two cups of coffee.'

By contrast, quantified or numerically-specified Incremental Theme arguments are unconditionally acceptable in perfective sentences. The substitution of the imperfective verb *pil^I* with the corresponding perfective verb *vypil^P* in (25a) and (25b) yields perfectly acceptable sentences.

There are no restrictions on the quantification and numerical specification of nominal arguments that are not linked to the Incremental Theme in imperfective sentences, as (26) shows:

(27) a. strong quantifiers

Václav nesl^I všechny balíky na poštu.
 Václav carried-SG all packages-PL-ACC to post-office
 'Václav was carrying/carried all the packages to the post office.'

(26) b. weak quantifiers and numerical-specifiers

Slyšel^I několik hlasů / tři hlasy na chodbě.
 heard-SG several voices-PL-GEN / three voices-PL-ACC on corridor
 'He heard several voices / three voices in the corridor.'

The contrast between (25) and (26) can be explained if we assume that only in (25), but not in (26), the imperfective aspect functions as a partitive quantifier with respect to the quantified and numerically-specified NP. It still needs to be explained is why exactly partitivity (in the sense of 'not necessarily proper-part of') clashes with the overt expression of quantification and numerical-specification²⁰.

A similar contrast can be observed in English. (27) and (28), taken from Jackendoff (1990:101), show that the partitive reading assigned to the Incremental Theme in the scope of imperfective aspect clashes with the quantifier *some*:

- (27) a. ??*Some water was rushing out of the faucet.*
 (27) b. ??*Some people were streaming into the room.*

However, *some* is acceptable in sentences with simple verb forms:

- (28) a. *Some water rushed out of the faucet.*
 (28) b. *Some people / Fifty people streamed into the room.*

We do not find such a contrast with nominal arguments that are not linked to the Incremental Theme:

- (29) a. *Some water was glistening in the distance / glistened in the distance.*
 (29) b. *Some people were waiting in line.*
 Some people! Fifty people were waiting in line / waited in line.

"(?)" and "(?)" in (25) and (26) indicate that such examples are not unconditionally unacceptable, but we have to do a certain amount of work to find a suitable interpretation and context of use for them. Czech imperfective sentences with quantified or numerically-specified Incremental Theme arguments are acceptable if they have a habitual interpretation or if they are construed as denoting a complex event consisting of a number subevents. In the latter case, the subevents may stand in a *consecutive* or *simultaneous* relation to each other. For example, a Czech imperfective sentence with a universally quantified or numerically-specified Incremental Theme argument, such as *Marie čistila¹ pět lžiček / všechny lžičky* - *Mary was polishing five spoons / all (the) spoons*, is appropriate in a context in which Mary is polishing the spoons *consecutively* or *simultaneously*. Under the consecutive interpretation, Mary systematically works her way through the spoons, polishing one spoon after another. It is not necessary that at any time

of Mary's polishing one spoon, she must also polish any other spoon or all the other spoons²¹. The conditions under which a consecutive and/or simultaneous interpretation can be assigned to a given imperfective sentence and the relative scope of the aspectual operator and the quantified or numerically-specified NP²² constitute some of the toughest questions in the domain of aspect and quantification.

3. 5 The Incremental Theme as subject

(30) a. *Vlaky* *projížděly^I* *stanici.*
 trains-PL-NOM PREF-passed-SUF-3PL station-SG-INSTR
 'The trains were passing through the station.'

(30) b. *Vlaky* *projely^P* *stanici.*
 trains-PL-NOM PREF-passed-3PL station-SG-INSTR
 '(All) the trains passed through the station.'

Sentence (30a) with the imperfective verb *projížděly^I* entails that there was an unbounded stream of trains passing through the station. Sentence (30b) with the perfective verb *projely^P*, on the other hand, entails that all the trains passed through the station. In other words, the Incremental Theme *vlaky* 'trains' is assigned a partitive interpretation in imperfective sentence (30a) and a universal or holistic interpretation in perfective sentence (30b).

Vlaky 'trains' is most likely to have a definite interpretation in both (30a) and (30b), regardless of the partitive/holistic reading induced by verb aspect. This is attributable to the observation that subjects often function as topics. Moreover, topicalized constituents that occur in a sentence-initial position are often definite.

Notice that such examples as (30a) provide further support for the claim made above (section 3. 3. 6) that the definite/indefinite distinction is orthogonal to the bounded/unbounded distinction. In (30a) the Incremental Theme argument has a partitive, unbounded and definite interpretation. Notice that this also holds for the Incremental Theme argument realized as subject in English sentences like (cf. Jackendoff 1990:101).

- (31) a. *The water was rushing out of the faucet.*
 (31) b. *The people were streaming into the room.*

If progressive is replaced by simple past, the event may be viewed as temporally bounded. Consequently, "the amount of water and the number of people is also bounded" (Jackendoff 1990:101):

- (32) a. *The water rushed out of the faucet.*
 (32) b. *The people streamed into the room.*

Speakers of Czech can resort to various word order permutations to convey the differences in definiteness. If we put the subject-NP *vlaky* 'trains' in a sentence final position, it is likely to express new information, in which case the indefinite interpretation '(some) trains' will become available. The imperfective sentence *Hranicī projížděly vlaky* will then mean 'There were (some) trains crossing the border'. The corresponding perfective sentence *Hranicī projely vlaky* can be translated as 'Some trains crossed the border' or 'The trains crossed the border'. Such examples as well as those in (30) clearly show that in order to assign a definite or an indefinite interpretation to undetermined NPs in Czech, we also need to take into account the grammatical function of arguments, word order and the information structure of sentences.

3. 6 The categories 'definite' and 'indefinite'

The above examples show that undetermined NPs with mass and plural noun heads should not be treated as ambiguous between a definite/bounded and an indefinite/indefinite interpretation, contrary to what Krifka suggests. There are two main reasons for this. First, the distinctions 'indefinite/definite' and 'bounded/unbounded' are orthogonal to each other. Second, undetermined NPs in languages like Czech that have no overt articles should not be treated as ambiguous between a definite and an indefinite interpretation. Rather, in such languages, the (in)definiteness category does not belong to the system of grammatical categories, it is neither a syntactic nor a semantic category.

As is well-known, the interpretation of NPs as definite or indefinite depends not only on the determiners and cases, but also on a variety of contextual factors in the sentence-internal linguistic context,

the discourse-level linguistic context and the external context of the utterance. A commonly held view is that the categories 'definite' and 'indefinite' are not limited to the NP and to the formal expression by means of articles. It has also been suggested that the categories 'definite' and 'indefinite' are not discrete categories, but rather cluster concepts, each characterized by a number of properties²³. To the extent that it would be empirically and theoretically inadequate to limit the formal expression of the 'definite' and 'indefinite' categories to articles, it would also be inadequate to associate the definite and indefinite interpretation of NPs with two different senses of NPs.

4 Conclusion

The notion of 'Incremental Theme' provides us with a powerful tool for analyzing a wide range of seemingly unrelated data. It motivates not only the influence of nominal arguments on the telicity of verb predicates (cf. Krifka 1986, 1989, 1992; Dowty 1988 and 1991), but also the converse case, namely the influence of verb predicates, their aspectual properties in particular, on the interpretation of nominal arguments in Slavic languages (cf. Krifka 1986, 1989 and 1992).

One of the tasks for the future research is to spell out how the Krifka-Dowty's approach can be combined with the research on quantification and semantic typology initiated by Partee, Bach and Kratzer (1987), as well as others who have followed their lead.

Aknowledgments

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Footnotes

1. According to Wierzbicka (1967), for example, the direct object of certain perfective verbs in Polish includes two elements in its semantic structure: "the number (one thing, or one set of things) and

the quantifier (all, whole). In Russian, Forsyth (1970) notices that "[...] verb plus object in such a sentence as *on pil čaj* 'he drank tea' or 'he was drinking tea', may be looked upon as a coalesced unit in which the object has no specific reference, whereas in *on vȳpil [...] čaj* the object is specific - 'he drank the tea'" (Forsyth 1970:92). Chvany (1983:71) points to "[a]nother well-known correlation in Russian is that of definite direct objects with perfective aspect, accusative case and holistic interpretation, while imperfective aspect, genitive case and partitive interpretations associate with indefiniteness" (Chvany 1983:71).

2. A similar idea can be already found in Wierzbicka (1967) who observes that Polish verb aspect influences the semantic structure of direct objects of two classes of verbs, namely verbs of consumption (*eat, drink*) and verbs of creation (*build, write*).

3. By 'object' I mean an ordinary object like a pencil or a human being like my friend. However, the term 'object' also includes abstract objects such as love. This use of the term 'object' can be found in Carlson (1977 and 1979), among others.

4. In this respect, he builds on Link's (1983) *lattice* model of the domain of individuals, including ordinary individuals like Mary, plural individuals like those denoted by *the students* or *Mary and John* as well as quantities of matter.

5. The notion of 'homomorphism' refers to the standard mathematical function, see Partee, ter Meulen and Wall (1990).

6. Cf. Verkuyl 1972-1989; Dowty 1972, 1979, 1991.

7. Dowty (1988, 1991) observes that many traditional Themes and Patients, i.e., those arguments that the predicate entails to move or undergo a change of state, are not Incremental Themes. For example, direct objects in *push a cart, dim the lights* are not associated with Incremental Themes, because the verbs imply an indefinite change of position or state. To take another example, *John* in *John walked from the bank to the post office* denotes an individual that undergoes a definite change of location. However, *John* is not the Incremental Theme. The object that stands in a one-to-one relation to the event is the Path denoted by the prepositional phrases. The 'Incremental (Path)

Theme' (cf. Dowty 1991:569) can be syntactically also realized as a direct object, as in *cross the desert*. At the same time, the class of Incremental Themes comprises arguments that are not traditional Themes and Patients: cf., for example, the direct object in *memorize a poem*.

8. Pollard and Sag (1987, 1992); Fillmore and Kay (1993)), for example.

9. The use of 'a/the' is meant to indicate that the NP is unspecified for definiteness. This translation does not indicate that the NP is ambiguous between a definite and an indefinite reading. We could also use 'some' in the context like: *He wrote some letter to the Dean, but I don't know what it was about*.

10. This view can be also found in Bennett (1981), for example, who suggests that the "progressive always *describes an activity*" (Bennett 1981:14-15).

11. In the most simple way, the 'imperfective paradox' or 'imperfective puzzle' can be summed up in the following question: 'How can we characterize the meaning of a progressive sentence *He was writing a letter* on the basis of the meaning of the corresponding simple sentence *He wrote a letter* when *He was writing a letter* can be true of a history without *He wrote a letter* ever being true?'

12. Cf. Taylor 1977, Bach 1981, 1986; Hinrichs 1985; and Krifka 1986, Jackendoff 1990, and many others.

13. This is labeled the constative general factual or simple denotative meaning of the imperfective (cf. Comrie 1976:113; Forsyth 1970:82-102).

14. This behavior of the Slavic imperfective aspect motivated the view that the imperfective represents the unmarked member in the privative opposition 'perfective/imperfective'. This view is well established, if not universally accepted, in Slavic aspectology. The principle of contrast on which it is based, the *privative opposition*, goes back to the Praguean markedness analysis (cf. Jakobson 1932 and 1936/71).

15. Exactly how the crossing of the initial or final boundary of a situation is to be construed depends on the combined lexical semantics

of the particular perfective operator and the verb root. Without going into further details, suffice it to say that perfective verbs provide speakers of Slavic languages with elaborate means for the expression of the initial and final phases of situations.

16. This distinction is important for the description of the perfective aspect. In addition, it also shows up in tests supporting other semantic categories. For example, Van Voorst (1992) shows that it is important in interpreting the occurrence of *almost* with Vendler's activities, states, achievements and states. With accomplishments, this adverb creates an ambiguity that does not occur with the other three classes: it can mean that the event either almost started or that the change of state was almost realized.

17. For further references, see V. V. Vinogradov (1947:497); Timberlake (1982, 1985); Forsyth (1970); Comrie (1976) and Dahl (1985).

18. This view can be traced back to Maslov (1959:309) and Razmusen (1891). See Forsyth (1970:8) and Comrie (1976) for further references.

19. Cf. Petr (1986, Vol. 1: 396, 3.1.8.2).

20. The interaction of aspect with NPs that contain determiner quantifiers, numerical-specifiers and other expressions of quantity has puzzled linguists working on Slavic languages (cf. Wierzbicka 1967; Rassudova 1977; Merrill 1985; among others). Slavic linguistics has so far failed to provide an adequate description for this interaction. In this section, I have suggested that we can easily describe it, if we recognize that the Incremental Theme argument provides the missing semantic link in this puzzle.

21. See Taylor (1977:215) for a discussion of this example.

22. Cf. also Kearns, K. S. 1991; Tenny, C. and Heny, F. 1993.

23. See Chvany (1983:86), for example, on the categories 'definite' and 'indefinite' in Slavic languages. The view that the categories 'definite' and 'indefinite' are not exclusively tied to their formal expression within the NP can be also found in the research on quantification initiated by Partee, Bach and Kratzer (cf. Partee, Bach

and Kratzer 1987; Birner and Ward (1994) give a concise summary and discussion of various accounts that attempt to characterize the use of the definite article in English in terms of familiarity, uniqueness and relevance. They come to the conclusion that "pragmatic factors such as the inferred intent of the speaker and the differentiability of referents in context contribute crucially to the interpretation of the definite article".

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An Articulated Theory of Aspect and Prefixation in Slavic*

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1. Introduction

The allied problems of verbal prefixation and verbal aspect have long been central concerns in Slavic linguistics. Most efforts in these two areas have sought semantic explanations for the observed range of data, an endeavor which I find akin to tilting at windmills. Bloomfield's classic judgment on the quest for meaning (1933: 140) remains relevant even today: "The statement of meanings is therefore the weak point in language-study, and will remain so until human knowledge advances very far beyond its present state."

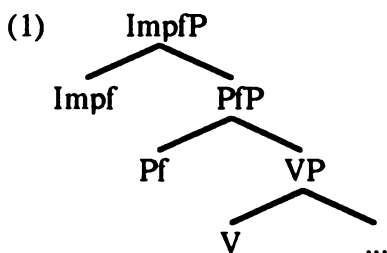
Work on the semantics of prefixation ranges from the profoundly atomistic (Boguslawski 1963 identifies 240 separate meanings for the Russian prefixes) to valiant attempts at a greater level of abstraction, such as the feature-based system in van Schooneveld 1978. The former approach doesn't even pretend to linguistic generalization, and is therefore a dead end. Van Schooneveld's work is full of piquant, even compelling semantic observations on the relations between Russian prepositions and prefixes, but it rests on shifting sands, and only the reader who fully embraces his underlying assumptions can accept his greater conclusions; to linguistics reared in a more formal school, it remains unverifiable. Semanticists working in more modern theoretical frameworks have also tackled Slavic prefixation; a good example is Janda 1985, which applies the methodology of Cognitive Grammar to the Russian prefix *za-*. The attempt to relate various submeanings of one prefix via spatial metaphor is ingenious and highly suggestive. Nevertheless, the reader must accept the analysis on an intuitive level in order to "get it"—metaphor is a tricky tool. While there can be no doubt that spatial

metaphor plays a genuine role in human cognition, a formal linguist is reluctant to grant it the status of a linguistic primitive; perhaps it could best be used to state certain metalinguistic generalizations about the contents of the lexicon. The most successful semantic work has concentrated on small subsets of the prefixal system (e.g., Flier 1984, 1985 are relatively convincing studies of one and four prefixes, respectively), while attempts to generalize across the entire system haven't fared as well.

The literature on verbal aspect has concentrated on the search for invariant meaning, and there are as many different formulations of the central invariant as there are aspectologists. Moreover, each linguist carefully explains how his own invariant encompasses those suggested by everyone else.¹ Everyone is obliged to account for essentially the same data; the differences and heated debates instantiate Bloomfield's point: each linguist can only attempt to state his own intuitions imprecisely in words, and individual point of view obscures the common features of the analyses. As with prefixation, semantic analyses of individual problems are much easier to carry through than global treatments of the entire system of aspect.

In view of these frustrations, it seems wiser to start from the formal characteristics of verbal prefixation and aspect, and let semantics trail along behind. The formal problems are less intractable, and at least provide a firm anchor for subsequent semantic speculation. In this paper I propose a radical approach to the entire question of prefixation and aspect in Russian.² Verbal prefixes can profitably be considered as syntactically separate from the rest of a prefixed verb, added to the inflected verb through a syntactic process of head-to-head movement, following assumptions that have become standard in GB theory in the 1990's. Moreover, I claim that there are two separate aspectual elements associated with verbs: both perfectivizing prefixes and imperfectivizing suffixes occupy separate projections in the functional apparatus of a sentence. The relevant portion of the structure I propose for the Russian verb is summarized in (1) on the following page.

In section 2, I present the formal morphological and morphophonemic evidence that prefixes are syntactically separate



Section 3 investigates the motivation for dual aspectual projections. In section 4, I touch on various consequences and further problems that arise from this analysis.

2. Formal Evidence for Separate Verbal Prefixes

There are various reasons why it is desirable to treat verbal prefixes as underlyingly separate from the verb and added last; let's start with one which has been cited in print. Pesetsky 1985 noted a paradox associated with the verb *podžec'*; the paradigm is given in (2) and the natural morphological structure in (3).

- (2) *podžeg*_{PAST.MASC} 'set on fire'
*podožgla*_{PAST.FEM}
*podožglo*_{PAST.NEUT}
*podožgli*_{PAST.PL}

- (3) a. [[[*podʲ-* + *žbg-*] + -l] + ʲ] → **podožeg*
 b. [[[*podʲ-* + *žbg-*] + -l] + a] → *podožgla*

Working in a framework that incorporates level-ordered morphology and posits underlying jers as the source of vowel/zero alternations, Pesetsky pointed out that there is a problem in getting the jers to work out in the paradigm in (2). The natural morphological bracketing for this verb is represented in (3), where the innermost derived unit, the lexical verb *podžec'*, is created on the second level of the morphology. If jer vocalization is a cyclic rule, on this cycle the jer at the end of the prefix will vocalize because of the jer after the following consonants, in the root. This happens in **both** the masculine and feminine past-tense forms, as shown in (3a–b). In the masculine form, the root jer will also vocalize on the last cycle, due to the desinential jer. This is correct,

but the vocalization of the jer after the prefix is wrong, since that jer actually vocalizes in only those forms in which the root jer fails to vocalize. The bracketing in (3) would be correct for a verb like *podojti*, given in (4), where the prefix-final jer vocalizes **throughout** the past tense.

- (4) $\text{podo}\check{\text{s}}\text{el}_{\text{PAST.MASC}}$ ‘approached’
 $\text{podo}\check{\text{s}}\text{la}_{\text{PAST.FEM}}$
 $\text{podo}\check{\text{s}}\text{lo}_{\text{PAST.NEUT}}$
 $\text{podo}\check{\text{s}}\text{li}_{\text{PAST.PL}}$

The jer vocalization of *podžeg*, *podožgla* only works out right if we assume the morphological bracketing in (5), where the past tense *-l* is added first, followed by the desinential vowel, and only then, on the last cycle, is the prefix attached.

- (5) a. $[\text{pod}\check{\text{b}} - + [[\check{\text{z}}\text{b}g - + \text{l}] + \check{\text{b}}]] \rightarrow \text{pod}\check{\text{z}}\check{\text{e}}g$
 b. $[\text{pod}\check{\text{b}} - + [[\check{\text{z}}\text{b}g - + \text{l}] + \text{a}]] \rightarrow \text{podo}\check{\text{z}}\check{\text{g}}\text{la}$

Under this analysis, when the desinential jer causes the root jer to vocalize in the masculine form, there is no following jer to cause the prefix-final jer to vocalize on the final cycle. However, in the remaining forms of the paradigm, the root jer is unaffected, and it thus triggers vocalization of the prefix-final jer. This predicts all the facts, but contradicts the intuitive morphological structure of a prefixed verb.

Pesetsky’s “solution” is to stipulate that this kind of bracketing paradox is simply the way morphology is supposed to work. The verb *podžeč’* has one semantic bracketing, corresponding to (3), and a separate morphological structure, corresponding to (5). Both structures are mapped to the word in the lexicon, in the spirit of Autolexical Syntax (Sadock 1991). And this is not inconceivable. Nevertheless, if a unified structural approach is feasible, it is *a priori* preferable. If the approach to verbal prefixation illustrated in (1) is correct, it gives us a natural and principled solution to the bracketing problem observed by Pesetsky: the prefix is added last not merely by stipulation, because in that way the lexical phonology can be made to work out, but because it is syntactically separate, and the verb raises to the prefix/functional head.³

Following Chomsky 1992, I assume that the entire inflectional paradigm is present in the lexicon; an individual form is **selected** based on Tense and Agreement features acquired in the syntax, but the prefix is actually **attached** in the syntax.

As it turns out, syntactic attachment of prefixes can resolve other morphological and phonological problems as well. One concerns the form of the imperative in verbs prefixed with the stressed prefix *vý-*. As shown in (6), the imperative takes two desinences in Russian: *-i* is general, but, simplifying only slightly, verbs with stem stress throughout the present tense take *-b*, unless they end in a consonant cluster, in which case they still take *-i*.⁴

(6)	<i>-i</i>	→	govorjú	→	govorí		<i>-b</i>	→	stávlju	→	stáv'
			govoríš', etc.						stáviš', etc.		

But now consider the form of the imperative when these verbs are prefixed with stressed *vý-*:⁵ as we see in (7), the presence or absence of *-i* is conditioned not by the form of the stem, which, under a traditional view of what a stem includes, would certainly be characterized as fixed stem stress, but rather by the form of the **unprefixed** stem.

(7)	výgovorju	→	výgovori		výstavlju	→	výstav'
	výgovoriš', etc.				výstaviš', etc.		

This fact could be worked into the inventory phonological rules in various ways, but if *vý-* is added last, because the inflected verb is obliged to raise up to it in the syntax, then it is completely natural and requires no special rules. The stem has its own inventory of forms, unaffected by the prefix. The prefix *vý-* has its own stress—an unavoidable lexical fact about this prefix—which supersedes the stress of the stem, but doesn't influence the selection of the desinence.⁶

A third argument for syntactically separate prefixes is supplied by the fact that perfective verbs in *vý-* are exempted from another stress-related morphological rule.⁷ Unaffixed obstruent stems form two variant infinitives, depending upon the past-tense stress, as illustrated in (8).

(8) End stress in past

něs_{PAST.MASC} 'carried' → nestí_{INF}
 neslá_{PAST.FEM}
 nesli_{PAST.PL}

věl_{PAST.MASC} 'led' → vestí_{INF}
 velá_{PAST.FEM}
 velf_{PAST.PL}

Stem stress in past

král_{PAST.MASC} 'stole' → krast'_{INF}
 krála_{PAST.FEM}
 králi_{PAST.PL}

sél_{PAST.MASC} 'sat' → sest'_{INF}
 séla_{PAST.FEM}
 séli_{PAST.PL}

Addition of stressed *vý-* to a verb forces the stress in the past tense from the ending onto the stem, so under a traditional analysis of these verbs we would expect the infinitive to lose the final *-í*. However, as shown in (9), the form of the infinitive is not affected by addition of *vý-*.

(9) výnes_{PAST.MASC} 'carried out' → výnesti_{INF}
 výnesla_{PAST.FEM}
 výnesli_{PAST.PL}

vývel_{PAST.MASC} 'led out' → vývesti_{INF}
 vývela_{PAST.FEM}
 výveli_{PAST.PL}

As with the imperative of verbs in *vý-*, this fact follows automatically from the proposed analysis of prefixation.

A fourth argument is supplied by verbs like *pit* 'drink'. I assume that this verb has an underlying *jer* in the stem, as opposed to the *-i-* postulated by, e.g., Townsend 1980, because there are fewer irregularities in the root vocalism. In the present tense, as shown in (10), the *jer* is underlyingly stressed, fails to vocalize and therefore disappears, and the stress moves to the only available vowel, the desinential *-u*.

(10) p'ěj-u → p'ǔj-u → p'j-ú

We know that the underlying stress must fall on the jer because of the systematic pattern: essentially all verbs with stem-final *j* have fixed stem stress: *dút'*, *dúju*; *otkrýt'*, *otkróju*; even suffixed verbs like *čitát'*, *čitáju*.

When a verb of this type is prefixed, as in *popit'* 'have a drink', the stress could potentially move to the left, onto the prefix. However, it still moves to the right, producing forms like *pop'jú* instead of **póp'ju*, as shown in (11).

(11) pop'ěj-u → pop'ǔj-u → pop'j-ú
*póp'j-u

Movement of stress to the right in this case flies in the face of the widespread pattern whereby stress on an unvocalized jer moves one syllable to the left, e.g., throughout the nominal paradigm whenever a final jer is lost, as in (12).

(12) stol-ě → stol-ǔ → stól

Nouns like *stol* are not decisive, however, as the jer occupies final position, and once it is lost, the stress has can only move to the left. Nevertheless, we can demonstrate that the basic, systematic movement is to the left when both possibilities are available, e.g., in nouns with the plural stress pattern of *sem'ja*, as given in (13a).

(13) a. sém'í 'family'	b. nózdri 'nostrils'
seměj	nozdrěj
sém'jam	nozdrjám
sém'jax	nozdrjáj
sém'jami	nozdrjámí

This pattern cannot be regarded as mobile stress within the plural, as in the noun *nozdrjá* in (13b), because in the latter pattern the stress moves to the desinence in all the oblique cases, not just the Genitive. To avoid setting up a special paradigm type solely to account for nouns like *sem'ja*, we must regard this pattern as some variety of fixed stem stress. However, in order to explain the anomalous position of the stress in *seměj*, we must posit that the stem contains an underlying **stressed** jer in that syllable, as in (14).

phonetically expected *pre-dot-vra-tit'*.⁸ A near minimal pair (an exact pair for speakers with *polnoe ikan'e*, i.e., who reduce unstressed *e* all the way to [i]) is *oblivat'* 'pour over) ~ *oblevat'* 'barf over'; as we would expect, syllabification respects morphology: *ob-li-vat'* ~ *o-ble-vat'*.

Thus far, we have examined a number of arguments which suggest that Russian verbal prefixes should be analyzed as syntactically separate elements. Now we can turn our attention to the precise nature of prefixes and their relation to the general syntactic status of aspectual morphemes in Russian.

3. Aspectual Morphemes as Syntactic Projections

Russian aspect involves the interaction of two morphological operations. On the one hand, the process of prefixation as a rule creates perfective verbs.⁹ This process can be characterized as lexical, in that the selection of a prefix cannot be predicted on the basis of aspect and morphological properties of the verb, but rather depends upon the meaning and certain arbitrary factors associated with individual lexical items. On the other hand, there is also a process of imperfectivization, which converts perfective verbs into imperfectives. This process is grammatical, in that the choice of suffix is predictable based on aspect and the morphological properties of the base verb.

3.1. Semantic Classes of Verbal Prefixes

The prefixes that make a verb perfective vary considerably in their semantic effect on the new verb created. We can identify three canonical types, enumerated in (16) on the following page. First, there are what have been called "pure perfectivizing" prefixes, such as the *s-* in *sdelat'*, which are sometimes said to add no lexical meaning to the verb, but merely create a neutral perfective pair. Other prefixes completely change the lexical meaning of the verb, and there are prefixes which modify or supplement the core lexical meaning of the verb, without exactly replacing it. These are what Townsend 1980 calls "sublexical" prefixes, and others refer to as Aktionsarten. For example, *perekričat'* retains the core lexical

meaning of 'shout', but adds the nuance of doing the act to a greater extent than someone else.¹⁰

- (16) Pure perfectivizing prefixes: s-delat' 'do'¹¹
 na-pisat' 'write'
 po-smotret' 'look'
- Lexical prefixes: pod-pisat' 'sign'
 s-pisat' 'copy'
 u-govorit' 'convince'
- Aktionsart prefixes:
 ("sublexical") pro-sidet' 'sit for a certain
 length of time'
 po-spat' 'sleep a little'
 pere-kričat' 'out-shout, shout
 down'

Any attempt to categorize prefixal meanings into one of these three classes is rather arbitrary: it is very hard to delimit the classes. For example, the pair *čitat'*/*pročitat'* is a typical, even clichéd aspectual pair. However, the prefix *pro-* also has Aktionsart effect on verbs, as in *prospat'* in (16), and this nuance can also be detected in a simple perfective like *pročitat'*, which Aronson consistently glosses as 'read through'. A similar problem exists in delimiting lexical prefixes from "sublexical." At what point does the effect on meaning become substantial enough to change from sublexical to lexical? For example, what about *raz-* in a verb like *rassmotret'* 'examine'? The change in gloss from *smotret'* 'look' might suggest that it is a lexical change; moreover, Russian monolingual definitions do not employ the usual formulas used for Aktionsart prefixes: for example, 'smotrja, vosprinjat' vo vsex podrobnostjax' ['examining, perceive in all details'] (RG1: 370). However, the prefix *raz-* often has intensificational meaning, which seems more of an Aktionsart than a lexical matter, as in a verb such as *rastolstet'* 'get really fat'. The verb *rassmotret'* incorporates a clear nuance of intensification: 'examine' implies 'look at in great detail'.

We can view the effect of prefixes on verbal semantics as a kind of continuum, as illustrated in (17).



A relatively “pure” perfectivizing prefix, such as the *s-* in *sdelat'*, would occupy a position close to the left-hand endpoint on this scale, while a strictly lexical prefix would be far to the right. Somewhere in the middle we find a range of Aktionsart meanings.

3.2. The Duality of Morphosyntactic Aspect

All prefixes anywhere along this semantic continuum have the same aspectual effect on the basic verb: they make it perfective. It seems natural to assume that perfectivity is controlled by the existence of the Pf head: when it is present, the verb is perfective; when it isn't, the verb doesn't become perfective. Unprefixed verbs are generally imperfective: *čitat'*, *pisat'*, etc. In this case, the verb does not project a Pf head. There are a limited number of unprefixed perfective verbs; a reasonably full but not exhaustive list is given in (18).¹²

- | | | |
|----------------------|------------------------|-----------------------|
| (18) brosit' 'throw' | lišit' 'deprive' | sest' 'sit down' |
| dat' 'give' | past' 'fall' | stat' 'stand, become' |
| det' 'put' | prostit' 'forgive' | stupit' 'step' |
| končit' 'finish' | pustit' 'let go' | xvatit' 'grab' |
| kupit' 'buy' | rešit' 'decide, solve' | javit'sja 'appear' |
| leč' 'lie down' | | |

My analysis forces us to stipulate that such verbs project a null Pf head. While positing syntactic zeroes is a device that can easily be abused, it is well justified in this instance. The huge preponderance of prefixes in the total stock of perfective verbs exerts paradigmatic pressure to identify a null prefix with the set in (18). On the syntagmatic level, the null perfective prefix is associated only with lexically marked verbs. In any other analysis, this must be handled with a diacritic feature [+perfective]. Projecting a null Pf head is in itself a kind of diacritic, intrinsically neither better nor worse than the traditional approach. Note that null Pf heads are the

only actual ideal pure perfectivizing suffixes; they occupy the extreme left-hand endpoint on the continuum in (17).

The structure in (1) also incorporates an Impf head, which may be filled with one of several imperfectivizing suffixes.¹³ Projection of this head is another lexical feature of imperfective verbs: instead of the traditional diacritic or label, there is an extra layer in the functional superstructure.

The primary argument for this view is the existence of aspectual triads such as that in (19).

(19) čitat'_{IMPF} → pročitat'_{PF} → pročityvat'_{IMPF}

In this set, *pro-* makes the verb perfective, adding the nuance of 'completion' or 'resultativity', which, as we have already observed, cannot be strictly separated from the Aktionsart meaning of the prefix. Addition of an imperfectivizing suffix makes the verb imperfective again, but, crucially, it **retains** this nuance of 'completion' from *pročitat'*, which we associate with perfective aspect; what the suffix imparts to the third verb is 'iterativity', which is associated with imperfective aspect. Clearly, in this case the aspectual effects of the respective morphemes are **additive**.

While aspectual triads like (19) are rather restricted in Russian, they are more frequent in other Slavic languages; according to Ivanova (1983: 259) they are totally productive in Bulgarian.¹⁴ A few examples from Bulgarian are given in (20).

(20) piša_{IMPF} → napiša_{PF} → napisvam_{IMPF} 'write'
 pravja_{IMPF} → napravja_{PF} → napravjam_{IMPF} 'do'
 gledam_{IMPF} → pogledna_{PF} → pogleždam_{IMPF} 'look'

This process is exactly parallel to the lexical derivation of new verbs, as illustrated for Russian in (21).

(21) pisat'_{IMPF} → podpisat'_{PF} → podpisivat'_{IMPF} 'sign'
 → spisat'_{PF} → spisivat'_{IMPF} 'copy'
 → opisat'_{PF} → opisivat'_{IMPF} 'describe'

Any prefixation creates a perfective verb with a new lexical meaning. Sometimes that lexical meaning may be very close to that of the unprefixated verb, as in *napisat'*, or it may be completely

different, as with *opisat'*, but the aspectual effect of the prefix is constant. Thus, there are two distinct types of aspectual pairs: one created by prefixation, marked by the first arrow in (21), and a second created by suffixation, marked by the second arrow in (21).

This discussion recapitulates a substantial body of aspectology literature, starting with Jurij Maslov, and continuing through Aronson, Ivančev, and numerous other works. My analysis of separate aspectual heads above VP provides a congenial formal expression of these intuitions. The process of prefixation consists in the projection of a prefixal head above unprefixated stem; the prefix has its own lexical properties, which combine with those of the stem to yield the semantic, syntactic, and morphological complex that we think of as a Russian verb.¹⁵

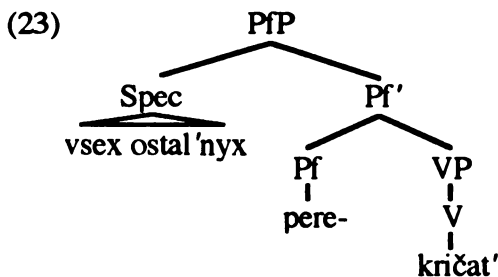
A possible alternative to the structure in (1) is suggested by Yadroff (this volume), who posits a single Aspectual head; when his analysis is applied to the questions considered here, we find that the head may be either perfective or imperfective and it must be allowed to iterate. A derived imperfective would contain a double aspectual projection: the lower Asp head would be perfective, the upper would be imperfective, with a layered effect not unlike (1). There are three reasons to prefer my proposal. First, the two types of aspectual morphemes are completely different, formally and semantically; their relationship seems no closer than that between other elements of verbal morphology, such as the relation between perfective and imperfective aspect and the essentially aspectual meanings of the aorist and imperfect in, e.g., Bulgarian. If both perfective and imperfective morphemes fall into the same category, why stop there? Second, there is the methodological point that the expansion of Infl into a multiplicity of functional categories treats verbal morphology as essentially agglutinative. Since perfective and imperfective morphemes are additive and formally distinct (respecting the Mirror Principle of Baker 1985), this fact suggests that they should represent separate projections, just like Tense and Agr.

Third, it is argued in Fowler (to appear) that the Spec position of perfectivizing prefixes is used for case and prepositional government. Prefixes may make an intransitive verb transitive, a

transitive verb intransitive, require a prepositional phrase with the matching preposition, and other possibilities. Let's consider how this works with the intransitive verb *kričat'*. It assigns neither a θ -role nor case to any complement; that's why it's intransitive. However, when the prefix *pere-* is added, it becomes transitive, as in (22).

- (22) Ivan perekričal vsex ostal'nyx. [Flier 1984: 153]
 'Ivan outshouted all the rest.'

The prefix *pere-* in this submeaning creates the additional argument structure necessary to support this direct object. I suggest that the internal structure of VP is unaffected by addition of the prefix. Rather, the object is located in SpecPFP, where it receives case and θ -role via Spec-Head Agreement in a structure like (23).

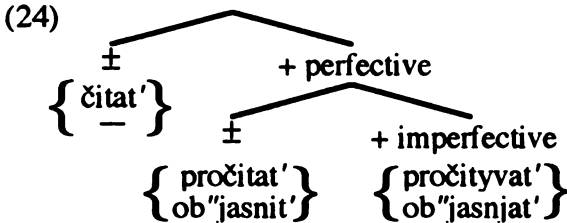


However, the Spec position of ImpfP seems to have no function. If the two functional projections are separate categorially, as in my analysis, the defective projection of the Impf head is simply a feature of that category, presumably due to the fact that Impf is a purely grammatical category without any lexical semantics of its own. However, if both aspectual heads represent the same category of Asp, there is no way to explain the failure of an iterated projection to include Spec.

3.3. Consequences for the Analysis of Russian Aspect

Let's now consider the consequences of this analysis of prefixation and aspect. It follows from (1) that imperfective verbs cannot form one monolithic category; rather, underived and derived imperfectives must be inherently distinct. Again, this conclusion is

not novel; similar proposals have been offered in Ivančev 1976, Aronson 1977, Glovinskaja 1982, Chvany 1988, based on a variety of semantic distinctions. Aronson's structuralist view of Bulgarian aspect can be adapted for Russian as in (24):¹⁶



In the case of an aspectual triad such as that associated with *čitat'*, the unprefixed verb is totally unmarked with respect to the other two, **both of which** bear the marked feature [+ perfective].¹⁷ Within the marked member of the top opposition, there is a second feature, [± imperfective], and for this feature the derived imperfective is marked. Thus, the form *pročityvat'* is doubly marked, which corresponds to both our intuitive understanding of its meaning as well the formal accumulation of morphemes represented in (1). In the more usual case of a two-way opposition between a perfective and a derived imperfective, the first opposition doesn't occur, but the imperfective is still marked with respect to the base perfective. This analysis of aspect suggests that both the perfective and imperfective have some meaning, since both have separate semantic features.

The basic intuition that simple verbs like *čitat'* or *pisat'* stand outside the fundamental grammaticalized aspectual opposition of perfective ~ derived imperfective is easy enough to accept. It's no accident that the overwhelming majority of unpaired verbs, often called *imperfectiva tantum* verbs, are unprefixed. A sampling of such verbs from Forsyth (1970: 54–56) is given in (25) on the following page. These verbs represent a variety of states and activities (another categorization that is hard to keep completely discrete). There are also other *imperfectiva tantum* verbs that apparently have prefixes; a few of these are given in (26).

(25) **Unprefixed *imperfectiva tantum* verbs**

žit' 'live'	spat' 'sleep'
imet' 'have'	gordit'sja 'be proud of'
stoit' 'cost'	borot'sja 'struggle'
suščestvovat' 'exist'	rabotat' 'work'
gosit' 'be a guest'	guljat' 'stroll'
pol'zovat'sja 'use'	sapožničat' 'work as a shoemaker'

(26) **(Apparently) prefixed *imperfectiva tantum* verbs***Church Slavonicisms:*

sostojat' 'consist'	sosuščestvovat' 'co-exist'
---------------------	----------------------------

Fused etymological prefixes:

pomnit' 'remember'	smotret' 'watch, look'
--------------------	------------------------

Denominal derivations:

bespokoit'sja 'worry'	nenavidet' 'hate'
-----------------------	-------------------

Atypical formations:

vygljadet' 'look'	zaviset' 'depend'
prinadležat' 'belong'	zavedovat' 'be in charge of'

Paradigm gaps:

razgovarivat' 'converse'	ožidat' 'expect'
--------------------------	------------------

These verbs all have prefixes that “don’t count” syntactically. For example, the prefix *so-* in *sostojat'* and *sosuščestvovat'* is a Church Slavonicism, and it never affects aspect—therefore it is reasonable to say that this kind of etymological prefix is built into the lexical verb stem, rather than added during the syntax. The same holds for *prezirat'*. *Pomnit'* undoubtedly has an etymological prefix, but the meaning can't be derived compositionally from *po-* plus the archaic verb *mnit'* 'to think'. Moreover, *pomni-* serves as input to further prefixation in a way that parallels unprefixed stems: a derivative like *zapomnit'* 'commit to memory' is perfective (atypical unless *za-* is the first prefix added; cf. Ludwig, in preparation), and the meaning of *za-* is not the clear-cut, productive types found in multiply-prefixed verbs. Verbs like *bespokoit'sja* or *nenavidet'* are denominal; the former is based on the prepositional

phrase *bez pokoja* ‘without peace’, while the latter has been analyzed by Chvany (1977: 44) as [[*nenavid-*] -e -t’]; what looks like a prefix is incorporated inside the verbal suffix. Atypical formations like *vygljadet’* ‘look’ require special treatment. Browne 1978 traces the history of this verb, identifying it as a calque on German *aussehen* ‘appear’, and noting its controversial history: it has been condemned on and off as aspectually ill-formed for over a century. As an unnatural formation, it stands to one side of the Russian system of prefixation, and can reasonably be left as an exception. Finally, there are derived imperfectives for which there is no base perfective, such as *razgovarivat’* or *oždat’*. These reflect arbitrary paradigm gaps: the functional heads of Pf and Impf are projected, but, for lexical/semantic reasons, the structure with only the Pf head is prohibited.

To properly round out the account of aspect sketched here, we need to demonstrate that perfectives class together with simplex imperfectives, i.e., that there are grammatical phenomena which are sensitive to the absence of the Impf head. I will cite two morphological processes here for which derived imperfectives are opposed to both perfectives and simplex imperfectives: the formation of past passive participles and combinability with the Impf head.

It is a surprising fact about Russian morphology that past passive participles can regularly be formed from perfective verbs and simplex imperfectives (as long as they are transitive; RG 1: 671)—but not from derived imperfectives.¹⁸ A few examples of participles derived from simplex imperfectives are given in (27); as the formation is productive, these examples could easily be multiplied.

(27)	<i>bit’</i> ‘beat’	→	<i>bityj</i>
	<i>čitat’</i> ‘read’	→	<i>čitannyj</i>
	<i>mesti</i> ‘sweep’	→	<i>metěnnij</i>
	<i>šit’</i> ‘sew’	→	<i>šityj</i>

This descriptive fact is well-known, but, as far as I know, no explanation has ever been offered. If all imperfectives formed one class, as the traditional structuralist hypothesis of invariant

meaning would suggest, this fact is inexplicable. However, my analysis provides a ready explanation: past passive participles may be formed from any verb which does not project an Impf head: there may or may not be a Pf head. Furthermore, this fact provides another argument that Impf and Pf morphemes head separate functional projections, rather than an iterated Asp(ect) projection, as would follow from Yadroff's analysis (this volume); under the latter account this generalization cannot readily be stated.

A second process classes perfectives and simplex imperfectives together: this is precisely the set of verbs which combine with imperfectivizing suffixes, i.e., project an Impf head. Perfectives take imperfectivizing suffixes, and this process creates derived imperfectives. Unprefixed imperfectives, as a class, **also** take imperfectivizing suffixes, in the formation of iteratives, such as those listed in (28).

(28)	-ivaĵ		-aj
	pisat' → pisyvat' 'write'	znat' → znavat' 'know'	
	čitat' → cityvat' 'read'	pet' → pevat' 'sing'	
	xodit' → xaživat' 'walk'	drat' → dirat' 'tear, beat'	
	gorovit' → govarivat' 'speak'	brat' → birat' 'take'	
	videt' → vidyvat' 'see'	est' → edat' 'eat'	
	slyšat' → slyxivat' <i>and</i> slyxat' 'hear'		

These iterative verbs are still common in colloquial Russian today, and can be formed spontaneously from practically any verb—indeed, that universal productivity is what we would expect from syntactic, rather than lexical derivation. There are semantic and morphological restrictions; these iteratives occur almost exclusively in the past tense, and often, though not always, under negation.

Iteratives are clearly formed by projecting the same Impf head as ordinary derived imperfectives; the inventory of suffixes is the same, and the morphological selection of *-yvaj* vs. *-aj* is identical. They even undergo the identical morphophonemics: note the change of *o* to *a* in the syllable before the suffix *-ivaĵ* in *govarivat'* and *xaživat'*, the mutation of the root-final consonant in *xaživat'*,

the hardening of root-final *d* in *vidyvat'* (this correlates with the absence of mutation in the past passive participle *uvidennyj* from the same stem), and the effect of Flier's (1972) glide shift, which changes jot to *v* exactly where we expect it in *znavat'* and *pevat'*. Thus, prefixed perfectives and unprefixed imperfectives group together precisely in being able to project a higher Impf head.

But note that the formation of iteratives is not a property of derived imperfectives: it is impossible to form iteratives of the type illustrated in (29):

- (29) ob"jasnjat' → *ob"jasnjaivat'/*ob"jasnjavat'
 rešat' → *rešaivat'/*rešavat'
 podpisyvav' → *podpisyvyvat'/*podpisyvavat'

In (29), the first non-existent form is derived with the suffix *-ivav*, while the second is created by subjecting the stem-final jot to the glide shift. Neither possibility works.

If imperfective verbs formed a single class of lexical items, it would be impossible to predict that simplex imperfectives would have the additional potential for forming iteratives. Certainly it cannot be based on semantics, as the meaning of simplex and derived imperfectives is often very similar. Instead, this sharp morphological distinction has a natural basis in morphosyntactic form: a verb that projects one Impf head cannot project a second.

This last observation brings us to a difficult question: if simplex and derived imperfectives are different in morphosyntactic structure, why are they so similar in meaning, and why do they exhibit similar behavior with respect to a secondary imperfective functions? For example, both permit the general factive usage (*obščefaktičeskoe značenie* or *konstatacija fakta*), as in (30).

- (30) a. Čtoby exat' vdvoëm, nužny sredstva: k tomu že mne ne dadut prodolžitel'nogo otpuska. V ètom godu ja uže bral_{IMPF} raz otpusk.

'We need funds to travel together. And besides, they won't give me a long holiday because I've already *had* leave this year.'

[Chekhov, "Ivanov"; Forsyth 1970: 83]

- (30) b. —Nado bylo zajavit'_{PF} togda že,—skazal on.
—Ja zajavljal_{IMPF}

““You ought to have reported it right away,” he said. “I did report it.””

[Tolstoy, *Voskresenie*; Forsyth 1970: 84]

Example (30a) illustrates this usage for an unprefixated imperfective, while a similar example is given for a derived imperfective in (30b). These two categories of imperfectives group together with respect to other phenomena as well, e.g., the nuance of ‘invitation’ in the imperative,; the aspect of infinitival complements to verbs like *načat* ‘begin’; greater predominance in negated past-tense sentences, etc.¹⁹

4. Conclusion

The reexamination of Russian verbal prefixes and aspect undertaken in this article has demonstrated several points:

1) Verbal prefixes can and should be viewed as separate syntactic entities, formally distinct (but tightly associated) with unprefixated verbal stems. Recognizing the syntactic status of verbal prefixes provides splendid solutions to a host of nagging questions in Russian phonology, morphology, and morphophonemics.

2) Russian imperfective verbs fall into two formally distinct, although semantically similar classes: simplex and derived imperfectives. This division is not new in and of itself, but the formal account offered here provides a principled formal foundation to which semantic intuitions can be attached.

3) The derivation of Russian perfective and imperfective verbs occurs in the syntax through the widely adopted GB mechanism of head-to-head movement.

This research is driven by two parallel concerns. First, a great deal of recent GB writing on functional heads assumes that there is a functional category of Asp(ect), e.g., Ouhalla 1991. However, very little of this theoretical work makes significant reference to Slavic aspect—despite the fact (as noted by Dickey, in preparation) that Slavic has a more complex aspectual system than other languages commonly analyzed in this regard. Slavic has bipartite

aspectual relations, and, as I have shown here, it is profitable to divide the functional category of aspect into two separate functional heads: P[er]f[ective] and Imp[er]f[ective].

Second, the inventory of verbal prefixes in Russian and other languages (throughout Slavic and beyond) closely recapitulates the inventory of prepositions in both form and meaning. I regard them as instantiations of the same functional super-category, which combines with both nominal and verbal heads (as prepositions and prefixes, respectively). If prefixes are syntactically separate from the verbal stems with which they are associated, as I have argued, then they are that much closer to formal identity with the class of prepositions. As a final observation, in connection with this last point, I would just like to mention that accentologists have long noted that stress may be retracted in mobile paradigms onto both prepositions and prefixes in similar fashion:

(31)	Prefix	Preposition
	<p>pónjal_{PAST.MASC} načal_{PAST.MASC}</p> <p>ponjalá_{PAST.FEM} načalá_{PAST.FEM}</p>	<p>zá ruku 'by the hand'</p> <p>íz domu 'from home'</p>

Thus, not only do verbal prefixes and prepositions look alike, they act alike in certain respects as well. This fact suggests strongly that a unity of the type proposed here is not merely a clever device, but a real part of the morphosyntactic structure of Russian.

Footnotes

* This paper summarizes a number of the central themes of a broader research project on the syntactic issues of verbal prefixation in Russian and Slavic; for reasons of space, many important points cannot be included. I am grateful to participants at the FASL 3 workshop for comments on an earlier version of this paper, as well as other friends and colleagues. I am especially thankful to Catherine V. Chvany, for a detailed and stimulating critique; Steve Franks, who has urged me toward more modern syntactic methodology; Jonathan Ludwig, whose dissertation research into the semantics of multiply-prefixed verbs has provided me with fascinating data on prefixation; and Michael Yadroff, whose ideas for Fowler and Yadroff 1993 led me to this entire line of inquiry, and whose comments have contributed to my thinking in many ways.

¹ For example, Brecht (1984: 32, fn. 3) notes that "...the competing proposals [of various aspect theorists] are ultimately compatible, once the semantic amalgamation rules for aspect are developed for each analysis."

² The majority of my arguments are based specifically on Russian facts. However, a similar analysis could in principle be extended to the other Slavic languages as well. Moreover, Walińska 1990 proposes an analysis of Polish prefixes as syntactically separate elements, albeit in a totally different framework (and her primary argumentation is based on semantics!).

³ Besides prefixed forms of *žeč'*, only the root *čít-* 'read, count' illustrates this bracketing paradox: *sčest'* 'consider', *sčěl*, *sočla*; *rasčest'* 'calculate', *rasčěl*, *razočla*; etc. It may seem as if two roots comprise rather slim basis for an entire theory of syntactic prefixation. However, there is other formal evidence for discrete prefixes, some of which is presented in this article. Moreover, there is an important methodological point to be made. Any plausible analysis must explain the core linguistic data. Examples like *žeč'* provide crucial evidence for making empirical distinctions between competing analyses.

⁴ This jer never vocalizes and thus always disappears; in most of Slavic morphology, the ending is regarded as a zero. However, the assumption that it is a jer makes it easier to explain the softening of the stem-final consonant in many verbs.

⁵ This condition applies only in perfective verbs. In derived imperfectives, stress characteristics of the imperfectivizing suffix overrule the stress of *vý-*; this fact follows automatically from the analysis of derived imperfectives presented in section 3.

⁶ Frank Gladney (p.c.) points out the slightly embarrassing counterexample of *brósit'* 'throw', which forms *výbrosit'* 'throw away' with the imperative form *výbroši*. However, this looks like a hypercorrection, influenced by verbs of the *výgovorit'* type. Note that all the other prefixed forms of *brósit'* take the expected zero (jer) ending, e.g., *podbrósit'* 'throw upward', imperative *podbrós'*.

⁷ Thanks to Adger Williams for this observation (p.c.).

⁸ However, the results of my preliminary work with informants are not quite as clear-cut as the Polish data cited by Rubach and Booij.

⁹ Exceptions to this generalization are clustered around the phenomenon of multiple prefixation, where it appears that the addition of a second prefix does not necessarily make a verb perfective; this issue is addressed briefly below (see also Ludwig, in preparation, for data on cross-Slavic variation in the aspectual effects of multiple prefixation).

¹⁰ It is often remarked that Aktionsart prefixes don't permit the formation of derived imperfectives, based on the impossibility of examples such as **prosiživat'* from *prosided'*. This constraint is clear too strong, e.g., *perekričat'* forms *perekrikivat'*, *proguljat'* 'stroll for a certain time' → *progulivat'*, *pokurit'* 'smoke a bit' → *pokurivat'*, etc. Another important methodological point is at issue here. The existence of unambiguous examples such as these demonstrates that the process of imperfectivization is grammatical with perfectives created

with the entire spectrum of prefixes. The fact that certain verbs do not tolerate the formation represents a correction to the morphology located elsewhere in the grammar; in this case, the derivation of **prosiživat'* creates a form that is semantically overloaded, i.e., has a meaning which is too specific and unnecessary. The reverse assumption is much worse: the morphological process is ungrammatical, but somehow semantic or pragmatic considerations overrule the grammar and bring about the form anyway. Such "bootstrapping" is hardly ever tenable, and should be adopted only as a last resort.

¹¹ Prefixes have been delimited with a hyphen; this device has no counterpart in Russian orthography.

¹² There are also a number of unprefixed perfective verbs created by addition of the suffix *-nu*, e.g., *doxnut'* 'sigh', *prygnut'* 'jump', etc. Detailed consideration of these examples will have to wait for another occasion, but I would also be inclined to analyze this suffix as occupying the Pf head position and derive such verbs in the syntax; see Sperling 1994 for a detailed analysis of the aspectual effects of this suffix.

¹³ The precise number is a matter of some controversy. In the larger research project (Fowler, in progress) I adopt the analysis given in Flier 1972, which identifies two imperfectivizing suffixes: *-yv* and *-Ø*. However, this raises extraneous issues which would simply distract us here, so I will refer to these suffixes in the "baseline" style of Townsend 1980.

¹⁴ The only exceptions are a very few perfective verbs which already contain the suffix which would otherwise be used to form the corresponding perfective, e.g., *posávetvam* 'advise', etc.

¹⁵ The difference between Russian and Bulgarian is a language-specific matter which I take up in further detail in Fowler (in preparation).

¹⁶ Aronson represents the unmarked member of a privative opposition as "±", reserving "–" for equipollent oppositions or negatively marked features.

¹⁷ The specific semantic identity of the features that mark aspectual pairs is not important here; all that is necessary for my argument is that there is some consistent semantic distinction. Glovinskaja argues most comprehensively that no one privative opposition is sufficient to account for all individual aspectual oppositions. I take Aronson's analysis as a jumping-off point here because it is simpler than, e.g., Chvany's; the specifics of a more fragmented analysis of aspect are considered in more detail in Fowler (in preparation).

¹⁸ Indeed, RG remarks (1: 671) that even when participles are not customarily formed from transitive simplex imperfectives, e.g., with *delit'* 'divide', *iskat'* 'seek', *ljubit'* 'love', etc., they are not grammatically prohibited, but simply 'unused' (*neupotrebitel'nyj*).

¹⁹ The explanation for the similar behavior exhibited by the two different types of imperfectives requires delving into the delicate semantic definitions of the competing pairs of aspectual features in (24). Space considerations prevent discussion of this issue here, and this paper is addressed primarily to formal issues anyway. However, I would like to mention the approach to this important

question adopted in Fowler (in preparation). I adopt Brecht's (1984) proposal that prefixation makes verbs perfective through *telicization*, while suffixation makes verbs imperfective through *atelicization*. As a result, we may distinguish between *atelicized* verbs (derived imperfectives) and *atelic* verbs (simplex imperfectives). Both types of imperfectives are atelic, and their similar behavior can be ascribed to that fundamental correspondence. Aspect literature is full of subtle functional differences between the two types of imperfectives, and I ascribe those differences to the delicate distinction between *atelic* and *atelicized*.

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Quantified Noun Phrase Structure in Bulgarian*

0. Introduction

In this paper we address some issues in the structure of Bulgarian noun phrases, in particular the constructions that arise with the enclitic article and quantifiers. In section 1. we give a preliminary account of DP syntax in Bulgarian, including movement of the noun and other lexical elements inside the extended nominal projection. In section 2. we present a general analysis of quantifier phrases across languages that will serve as the theoretical framework to be applied to the Bulgarian data presented and discussed in sections 3. and 4.

1. Preliminary analysis of the Bulgarian DP structure.

In recent times, noun phrase structure has become the focus of much cross-linguistic research. In particular, the existence of enclitic articles in Scandinavian and in most Balkan languages has been taken as evidence to support the hypothesis that D is an independent head selecting the noun phrase; cf. Hellan (1986) and Taraldsen (1990) for Norwegian ((1)), Dobrovie-Sorin (1987) and Grosu (1988) for Romanian ((2)):

- (1) a. *en gutt*
a boy
b. *gutt-en*
the boy
(2) a. *un báiat*
a boy
b. *báiat-ul*
the boy

Bulgarian is the only¹ Slavic language in what is traditionally referred to as the Balkan *Sprachbund*. In non-modified noun phrases it patterns like Norwegian and Romanian above:

- (3) a. *momče* ([a] boy)
 b. *momče-to* (the boy)

However, there are some crucial differences among the three languages when the noun is modified by an adjective: in Norwegian the adjective is preceded by a free form of the article, while the noun still retains what looks like the enclitic article (4), in Romanian either the noun moves to D, thus preceding the adjective in the linear order (5b), or the adjectival head functions as the base for article incorporation (5c), Bulgarian only has this latter choice (6).² The empirical generalization about the placement of the article can be stated in the following way: The article morpheme is incorporated into the first head in the DP (e.g. into the first adjective. If the adjective is modified by an adverb the article will still go on the adjective) (cf Penčev 1993 for a slightly different formulation).

- (4) a. *den store gutten*
 the big boy
 b. **gutten store*
 c. **storen gutten*
 (5) a. **cel mare báiat(ul)*
 b. *báiatul mare*
 boy-the big
 c. *marul báiat*
 big-the boy
 (6) a. *goljamo-to momče*
 b. **momče-to goljamo*
 the big boy

The variation found in (4)-(6) suggests that the bound nature of the article is no evidence *per se* for N-to-D movement, as it is impossible in Norwegian or Bulgarian, and only optional in Romanian. The trigger for noun movement, therefore, must be some other property. Although we don't go deep into this problem, we tentatively establish the correlation between N-to-D movement and intermediate N-movement.^{3,4}

Cinque (1994) analyses the difference in the adjective-noun word order in Romance and Germanic languages in terms of partial N-movement:

- (7) a. *der große Knabe*/**der Knabe große*
 b. the big boy/*the boy big
 c. *le grand garçon* /*le garçon grand*
 d. *il grande ragazzo*/il ragazzo grande

Giusti (to appear) proposes that N-to-D movement is possible only in those languages that display partial N-movement, in compliance with the Head Movement Constraint. Its impossibility in Scandinavian and Bulgarian is therefore expected. Thus the ungrammaticality of (4b) is reduced to the ungrammaticality of (8b), while the variation between (5b,c) is reduced to the variation in (9a,b).

- (8) a. *en store gutt*
 a big boy
 b. **en gutt store*
 a boy big
 (9) a. *un mare báiat*
 a big boy
 b. *un báiat mare*
 a boy big

Here we will refrain from discussing what the ultimate trigger for the intermediate N-movement in Romance could be. Whatever this is, it is a necessary although possibly not sufficient condition for N-to-D movement.

Having established a relation between the absence of N-to-D movement and the absence of partial N-movement in Bulgarian and Scandinavian, there still remains an important distinction between these two (groups of) languages to be accounted for. Namely, the different strategies that are employed to realize the article, which is a bound morpheme on the adjective in Bulgarian and a free morpheme preceding the adjective in Scandinavian. We tentatively propose analysing this difference as arising from different properties of adjectival morphology.

There are strong reasons to believe that in Bulgarian, the adjective in fact inflects for "definiteness"⁵ as reflected by a different form of the article depending on the morphological properties of the root it appears on ((10)).

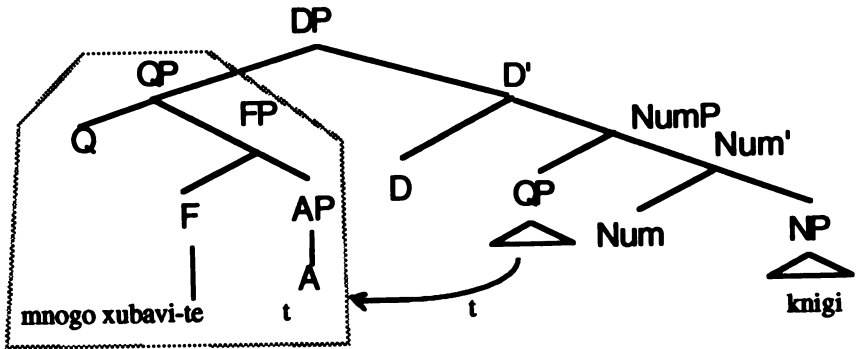
- (10) a. *xora-ta/*te*
 people-the
 b. *dobri-te/*ta xora*
 good-the people

Evidence for the hypothesis of analysing the article as the internal morphology of the adjective is provided by the fact that the article appears on the adjectival head regardless of whether it has a modifier or a PP-complement. An analysis in terms of A-to-D movement, which predicts (11b), is excluded and so is an analysis of phonological encliticization of D onto an AP in SpecDP, which predicts (12b), (13b):

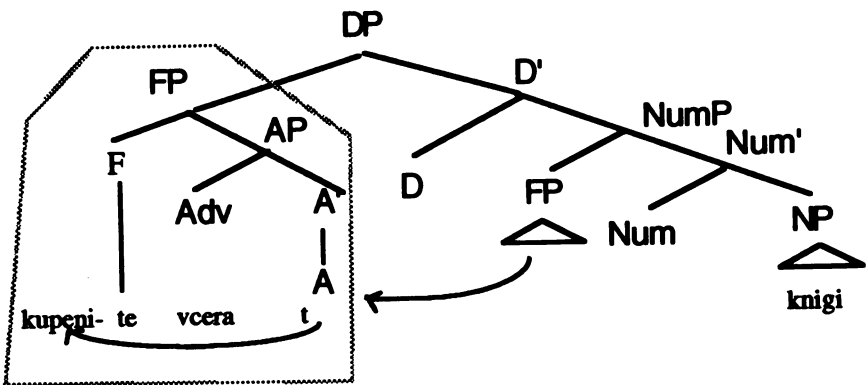
- (11) a. *mnogo xubavi-te knigi*
 very nice-the books
 "the very nice books"
 b. **xubavi-te mnogo knigi*
 nice-the very books
 (12) a. *kupeni-te včera knigi*
 bought-the yesterday books
 "the books bought yesterday"
 b. **[kupeni včera]-ta/te knigi*
 bought yesterday-the books
 (13) a. *vernij-at na žena si muž*
 truthful-the to wife poss refl man
 the man truthful to his wife
 b. ***[veren na žena si]-ta/fat muž*

The structure we propose for the modified noun phrase is (14a) for (11a), (14b) for (12a), and (14c) for (13a):⁶

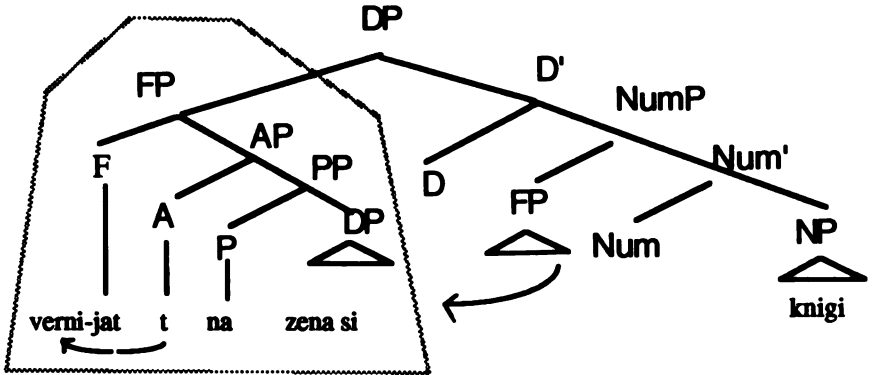
(14) a.



b.



c.



We assume that the mechanism at work here is checking the features in DP by Spec-Head Agreement of the inflected adjectival phrase moved to Spec DP and the head D. Movement of the highest adjectival phrase is just one step movement, it is therefore preferred to N-to-D movement. Due to lack of independent intermediate N-movement, N-to-D movement in Bulgarian has to take place in as many steps as there are functional heads. This is not the case in Romanian, where N is independently moved to an intermediate functional head (that we take to be Num^o here for expository purposes). In Romanian, AP-toSpecDP is in perfect competition with N-to-D, in that it requires the same number of steps. The contrast between (5b) and (6b), in this way, is reduced to the principle of economy of derivation, along the lines of Chomsky's (1992) recent proposals.

So far, we have briefly outlined a general structure for DP in Bulgarian, which is going to be the background for our analysis of quantified noun phrases in 3. and 4. below.

2. Quantified noun phrases: a general analysis.

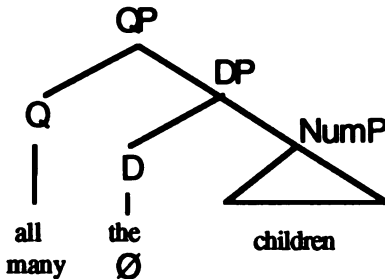
Before discussing the Bulgarian data we present below an independent hypothesis about the general structure of QPs across languages.

Giusti (1991) and following work, resting on cross-linguistic considerations based on contrastive analysis of some Romance and Germanic languages, suggests analysing the two occurrences of the quantifier in (15) as having a different syntactic status. In (15a) the quantifier is a head selecting a DP as its complement, much in the same way as the universal quantifier in (16a). In other words, the structure of (15a) includes an empty D position as represented in (16b). In (15b), on the contrary, the quantifier has the function of a modifier of the noun, much in the same way as the adjective in (17b).

- (15) a. *many children*
 b. *the many children*

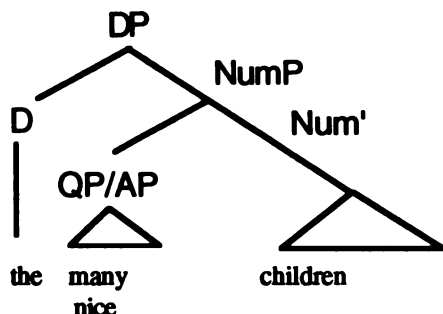
- (16) a. *all the children*
 b. *many \emptyset children*

c.



- (17) a. *the many children*
 b. *the nice children*

c.



The surfacing of an article in configuration (16) depends on the selectional properties of the quantifier: *many* selects a partitive DP, which must have a \emptyset determiner, while *all* selects a definite DP which displays a definite article in English.

This analysis was inspired by Romance data, where the definite article is obligatory after a universal Q. But it is more controversial in Germanic where the article may be missing. Consider the German exx. in (18)-(19):

- (18) a. *all(e) die Kinder*
 b. *all*(e) Kinder*
 c. *die ganzen/*allen Kinder*
 "all the children"

- (19) a. *beide (*die) Kinder*
 b. *die beiden Kinder*
 "both children"

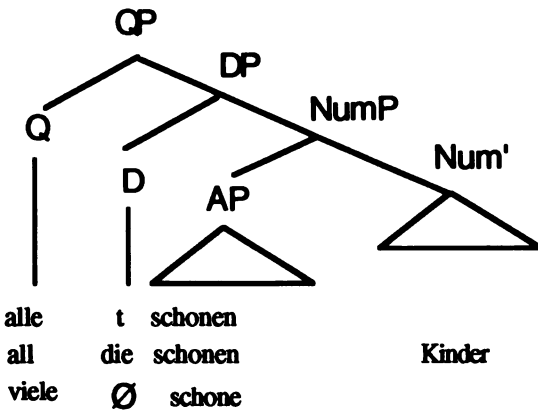
In (18), the quantifier *alle* is optionally inflected for nominal features in case the article is present (18a) and is obligatorily so in case the article is missing (18b). (18c) shows that *all* cannot have the modifier status, as it cannot be preceded by a determiner. Instead, German has a separate lexical entry: *ganz* which specializes for this function. In (19a) the quantifier *beide* appears in a construction like (18b) and (16) above), while in (19b) it is arguably a modifier. In fact, it

follows the article and displays weak inflectional morphology, which is typical of adjectives in this position, cf. *ganzen* in (18c).

The weak vs. strong inflection of adjectives following the quantifiers in (20a) and (20c), respectively, supports the hypothesis that there is a D head between the quantifier and the noun, which overtly surfaces in (20b). Our analysis is that in (20a) the article *die* is "incorporated" into the Q, while in (20c) it is zero (=indefinite plural article in German). The structure is given in (21):

- (20) a. *alle/beide schöne*(n) Kinder*
 all/both nice-wk/*str children
 b. *all die schöne*(n) Kinder*
 c. *viele schöne(*n) Kinder*
 many nice-str/*wk children

(21)



In (21a) the trace of the incorporated article is in the same relationship to the AP as the lexical definite article in (21b). In fact, it triggers weak morphology on the A. In (21c), on the contrary, the features on the Q cannot be taken to be the result of incorporation of D into Q, since the adjective displays strong morphology as adjectives normally do when no article is present at all.⁶

It is conceivable that the incorporation in (21a) cannot take place if the DP is raised in a floating construction such as (22a), since the trace of the article in this case would not be preceded by its

antecedent incorporated in the Q left *in situ*. This is why the article is obligatory. The inflectional morphology on the quantifier can be easily explained by assuming that DP has moved through SpecQP thus triggering agreement with Q. We turn to that shortly when discussing the Bulgarian data.

- (22) a. *die Kinder kenne ich all*(e)/beid*(e)*
 the children know I all/both
 b. *Kinder kenne ich viele*
 boys know I many

3. Quantified Noun Phrases in Bulgarian

The QP-hypothesis outlined in section 2. above incorrectly predicts that if *vsički* is a Q as in (16) it should be followed by a complete DP (Bulgarian (23)). On the contrary (24) is what we find:

- (23) a. **vsički [knigi-te]*
 b. **vsički-te knigi-te*
 c. **vsički [xubavi-te knigī]*
 all good-the books
- (24) a. *vsički knigi*
 all books
 b. *vsički-te knigi*
 all-the books
 c. *vsički-te xubavi knigi*
 all-the good books

An analysis of *vsički* as a high modifier of the noun (cf the analysis of English *many* as in (17) above; for Bulgarian cf. Penčev 1993) could explain (24b,c), but leaves (24a) unaccounted for. In fact universal QPs are only found in definite NPs across languages, and definite DPs ordinarily display the article in Bulgarian. In 3.2. we will show that Bulgarian *vsički* does not depart dramatically from its counterparts in languages like Romance and Germanic (cf. the German examples from above). Let us first consider in 3.1. the more

straightforward cases represented by *mnogo/malko/njakolko* ("many/few/ a few") and cardinals.

3.1. *Mnogo/malko/njakolko and cardinals*

It appears that a quantifier vs. AP distinction can provide an account for the distribution of existential quantifiers. We suggest that *mnogo* in (25a) is parallel to *many* in (16b) and in (25b) is parallel to *many* in (17a).

- (25) a. *mnogo (novi) knigi*
 many new books
 b. *mnogo-to (novi) knigi (v bibliotekata)*
 many-the new books (in library-the)

Notice that cardinals such as *dve/dva/dvama* ("two"), *tri/trima* ("three") apparently behave like *mnogo* in either selecting an indefinite complement or functioning as a high modifier:⁸

- (26) a. *dve (novi) knigi*
 two new books
 b. *dvete (novi) knigi*
 two-the new books

There is, however, an interesting difference between the two classes of quantifiers. Cardinals can occur lower in the structure with respect to descriptive adjectives, while other adjectival quantifiers cannot:

- (27) a. *novite dve knigi*
 b. **novite mnogo knigi*

This can be captured under an analysis of cardinals as heads in Num. Evidence for postulating this position is the agreement for [+M, +count] features on the head noun triggered by cardinals but not by other quantifiers (cf. fn. 8). Being a head, the cardinal can be bypassed by an adjectival phrase moving to Spec DP, or move to D itself. On the contrary *mnogo*, being a phrase blocks the movement of a lower phrase to SpecDP.

Cardinals in Bulgarian, therefore, highlight a property of the complex syntax of quantification that was not detected in Giusti (1991).

3.2. *The universal quantifier vsički*

Bulgarian behaves like Romance and Germanic with respect to quantifier floating. Furthermore floating quantifiers appear to be linked to a complete DP in higher clausal position, as is the case in Romance and Germanic and as predicted by the hypothesis.⁹

- (28) a. *knigi-te gi pročetox vsički-te*
 books-the them cl read 1sg all-the
 b. *die Bücher habe ich all*(e) gelesen*

Notice the contrast with adjectives which never appear in discontinuous constructions. Compare (28) and (29):

- (29) a. *pročetox xubavi(te) knigi*
 (I) read nice-the books
 b. **knigite gi pročetox xubavite*
 book-the CL (I) read nice-the

It deserves mention here that a closely related South Slavic language like Serbo-Croat, which has morphological case and no article, displays free left branch extraction of adjectives and possessives ((30)).

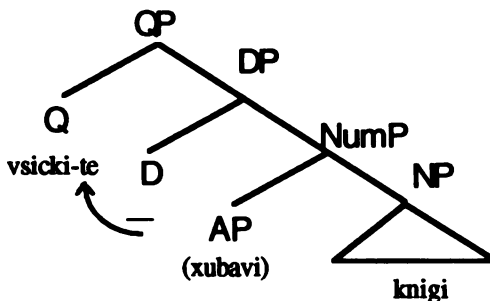
- (30) a. *Ivan kupuje zeleno auto*
 I. buys green car
 b. *Zeleno Ivan kupuje auto*
 green Ivan buys car
 c. *Ivan razbija tatino auto*
 I. ruins father's car
 d. *Tatino Ivan razbija auto*

Since this is clearly not the case in Bulgarian the quantifier in (28a) cannot be taken as an adjective, contrary to what is suggested by Penčev (1993).

The comparison with German, instead, gives us some insight into the Bulgarian structure. The parallelism is almost perfect under the assumption that the article *-te* on the quantifier is a type of morphological agreement, much in the same way as the morpheme *-e* on the German Q. In both cases this type of morphology is optional when the complement of the quantifier is in place and obligatory when the complement of Q is extracted. The difference with German is the possibility for Bulgarian to have an empty D in the complement of *vsicki*. This can be related to the fact that *vsicki*, contrary to *all* already bears some nominal features, namely number and can therefore license an empty head and identify its features.

We propose that *vsickite* in (24b,c) is the result of incorporation to the higher Q of the features of the DP, generated in D as in (31). We return shortly to the nature of these features.

(31)



The assumption that this incorporation is obligatory when the DP remains *in situ*, accommodates the ungrammaticality of (23). This mechanism can be reduced to some common principle of economy of derivation in that in Bulgarian movement up to D or SpecDP is avoided whenever the article can appear on a higher element in the extended nominal structure.

Such an incorporation is impossible when the DP is extracted out of the QP, as was the case for German (22a)=(28b). The floating construction therefore highlights two important aspects of this construction which are otherwise obscured in the base construction.

Namely that a) *vsički* is a head Q, and b) it selects a complete DP complement as its Germanic counterparts in (16).

Article doubling in (28a) is obligatory and can be analysed as agreement with the DP triggered by the movement of DP through SpecQP. Evidence that such movement takes place is provided by the possibility of the constituent [DP [Q t]] in (32b), which can actually move as such, as shown by (32d):

- (32) a. *pročetox* [QP *vsički-(te)_i*] [DP (*t_i*) [NP*kni_gi*]]
 (I) read all-the books
 b. *pročetox* [QP [DP*kni_gite*] [Q'*vsički-te* [DP *t_i*]]]
 (I) read books-the all-(the)
 c. [DP*kni_gite*]_{*i*} *gi pročetox* [QP [*t'_i*] [Q'*vsičkite* [DP *t_i*]]]
 books-the Cl (I) read all-the
 d. [QP [DP*kni_gite*] [Q'*vsički-te* [DP *t_i*]]]_{*i*} *gi pročetox t_j*
 books-the all-the CL (I) read

(31) accounts for all the data presented so far. Of course, the *in situ* word order is ambiguous between the adjectival and the Q analysis. The adjectival analysis, however, does not account for the discontinuous construction.

3.2.1. An alternative analysis

As a matter of fact, it appears to be counterintuitive to analyse the realization of the article on *vsički* in the floating and the *in situ* construction as the result of two different processes. A possible alternative to this could be to take the article as agreement in all cases. Agreement would be obligatory in the Spec-Head configuration and in the extraction cases, and optional when the DP remains *in situ*. Optionality of agreement in the latter case could be explained in terms of the inherent definite nature of the DP selected by a universal quantifier. Optionality of agreement, however, is not enough to explain the impossibility of the examples in (23) above and (33a) below. A stipulation is needed in this analysis about the impossibility of realizing the features in DP in case the quantifier is present. Since we do not find a way of reducing this stipulation to any other more principled property of Bulgarian, we believe that the split analysis is superior to the unified one.

3.2.2. Quantified pronouns

Let us now substantiate the nature of the features realized by the article. In Giusti (1993) it was proposed that the article realizes Case features in German. We propose that it does so in Bulgarian as well. In fact, when the quantifier precedes a personal pronoun, which is intrinsically inflected for Case, it never displays such features. Also notice that the article is homophonous and diachronically related to the nominative form of the third person pronoun.

- (33) a. [QP*vsički* (*-te) [DP *nie/nas*]]
 vie/vas
 te/tjax
 all(*-the) we/us
 you/youA
 they/them
- b. [QP[DP *nie/nas*] [Q*vsički* ?-te)]
 vie/vas
 te/tjax

The data in (33) empirically justifies the double analysis of the article *-te* on *vsički* in the above examples. In case it is a pronoun, the complement of *vsički* cannot possibly include an article which is expected under our incorporation proposal and would not be accounted for by a unified analysis of the article as agreement with the complement. (33b) strongly suggests that the article is an instance of agreement with the complement moved into SpecQP.

4. The interaction of quantifiers and high modifiers of the noun

4.1. Demonstratives

Following Giusti (1992), we assume that demonstratives across languages are not in D but in a high Specifier and subsequently move to SpecDP¹⁰, contrary to what has been implied in current literature on DP-structure (cf. Longobardi (1991) among many others). We apply this proposal to Bulgarian with the addition that in this language demonstratives are always found in SpecDP (either base

generated there or obligatorily moved there overtly). Being intrinsically specified for definite features, *tezi* differs from an adjective in SpecDP in that it never takes the article, cf. (34a,c). However, it may, under certain conditions, co-occur with the article, as shown in (34b):

- (34) a. *tezi novi stolove*
these new chairs
b. *tezi dva-(ta) stola*
these two-the chairs
c. **tezi stolovete*
these chairs-the

In (34b), the cardinal optionally takes the article. In other words, the article is optionally inserted in D° when SpecDP is occupied by a demonstrative and a cardinal is in Num° . If the article is inserted, the shortest move is Num-to-D. The article in this case inflects for the morphological features of the cardinal. The impossibility of (34c) clearly shows that the noun does not move in Bulgarian, as we have suggested above.

If *tezi* is taken to be in SpecDP, we expect the universal quantifier to precede it, as in (35a), unfortunately, what we have said so far is not sufficient to predict the possibility of (35b):

- (35) a. *vsički tezi knigi*
b. *vsički -te tezi knigi*
all-(the) these books

(35b) would be expected under the unified agreement analysis in 3.2.1. above. Notice, however, that it does not contradict the incorporation analysis, if explained along one of the following lines: Either we take *tezi* in SpecDP to co-occur with the trace of *-te* in D left after incorporation, as in (36a); or we take *tezi* to be generated lower (in the Spec of a nominal functional projection that we generically label FP here) and stay there, in case DP already has a filled head, as in (36b):

- (36) a. [Q-te_i [DP tezi [t_i [FP ...]]]]

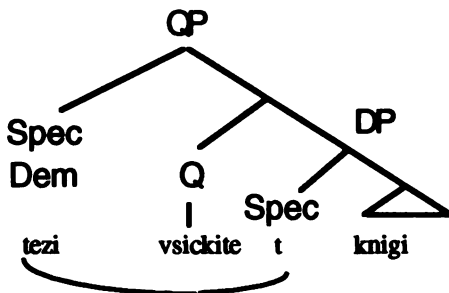
b. [Q-i [DP [t_i [FP tezi [F' ...]]]]]

An apparent further problem to our approach is (37a). In fact, if we take the demonstrative as marking the DP-boundary, the quantifier is not expected to follow it unless it has adjectival status. However, an adjectival analysis of *vsicki*, parallel to the analysis suggested above for *mnogo/njakolko* is contradicted by the obligatory occurrence of the article on *vsički* in this construction, since ordinary adjectives preceded by a demonstrative never display an article, as shown in (37b):¹¹

- (37) a. *tezi vsički*(-te) knjige*
 these all*(-the) books
 b. *tezi xubavi(*te)/njakolko(*to) knjige*
 these good-(*the)/few-(*the) books

In line with our analysis of demonstratives above, we propose that (37a) is derived by further movement of *tezi* from SpecDP to SpecQP. The structure is given in (38). The obligatory presence of the article on *vsički* is Spec-head agreement for features:

(38)



In addition to being theoretically justifiable, the structure in (38) appears to provide for a Topic-Focus distinction between the quantifier and the demonstrative, depending on their respective linear order. In (35) the demonstrative has a focused reading, whereas in (37) it is the quantifier which falls under focus. This can be taken as an instance of syntactic structure serving independently discourse

structure. Note that the Topic-Focus effect found in QP as part of the extended nominal projection is very similar to the same effect in Bulgarian clause structure.

4.2. Possessives

This analysis can also capture the data in (39)-(40). In (39a) and (40a) we see a complete DP with no quantifier. In (39b-c) and (40b-c) the presence of the quantifier blocks movement inside DP. The d-examples represent the floated construction with the complete DP extracted out of QP, and in this case the extracted constituent is identical to the non quantified DP in the a-examples.

- (39) a. *knigi-te mi*
books-the my Dcl
b. *vsički -te mi knigi*
all-the my Dcl books
c. **vsički (-te) knigi-te mi*
d. *Knigi-te mi izgorjaja vsički *(-te)*
books-the my burned all*(-the)
- (40) a. *moi-te knigi*
my-the books
b. *vsički -te moi knigi*
all-the my books
c. **vsički moi-te knigi*
d. *moi-te knigi zgorjaja vsički te*
e. *moi-te vsičkite knigi*

This shows that incorporation of the article takes place in the adjacent position regardless of what type of DP is embedded into QP. Here we will not pursue the analysis of possessive constructions in Bulgarian. We only briefly note that we consider the constructions with the possessive pronominal adjectives and the ones with a dative possessive clitic as representing two distinct types and consequently structurally different.

5. Conclusion

In this paper, we have sketched some proposals for DP structure in Bulgarian. In particular, we have argued for the following points:

- a) There are two necessary conditions for N-to-D movement across languages, one is the enclitic nature of the article and the other is independent N-movement to the immediately lower nominal functional head. Neither of them is sufficient on its own. It is only their interaction that appears to be able to trigger this phenomenon.
- b) The article on the prenominal adjective in Bulgarian arises in a functional projection of the adjective itself and not in D. The inflected AP is moved to SpecDP and checks the features in D.
- c) Quantifiers in Bulgarian have been shown to behave in a way parallel to Romance and Germanic despite appearances. In particular, Bulgarian has highlighted the existence of cardinal insertion in Num; the possibility for SpecQP to host the complement of Q or a demonstrative.
- d) Finally, the distribution of the article on *vsički* was analysed as the incorporation of Case features of the DP generated in D in case the complement of Q is *in situ* and as agreement for the same features when the complement is moved to or through SpecQP.

Footnotes

* We would like to thank various people and institutions for giving us support in different respects during the research on which this paper is based. First of all we are intellectually indebted to Guglielmo Cinque and Lars Hellan for much more than just discussing the ideas presented here. Much is due to the University of Venice for granting Mila a research fellowship in the spring of 1994 that gave us the opportunity to meet and work together, and to Norgesforskningsråd for providing Giuliana with a travel grant to present the paper at the 3rd FASL. Last but not least we thank audiences at both Venice and College Park.

For the sake of requirements by the Italian Academy Giuliana Giusti is responsible for sections 1. and 2. and Mila Dimitrova-Vulchanova for sections 3. and 4.

1 We consider Modern Macedonian as comprising a variety of dialects of the Bulgarian type, especially in view of basic common syntactic properties (cf Dimitrova-Vulchanova 1992).

2 Notice that Bulgarian neither has an indefinite article (as shown in (3a)), nor a free form of the definite article, comparable to Scandinavian *den/det* and to the Romanian adjectival article *cel*.

3 V-to-C movement in the Mainland Scandinavian languages is the only case we know of movement of a lexical head to a high functional projection, in a (group of) language(s) that do not display the corresponding short movement (in that case V-to-

I). The crucial difference between verbs and nouns is that while the modifiers of verbs (adverbials) are of completely different nature and, as a consequence, cannot fulfill the function that triggers V-to-C movement, the modifiers of nouns, namely adjectives share with nouns the possibility of bearing nominal morphology, in our case the article, they therefore compete with the noun in the possibility of moving to a position in DP. We will turn to the hypothesis that it is the economy of derivation that requires the shortest move to fulfill the function of DP.

4 Movement of N to an intermediate functional projection has been proposed in the literature to account for word order variations in noun phrases cross linguistically, cf. Ritter (1988), Picallo (1991), Cinque (1993) among others.

5 Under "definiteness" we mean the abstract features expressed by the definite article, whatever their nature and language particular realization could be.

6 At this point of the reasoning, the internal structure of adjectival phrases and their functional projections is irrelevant, since our analysis will be limited to the high periphery of the noun phrase. We assume that *mного* in (11a)=(14a) is a Q selecting an extended adjectival projection, parallel to what we are going to propose in section 2. for quantifiers selecting noun phrases.

7 That such an incorporation of the article is possible in German is independently shown by the existence of inflected prepositions, such as *aufs* (*auf*+*das* = on + art(s., neut., acc.), *im* (*in*+*dem* = in + art(s., m./n., dat.):

- (i) a. Q+D= all-e
- b. P+D= e.g. *auf*-s, *im*, etc.

8 Cardinals exhibit the peculiarity of triggering a special agreement for [count] on masculine nouns, cf. (i) and (ii). On the other hand, if the masculine noun is specified for [+human], the cardinal, instead, appears in a special form, cf. (ii) and (iii):

- (i) a. *dve/tri knigi*
 two/three books
- b. *dve-te/tri-te knigi*[-M]
 the two/three books
- (ii) a. *dva stola*
 two[M] chairs
- b. *dvata stola*
 the two chairs[COUNT]
- (iii) a. *dvama/trima muže*
 two/three[hum, M.] men
- b. *dvamata/trimata muže*
 the two/three[hum, M.] men[PL]

9. Note that the construction in (28a) represents a typical topicalization configuration in Bulgarian, which involves clitic doubling of the moved constituent. It is also the exact equivalent of the German in (28b). As expected, floating quantifiers are found also in passive constructions such as the restricted (i) and the *se*-construction in (ii):

- (i) *?knigi-te bjaxa pročeteni vsički-te*
 books the were read all-the
- (ii) *knigi-te se pročetoxa vsički-te*
 books the REFL read all-the
 "the books were all read"

Notice also that the quantifier is found in the basic post-verbal subject position, as in (iii):

- (iii) *momčeta izjadoxo po edna jabulka vsickite*
 boys-the ate PO one apple all-the
 "the children all ate an apple"

As independently argued for in Dimitrova-Vulchanova (to appear), the landing site of topicalized constituents cannot be unambiguously analysed as either A or A'. Therefore, clitic doubling is not to be taken as a sign for dislocation. This is also true of basic vs. derived positions for subjects. Moreover, clitic doubling is related to the aspectual features of the clause, cf. Dimitrova-Vulchanova (1992) and Dimitrova-Vulchanova and Hellan (1994).

10 Giusti's claim is based on the observation that in Romanian, the demonstrative, which appears to be base generated as the leftmost modifier for the noun (i), can be skipped by N-movement (ii), but not by AP movement (iii):

- (i) *acest frumos băiat*
 this nice boy
 (ii) *băiatul acesta frumos*
 boy-the this nice
 (iii) *frumosul (*acesta) băiat*
 nice-the this boy

Parallel evidence is independently provided for Kiswahili by Carstens (1991).

11 Taking *vsički* to be in Num in this case will not be justified either, since it behaves differently from cardinals in the same position, cf.:

- (i) *novite dve knigi*
 new-the two books
 (ii) **novite vsički knigi*
 new-the all books

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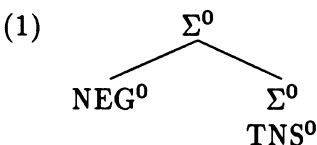
Structuring Negation in Slavic

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1 Introduction

Rivero (1991) proposes that certain Slavic languages project NegP higher than TnsP, while others project it lower. Bulgarian (BL) and Serbo-Croatian (SC) belong to the first set, Czech (CZ) and Slovak (SL) to the second. Rivero (1993) further suggests that in SC the verb incorporates into Neg⁰, while in BL it does not. I argue that Tns⁰ and Neg⁰ form a single functional head in Slavic. Following a similar proposal by Piñón (1992) for Hungarian and Romance, I term this projection Σ^1 . In addition to eliminating unused Specifier positions among the functional projections, this analysis explains the scoping of negation in Russian (RS). I propose that the word order variations cited by Rivero (1991) are a reflection of differences in the clitic inventory. In contrast, the differences cited in Rivero (1993) result from different syntactic positions of the clitics. These properties are independent of the structure of Neg⁰ which forms a functional head with Tns⁰ in each language.

Under this proposal, negation does not head its own projection, as suggested by Pollock (1989) for French and English and now often assumed universally, nor is it in an adjoined adverbial position, as suggested by Baker (1991) for English. The basic structure which I posit for Slavic is shown in (1).²



In (1), Σ^0 forms a complex head containing negation and tense.³ Finite verbs undergo head-movement to Σ^0 for inflectional features. In affirmative clauses, Σ^0 contains only tense. When a clause is negated, Σ^0 contains the negation as well as tense. This is represented as an adjunction structure within the head.

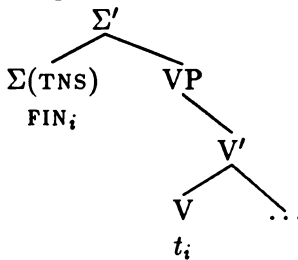
2 The Scope of Negation: Russian

First consider the Russian (RS) data. Under a NegP analysis, Neg⁰ would appear higher than Tns⁰.⁴ This analysis predicts that a single NegP can have scope over coordinated TnsPs. However, under the Σ P analysis, Neg⁰ and Tns⁰ form a single head, and so negation can have scope only over a single finite clause. As predicted by the Σ P analysis, with coordinated finite clauses, negation has scope over only the first conjunct. In addition, the genitive of negation operates only in the first clause. The structure of imperfective futures further supports this analysis. Imperfective futures are composed of an auxiliary in Σ^0 and an infinitive in V⁰. Unlike with simplex verbs, negating the auxiliary in Σ^0 allows the negation to scope over coordinated VPs and can license the genitive of negation in both VPs. Finally, *li* yes-no questions license the movement of the tensed verb to C⁰. In negated questions, both negation and the tensed verb move to C⁰, as predicted if they form a single head.

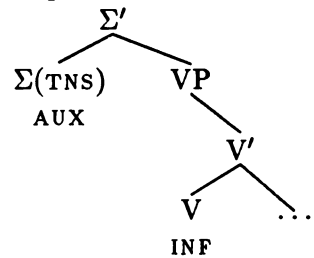
2.1 The Scope of Negation

Before discussing the results of positing the structure in (1), the syntax of Russian verbs must be discussed. Tensed, finite verbs appear in Σ^0 , as mentioned above; infinitives are in V⁰. This distinction is important in clauses with imperfective future verbs. Imperfective futures consist of a tensed form of *byt'* 'to be' and an infinitival main verb. With these forms, the tensed auxiliary is in Σ^0 , while the infinitive is in V⁰.⁵ As such, the auxiliary is higher in the structure than the infinitive. These structures are shown in (2).

(2) a. Simplex verb:



b. Imperfective future:



If the negative marker is associated directly with Σ^0 , then we

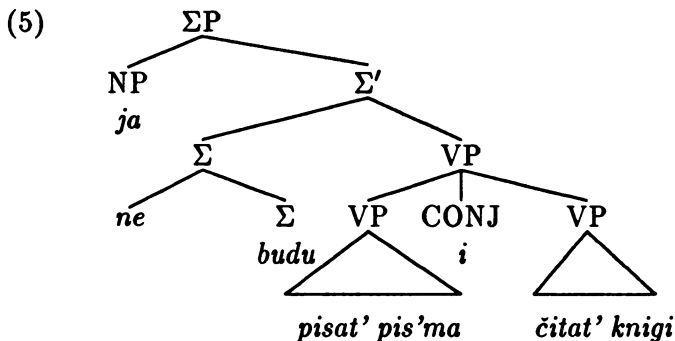
make a prediction about the scope of negation in coordinated sentences. In sentences composed of an auxiliary followed by coordinated VPs, a single negative marker appearing before the auxiliary should be sufficient to negate both VPs, as in (3). So, in (3) a single negative marker is sufficient to negate both *pisat'* and *čitat'*. However, in sentences with coordinated Σ 's, i.e., with coordinated simplex verbs, in order to negate both conjuncts a negative marker must appear before each finite element, as in (4).⁶ So, (4a) can only mean that the subject is reading and not writing letters; it cannot mean that the subject is neither reading nor writing letters. For this reading, the structure in (4b) in which the negative marker appears before both verbs is needed.

- (3) Ja ne budu [[pisat' pis'ma]_{VP} i [čitat' knigi]_{VP}]_{VP}.
 I Neg will write-INF letters and read-INF books
 'I will not write letters and (will not) read books.'
 [Σ ' NEG + TNS [VP [VP INF] CONJ [VP INF]]]

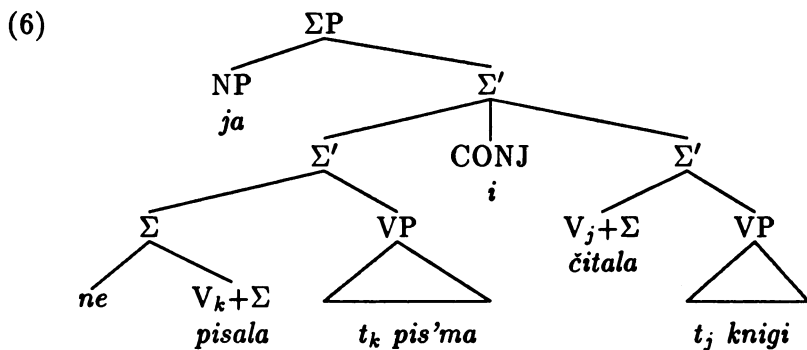
- (4) a. Ja [[ne pisala pis'ma] _{Σ '} i/a [čitala knigi] _{Σ '}] _{Σ '}.
 I Neg wrote letters and read books
 'I did not write letters and (*did not) read books.'
 [Σ ' [Σ ' NEG + TNS] CONJ [Σ ' TNS]]

- b. Ja [[ne pisala pis'ma] _{Σ '} i [ne čitala knigi] _{Σ '}] _{Σ '}.
 I Neg wrote letters and Neg read books
 'I did not write letters and did not read books.'
 [Σ ' [Σ ' NEG + TNS] CONJ [Σ ' NEG + TNS]]

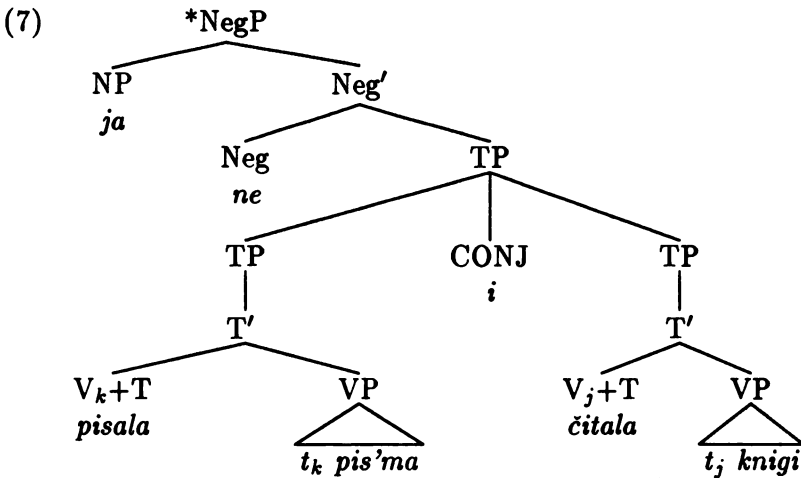
The structure for (3) is shown in (5).⁷ There is one negative marker associated with the single tensed verb *budu*. This single Σ^0 has scope over both of the conjoined VPs and as a result they are both negated. Note that these examples also follow from Rivero's account since VPs, and not tensed verbs, are coordinated.



In contrast, (6) shows the structure for (4a) in which there are two conjoined Σ' . Since only the first Σ^0 contains a negative marker, only the first VP is negated. In order for the second VP to be in the scope of negation, the Σ^0 in the second conjunct must also contain a negative marker.



If negation headed its own projection above TnsP, the wrong predictions would be made concerning the scope of negation. Such an analysis would correctly predict that negation would scope over both conjuncts with imperfective futures, as was seen in (3). However, consider the simplex tensed verbs, as in (4). If negation heads a projection above the position of the tensed verb, then it should be able to scope over both conjuncts. That is, in a structure like (7) negation would appear in a position which c-commands TnsP and hence the verbs in Tns⁰.⁸ However, the data in (4) showed that this is not the case.⁹



2.2 The Genitive of Negation

The distribution of the genitive of negation provides additional evidence of the scope of negation in these types of sentences. Only objects that are within the scope of negation can appear in the genitive.¹⁰ The structure posited in (1) predicts that a single negative marker can license negation in both clauses if they are imperfective futures since the negation in Σ^0 will scope over the coordinated infinitival VPs, as in (8a). However, if a sentence contains coordinated simplex verbs in Σ^0 , a negative marker can license the genitive of negation only in its clause, as in (8b) and (8c).

- (8) a. Ja ne budu [[pisat' pisem]_{VP} i [čitat' knig]_{VP}]_{VP}.
 I Neg will write-INF letters-GEN and read-INF books-GEN
 'I will not write letters and read books.'
 [Σ' NEG + TNS [_{VP} [_{VP} INF + GEN] CONJ [_{VP} INF + GEN]]]
- b. *Ja [[ne pisala pisem] _{Σ'} i [čitala knig] _{Σ'}] _{Σ'} .
 I Neg write letters-GEN and read books-GEN
 * [Σ' [Σ' NEG + TNS + GEN] CONJ [Σ' TNS + GEN]]

- c. Ja [[ne pisala pisem]_{Σ'} i [ne čitala knjig]_{Σ'}]_{Σ'}.
 I Neg write letters-GEN and Neg read books-GEN
 'I did not write letters nor read books.'
 [Σ' [Σ' NEG + TNS + GEN] CONJ [Σ' NEG + TNS + GEN]]

In (8a) there is only one inflected verb, the auxiliary *budu*. Subordinate to this are two coordinated VPs. Material in both of these VPs is within the scope of the negated inflected element. As such, genitive objects can appear in both conjuncts. However, in (8b) there are two inflected verbs, one in each clause. It is impossible for the negation of the first verb to be interpreted on the second conjunct. So, a genitive object can appear after the first, negated verb, but not after the second verb which is not within the scope of the negative marker. In order to have both conjuncts within the scope of negation and have genitive objects, the negative marker *ne* must appear in front of both inflected verbs, as in (8c).¹¹ Note that if two imperfective futures, including the auxiliary, are coordinated, there will be two tensed verbs and the structure will pattern like that in (8b). That is, the negative marker licenses the genitive of negation only in its clause, as in (9).

- (9) *Ja [[ne budu pisat' pisem]_{Σ'} i [budu
 I Neg will write-INF letters-GEN and will
 čitat' knjig]_{Σ'}]_{Σ'}.
 read-INF books-GEN

2.3 Head-Movement in Yes-no Questions

There is one construction in RS in which the verb undergoes head-movement from Σ^0 to C^0 . This construction is the *li* yes-no question (King (1994); see also Rivero (1993) on Bulgarian and Serbo-Croatian *li*, and Rudin (1993) and Izvorski (1994) on Bulgarian *li*). In *li* questions, the questioned constituent appears in initial position followed by the clitic in C^0 . If the question is simply about the event, the verb appears in initial position, followed by the clitic, as in (10).¹²

- (10) Žil li on v Moskve?
 lived Q he in Moscow
 'Did he live in Moscow?'

When the verb in question is composed of a tensed auxiliary and an infinitival 'main' verb, it is the auxiliary that appears in initial position before the clitic, not the infinitive.¹³ In (11a) the auxiliary appears in initial position followed by the question particle *li*. When the infinitive moves to C^0 , as in (11b), the result is ungrammatical. (11) demonstrates that it is the material in Σ^0 , i.e., the tensed material, that appears in C^0 before *li*. Usually this is the verb itself, but when there is an auxiliary in Σ^0 , it is fronted and the infinitival verb remains in the VP.

- (11) a. Budet li on žit' v Moskve?
 will Q he live-INF in Moscow
 'Will he live in Moscow?'
 b. *Žit' li on budet v Moskve?
 live-INF Q he will in Moscow

If the formation of *li* yes-no questions involves the head-movement of the material in Σ^0 to C^0 , then the complex head structure proposed in (1) predicts that the negative marker will also move to C^0 in *li* questions. This is the case, as seen in (12).

- (12) a. Ne zastupjatsja li za menja babuška ili tetuška?
 Neg protect Q for me grandmother or aunt
 'Wouldn't Grandmother or aunt speak up for me?'
 (Yokoyama 1986:240)
 [C' [Σ NEG + TNS]_j Q [ΣP ... t_j ...]]
 b. Oni sprosili, ne videli li my Ivana včera večerom.
 they asked Neg see Q we Ivan yesterday evening
 'They asked if we hadn't seen Ivan yesterday evening.'
 [C' [Σ NEG + TNS]_j Q [ΣP ... t_j ...]]

In (12a) the entire Σ^0 complex *ne zastupjatsja* has moved into C^0 and is followed by the clitic *li*. (12b) shows the same phenomenon in an embedded question; the Σ^0 complex *ne videli* is in C^0 .

In fact, as would be expected if negation forms a unit with the tensed verb, it is impossible to move the verb into C^0 without the negative marker (cf. (12b)).

- (13) *Oni sprosili, videli li my ne Ivana
 they asked see Q we Neg Ivan

včera večerom.

yesterday evening

*[C' [Σ TNS]_j Q [ΣP ... NEG + t_j ...]]

(13) is ungrammatical if the embedded question is interpreted as having clausal negation. The negative marker must move with the verb to maintain the clausal negation. The only possible interpretation is that of constituent negation of *Ivana*, which in this context is pragmatically odd. Thus, the fact that in *li* yes-no questions the negative marker moves with the tensed verb to C⁰ supports the claim that the negative marker forms a unit with the tensed verb in Σ⁰.

Thus, evidence from the distribution of the negative marker, the genitive of negation, and *li* questions suggests that in RS, negation forms a unit with the tensed verb in Σ⁰. As expected for a projection containing the tensed verb, ΣP, including the complex head, dominates the VP. As a result, negation has scope over the tensed verb in Σ⁰ and the material in the VP, but not over other finite elements.

3 Incorporation into Neg

Having seen how the ΣP proposal interacts with the scope of negation in RS, let us turn to some of the other Slavic languages, in particular, Bulgarian (BL), Serbo-Croatian (SC), and Czech (CZ) and Slovak (SL). Rivero (1991, 1993) has proposed that NegP behaves differently in each of these languages. In contrast, I propose that, as with RS, negation forms a complex head with the tensed verb in these languages and that the differences noted by Rivero reflect independent differences in the clitic systems. In this section, I discuss Rivero's 1993 proposal concerning the difference between SC and BL, and in the next section I discuss her 1991 proposal concerning the contrast between SC and CZ/SL.

Consider the difference between BL and SC. Rivero (1993) proposes that Tns⁰ incorporates into Neg⁰ in SC, but not BL, because clitics follow Neg⁰ and the verb in SC while in BL the clitics appear

between negation and the verb. This pattern extends to *li* questions. However, in BL the clitics are always adjacent to the verb, while in SC they are in second position. My basic proposal is as follows. I suggest that in BL the clitics are head-adjoined to Σ^0 . When negation or a non-clitic verb are present in Σ^0 , they provide a host for the clitics. When the tensed verb is a clitic auxiliary and there is no non-clitic preceding Σ^0 , prosodic inversion occurs whereby the clitics cliticize to the right-edge of the following phonological word, generally a participle; this movement is licensed as a last resort mechanism to provide a host for the clitics. In contrast, in SC clitics occur higher in the clause. The exact position of these clitics is immaterial for the analysis of negation proposed here. Following Franks and Progovac (1994), I will represent SC clitics as adjoined to C^0 .¹⁴ If a non-clitic precedes the clitics, it will host them. However, if the clitics are not preceded by a non-clitic, they undergo prosodic inversion, cliticizing to the right-edge of the phonological word to their right; note that this phonological word is often the material in Σ^0 .

3.1 Rivero 1993

Rivero (1993) proposes that Tns^0 is above Neg^0 in both SC and BL. However, on the basis of data like that in (14), she suggests that Tns^0 incorporates into Neg^0 in SC, but not in BL.

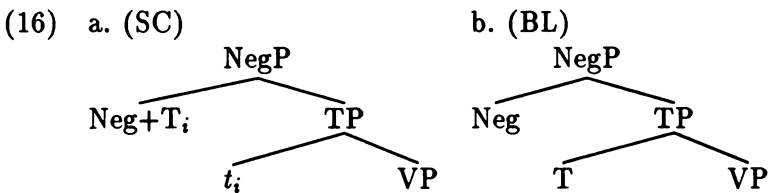
- (14) a. *Ne vidim ga.* (SC)
 Neg see him-CL
 'I do not see him.' (Rivero 1991:338)
- b. *Ne mu izpratix kniga.* (BL)
 Neg him-CL send book
 'I did not send him a book.' (Rivero 1993:573)

In the SC example in (14a), the clitic *ga* follows the verb, which is preceded directly by the negative marker *ne*. Rivero claims that this is the result of the tensed verb moving to Neg^0 and then moving as a unit to host the clitics. In contrast, in the BL example (14b), the clitic *mu* occurs between the negative marker and the verb. For Rivero, *ne* is in Neg^0 and the verb is below it in Tns^0 , while the clitics are adjoined somewhere appropriate in the structure.

Rivero cites further evidence for her account from *li* questions. In SC, *li* appears after the negated finite verb and before any other clitics, as in (15a), while in BL *li* can appear after negation but before the finite verb, as in (15b). In SC, the finite verb plus negation complex can move as a unit to host *li* and the other clitics, while in BL the non-incorporation of Tns^0 into Neg^0 blocks the movement of the verb.¹⁵

- (15) a. Ne vidim li ga? (SC)
 Neg see Q him-CL
 ‘Don’t I see him?’ (Rivero 1993:572)
- b. Ne mu li izpratix kniga. (BL)
 Neg him-CL Q send book
 ‘Didn’t I send him a book?’ (Rivero 1993:573)

Rivero (1993) proposes that this difference reflects a difference in the behavior of Neg^0 in BL and SC. In SC, the finite verb incorporates into the head of Neg^0 , as in (16a), allowing it to move to C^0 where it will host clitics. In BL, the finite verb remains in Tns^0 and hence does not form a unit with Neg^0 , as in (16b), and cannot move as a unit.



However, the clitics in SC and BL are not expected to appear in identical positions in the clause. With short clauses, and especially with clauses in which there is no preverbal item capable of hosting the clitics, these differences are not apparent. However, data from *wh*-questions clearly shows that SC clitics appear in clause-second position, i.e., after the first constituent, while BL clitics are always adjacent to the verb, regardless of how many constituents precede them. This contrast can be seen in (17) and (18).

- (17) a. *Ko mu je šta dao?* (SC)
 who him-CL aux-CL what gave
 'Who gave him what?' (Rudin 1988:462)
- b. **Ko šta mu je dao?* (SC)
 who what him-CL aux-CL gave
 (Rudin 1988:462)
- (18) a. *Koj kakvo ti e kazal?* (BL)
 who what you-CL aux-CL told
 'Who told you what?' (Rudin 1988:461)
- b. **Koj ti e kakvo kazal?* (BL)
 who you-CL aux-CL what told
 (Rudin 1988:461)

In (17a), the SC clitics *mu* and *je* appear after the first constituent, the wh-word *ko*, as would be expected of second-position clitics. If they appear elsewhere in the clause, e.g., after the second wh-word where they would be adjacent to the verb, the result is ungrammatical, as in (17b). However, in (18a) the BL clitics *ti* and *e* must appear adjacent to the verb, after all of the wh-phrases. If they appear after the first wh-phrase, as was seen in SC, the result is ungrammatical, as in (18b). These patterns are found regardless of the clitics chosen and of the type of clause, i.e., the pattern is also found in declarative clauses.

This suggests that SC has second-position clitics which are insensitive to the positioning of the verb in the clause; for the purposes of this paper, I assume they are adjoined to C^0 where they will follow material in C^0 and SpecCP. In contrast, BL clitics must be adjacent to the verb. If there is a non-clitic before the verb, e.g., a complementizer or focused element, then this element provides a host for the clitics, which I assume are adjoined to Σ^0 .¹⁶ In both languages, if there is no preceding non-clitic to provide a host, then prosodic inversion occurs, allowing the verb to host the clitics (Halpern 1992). Prosodic inversion is a PF phenomenon which allows a clitic to cliticize to the right-edge of the following phonological word if there is

no constituent to its left to act as a host. Halpern (1992) defines prosodic inversion as in (19).

- (19) Prosodic adjunction: For a Directional Clitic X, which must attach to a phonological word ω to its left (respectively right),
- a. if there is a ω , Y, comprised of material which is syntactically immediately to the left (right) of X, then adjoin X to the right (left) of Y.
 - b. else attach X to the right (left) edge of the ω composed of syntactic material immediately to its right (left).

Note that invoking prosodic inversion avoids problems with the licensing of Long Head Movement of participles to C^0 to host the clitics.

3.2 *SigmaP*

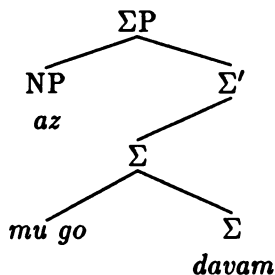
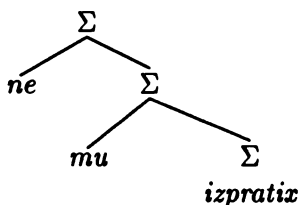
I propose that the difference between SC and BL is a reflex of the difference in the clitic systems. First, although the negative marker is a clitic, it does not form part of the clitic group *per se*. That is, the negative marker is always in Σ^0 , while at least in SC, the clitics need not be adjacent to this position. This difference can be seen in negated multiple wh-questions. Note that for independent reasons, negated multiple wh-questions sound cumbersome, as reflected in the English glosses.

- (20) a. Koj kakvo ne ti e kazal? (BL)
 who what Neg you-CL aux-CL told
 'Who didn't tell you what?'
 b. Koj kakvo ne e napravil? (BL)
 who what Neg aux-CL did
 'Who didn't do what?'
- (21) a. ?Ko mu šta ne daje (SC)
 who him-CL what Neg give
 'Who doesn't give him what?'
 b. ?Ko se čega ne boji? (SC)
 who self-CL what Neg afraid
 'Who isn't afraid of what?'

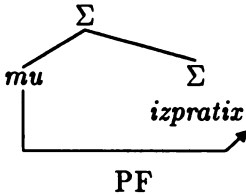
In the BL examples in (20) both the clitics and the negative marker are in Σ^0 and as predicted they occur together. In particular, they follow all of the wh-phrases, as was the case in the affirmative (18). In contrast, in the SC examples in (21), the clitics occur in second-position between the wh-words, as in the affirmative (17), while the negative marker in Σ^0 immediately precedes the finite verb.

First consider BL in which the clitics are adjoined to Σ^0 . If the clitics are in Σ^0 , we predict that they will occur adjacent to the tensed verb and to negation, both of which are in Σ^0 . This is the desired result. It is a special property of BL negation that it can host clitics. As such, when negation is present, the negative marker provides a host for any clitics, while the verb follows them, as in (22a). If there is no negative marker to act as a host, the clitics cliticize to a preceding non-clitic, if there is one, as in (22b), in which the non-clitic subject *az* hosts the clitics in Σ^0 . Otherwise, prosodic inversion occurs at PF, allowing the following non-clitic, i.e., the verb or participle, to provide a host, as in (22c), in which the indirect object clitic *mu* cliticizes to the right edge of the verb in Σ^0 . Note that if the finite verb is a clitic auxiliary, it and any other clitics will cliticize to the right edge of the next highest functional projection, i.e., the one containing the participial form of the lexical verb.¹⁷

- (22) a. *ne mu izpratix ...* (BL) b. *az mu go davam* (BL)
 Neg him-CL send I him-CL it-CL give

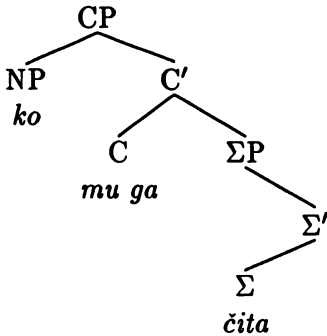


- c. *izpratix mu ...* (BL)
send him-CL

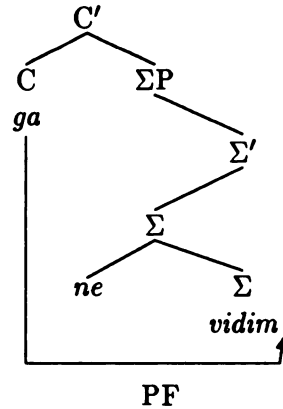


Next consider SC. Rivero's movement of Tns^0 to Neg^0 is in some ways inherent to the Σ^0 approach since Σ^0 contains both tense and negation. The reason that the SC clitics do not intervene between the negative marker and the verb is that they are not adjoined to Σ^0 . Instead, they are adjoined to C^0 (Franks and Progovac 1994). If there is material in C^0 or SpecCP, this material provides a host for the clitics, as in (23a); in particular, note that negation does not pattern with the other clitics, as is expected if it is in Σ^0 . If there is no material in the projection of C^0 to provide a host for the clitics, prosodic inversion occurs. As a result, they will be hosted by the material in Σ^0 , as in (23b), in which the clitic *ga* cliticizes to the right edge of the verb in Σ^0 . If the tensed verb is a clitic auxiliary, then it and the other clitics will cliticize to the right edge of the next highest functional projection, usually a participial form of the lexical verb. At this point, it might be asked why prosodic inversion is used instead of moving Σ^0 to C^0 . The reason is that when the tensed verb is itself a clitic, the negative and participle provide a host for the clitic, and the participle is presumably not in Σ^0 .

(23) a. *ko mu ga čita* (SC)
 who him-CL it-CL reads



b. *ne vidim ga* (SC)
 Neg see him-CL



4 Tns–Neg vs. Neg–Tns

Finally, consider the difference between CZ/SL and SC. In CZ, SL, and SC, negation precedes the finite verb. In CZ and SL, if the finite verb is a clitic, negation precedes the first non-clitic verb. In SC, if the finite verb is a clitic, negation precedes the clitic. Rivero (1991) suggests that this is because Neg^0 is below Tns^0 in CZ and SL and above Tns^0 in SC. However, I argue that in both languages Tns^0 and Neg^0 form a single head, and in both clitics are adjoined to C^0 . The difference is that in SC there is a non-clitic form of the negation plus tensed clitic auxiliary complex, i.e., a lexical instantiation of Σ^0 ; since this form is not a clitic, it remains in Σ^0 and patterns separately from the clitics adjoined to C^0 . In contrast, CZ and SL have no such form. Even in negated clauses, the clitic auxiliary patterns with the other clitics. In this case, the negative marker is hosted by the following functional head, usually a participle.

4.1 Rivero 1991

Rivero (1991) suggests that Neg^0 is below Tns^0 in CZ and SL, but above it in SC. At first glance, this appears to be an odd proposal since in clauses with no other clitics, negation precedes the finite verb, as in (24).

- (24) a. *Nenapíšem.* (SL)
 Neg.write
 'I will not write.' (Rivero 1991:344)
- b. (Ja) *ne čitam.* (SC)
 I Neg read
 'I am not reading.' (Rivero 1991:334)

However, Rivero claims that the form in (24a) is the result of the verb first incorporating into Neg⁰ and then the complex Neg+V⁰ head moving to Tns⁰. As such, sentences like (24a) involve two instances of short head-movement. In (24b), the verb has moved from V⁰ to Tns⁰ and then to Neg⁰.

The reasoning behind Rivero's proposal has to do with the behavior of negation when more than one auxiliary is present in the clause. In CZ and SL, the clitic auxiliary precedes the negative marker and the participial verb, as in (25a); (25b) shows the order in an affirmative clause, which is identical to that of the negative one. That is, a non-clitic lexical item, in this case the subject *ja*, hosts the clitic auxiliary, which is followed by the main verb. In contrast, in SC, the negative marker precedes the finite auxiliary, which in turn precedes the participial verb, as in (26a); (26b) shows the order in the affirmative counterpart. In (28), we will see that although the auxiliary precedes the participle in both affirmative and negative clauses, the position of the auxiliary is different in the negative (26a) than in the affirmative (26b).

- (25) a. *Ja som nenapísal.* (SL)
 I have-CL Neg.write
 'I have not written.' (Rivero 1991:344)
- b. *Ja som napísal list.* (SL)
 I have-CL write letter
 'I wrote a letter.' (Rivero 1991:339)
- (26) a. *Ja nisam čitao knjigu.* (SC)
 I Neg.have read book
 'I have not read the book.' (Rivero 1991:334)

- b. Ja sam čitao knjigo. (SC)
 I have-CL read book
 'I have read the book.' (Rivero 1991:333)

If the finite auxiliary in the SL (26a) is in Tns^0 above Neg^0 which in turn is above V^0 with the participle, then the desired word order falls out of Rivero's account. Similarly, if Neg^0 is above Tns^0 in SC, then the fact that the negative precedes the tensed auxiliary in SC, and not the participle, is explained.

Unlike the difference between SC and BL discussed above, the difference between SC and CZ/SL is not a difference in clitic placement. Like SC, CZ and SL are essentially second-position clitic languages, although there are subtle differences between them which will not concern us here. This can be seen by the *wh*-question data in (27) which mirrors that of SC: the clitic must appear after the first constituent, in this case the first *wh*-phrase, it cannot appear after the second constituent or later in the clause.

- (27) a. Kdo ho kde viděl je nejasné. (CZ)
 who him-CL where saw is unclear
 'It is unclear who saw him where.' (Toman 1981:298)
- b. *Kdo kde ho viděl je nejasné. (CZ)
 who where him-CL saw is unclear
 (Rudin 1988:466)

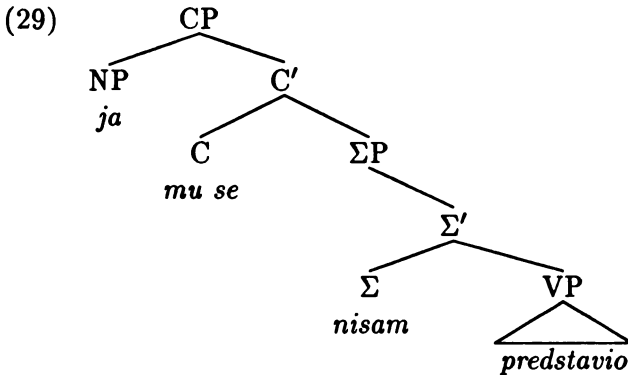
4.2 *SigmaP*

I propose that like RS, negation and tense form a single complex head in SC and CZ/SL. The difference between these languages is whether there is a non-clitic form of the negative marker+tensed auxiliary combination.¹⁸ SC has such a form. As such, in negated clauses with auxiliaries, the material in Σ^0 does not behave like a clitic and instead precedes the participle in V^0 .

- (28) a. Ja mu se nisam predstavio. (SC)
 I him-CL self-CL Neg.have introduced
 'I have not introduced myself to him.' (Rivero 1991:336)

- b. *Ja sam mu se predstavio.* (SC)
 I have-CL him-CL self-CL introduced
 'I introduced myself to him.' (Rivero 1991:336)

In (28a), the material in Σ^0 , *nisam*, is not a clitic; instead, it is a lexicalized instantiation of Σ^0 . The clitics in the clause *mu* and *se* appear in second position, after the non-clitic subject *ja*. In contrast to the clitics, the material in Σ^0 *nisam* appears immediately before the participle, as would be expected for material in Σ^0 . The difference in behavior of the affirmative version of the clause shows this most clearly. In the affirmative version in (28b), the auxiliary is also a clitic and follows the subject *ja* with the other clitics; in particular, note that the auxiliary *sam* is first in the clitic string. The structure for (28a) is shown in (29).

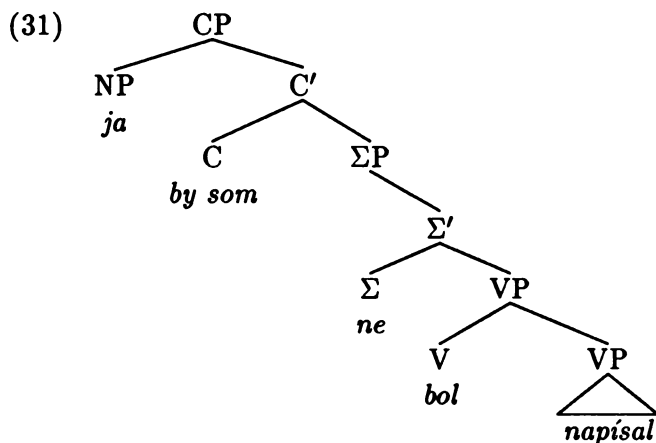


In contrast, CZ and SL do not have a non-clitic form of the negative marker+auxiliary. As such, even in negated clauses the clitic auxiliary patterns with the other clitics, appearing in second position. The negative marker in Σ^0 appears before the first non-clitic verb form, as would be expected. In particular, if there is more than one non-clitic verb form, the negative marker in Σ^0 must attach to the first one, that is to the one which heads the most immediate functional projection below ΣP .

- (30) a. *Ja by som nebol napísal.* (SL)
 I cond-CL have-CL Neg.had written
 'I would not have written.' (Rivero 1991:345)

- b. *Ja by som bol napísal list.* (SL)
 I cond-CL have-CL had written
 'I would have written the letter.' (Rivero 1991:340)

So, in (30a) the clitic auxiliary *som* patterns with the other clitics and appears in second position, after the non-clitic subject *ja*. The negative marker *ne* appears before *bol*, the first non-clitic auxiliary. Unlike the SC examples in (28), there is no difference in the order of the clitics between the affirmative clause in (30b) and the negative one in (30a); this is expected since the addition of *ne* does not affect the clitic status of the auxiliaries. The structure for the SL (30a) is shown in (31). Here I have represented the auxiliaries and participles in a VP-shell structure (Larson 1988). It is possible that each shell contains certain functional projections responsible for the given forms. Such an analysis would not affect the proposal made here concerning the structure of negation. Setting aside the position of negation, the further specification the categories of the functional projections of the auxiliaries and participles is similar to the approach taken by Rivero (1991) in which one of the auxiliaries is in Asp^0 which is above Neg^0 and below Tns^0 , while the others are in an Aux^0 below Neg^0 and above V^0 .



5 Conclusion

To summarize, in this paper I have proposed that Tns^0 and Neg^0 form a single head in Slavic. This account unifies the structure of negation across Slavic, while capturing the scoping properties of negation. The differences in word order with respect to negation result from minor differences in the clitic systems. BL differs from SC, CZ, and SL in that the clitics are adjoined to Σ^0 , not to a higher position in the clause. As a result, BL clitics are always adjacent to the verb, while in SC, CZ, and SL the clitics can be separated from the verb. In turn, SC differs from CZ and SL in that it has a special non-clitic form of the negated auxiliary, which results in the negated auxiliary patterning like a regular verb, not a clitic; CZ and SL have no such form, and so the clitic auxiliaries behave similarly in affirmative and negative clauses.

Notes

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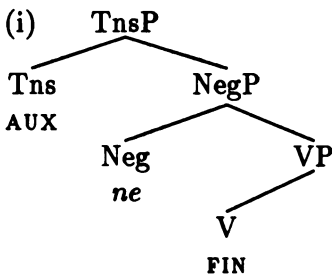
¹Adapting Laka (1990), Piñón (1992) terms this projection ΣP , although the notation is immaterial to the proposal.

²The details of why tense and negation should co-occur in this manner and how best this structure should be represented are matters for future research and should benefit greatly from current work on morphology and the morphology-syntax interface.

³I do not assume an additional projection for agreement. Agreement can either be thought of as part of Σ^0 or as a result of Spec-head agreement. See Mitchell (1994) for discussion. This issue is irrelevant for the proposal made here.

⁴John Bailyn (p.c.) and Natasha Kondrashova (p.c.) make the

interesting suggestion that Russian functional projections are similar to those proposed for English, e.g., by Pollock (1989), and for CZ and SL by Rivero (1993) (§4). That is, TnsP is above NegP which is above VP; auxiliaries appear in Tns⁰, while finite main verbs remain in V⁰ at s-structure (or at least do not raise to Tns⁰). This structure is shown in (i) (cf. (2)).



The most immediate problem with (i) is how to place *ne* before the auxiliary in imperfective futures. However, once this is accomplished, such a structure could account for the facts presented here, if the following assumptions are made. First, in *li* questions (§2.3), the finite verb, whether an auxiliary or main verb, forms a complex head with *ne* in Neg⁰ as it moves through the functional heads to C⁰. Second, every finite verb must have a corresponding Tns⁰, i.e., a clause with coordinated finite verbs always contains coordinated TnsPs. Otherwise, it would be possible to have coordinated finite VPs under a single NegP, which would incorrectly predict the scoping of negation in RS (§2.1, 2.2).

This structure could then be adopted for all of the languages discussed since the differences posited by Rivero (1991) could be accounted for as proposed here. However, there remains the problem of the positioning of *ne* and the fact that the specifier of NegP serves no purpose in Slavic (see Piñón (1992) and references therein on licensing specifiers).

⁵Slight variations from this analysis are possible. For example, the auxiliary could originate in a V⁰ which takes the VP with the infinitive as its complement. However, in all of these analyses, the tensed form of *byt'* is in the higher Σ^0 and c-commands the infinitive.

⁶Some of the data may seem somewhat awkward; these simplistic

sentences were chosen for expository purposes.

⁷Here, I do not discuss the nature of Spec Σ P. The issue is whether it is subject position, and hence an A-position, or an A'-position, e.g., a focus position.

⁸In (32), I have represented the subject as being in SpecNegP. An additional problem of the NegP account is that whenever NegP is projected, its Specifier behaves similarly to the Specifier of TnsP when NegP is not projected. See Piñón (1992) for discussion on the licensing of Specifier positions.

⁹Assuming the validity of the coordinate structure constraint, if Tns⁰ obligatorily raises to Neg⁰ in RS, then the ungrammaticality of (7) could be the result of a violation of this constraint in that both verbs cannot move to Neg⁰ (Jindřich Toman (p.c.)). This obligatory incorporation would also explain the behavior of *li* questions (§2.3). See footnotes 4 and 18 for related discussion.

¹⁰Being within the scope of negation is the minimal requirement for licensing the genitive of negation. See Timberlake (1986) for morphosyntactic factors which influence the appearance of the genitive of negation.

¹¹Another phenomenon which might be expected to pattern in this way is the distribution of negative pronominals. In RS, negative pronominals, e.g., *nikto* 'no one', *ničto* 'nothing', when functioning as variables of negation, must be licensed by the presence of a negative operator, such as *ne*. A negative operator is necessary to license negative pronominals in subject position, as well as those in object position. One way to capture this distribution is to assume that all of the arguments are within the scope of negation at D-structure and licensed there; for example, following Kitagawa (1986) and Koopman and Sportiche (1991), the subject is projected within the VP at D-structure. However, evidence from the genitive of negation suggests that the subject is not within the scope of negation.

Unfortunately, the distribution of negative pronominals is not straightforward. With imperfective futures, a single negative marker can license negative pronominals in both clauses, as in (i.a). (A preferred form of (i.a) would coordinate just the infinitives, not repeating the negative pronominal.) However, some speakers allow

this construction only if the negative pronominal is identical in both clauses, cf. (1.b). (This idiolectal variation is indicated by a #.)

- (i.a) Ja ne budu [[govorit' ni s kem]_{VP} i
I Neg will talk-INF no with whom and
[perepisyvat'sja ni s kem]_{VP}VP
correspond-INF no with whom
'I won't talk to anyone or correspond with anyone.'
- (i.b) # Ja ne budu [[govorit' ni s kem]_{VP} i
I Neg will talk-INF no with whom and
[pisat' nikomu]_{VP}VP
write-INF no whom
'I will not talk with anyone or write to anyone.'

With simplex clauses, there is a clear contrast for all speakers: the negative marker only licenses negative pronominals within a single finite clause, as in (ii), regardless of their identity.

- (ii.a) *Ja [[ne govovil ni s kem]_{I'} i
I Neg speak no with whom and
[perepisyvalsja ni s kem]_{I'}I'.
correspond no with whom
- (ii.b) Ja [[ne govovil ni s kem]_{I'} i [ne
I Neg speak no with whom and Neg
pisal nikomu]_{I'}I'.
write no whom
'I didn't talk with anyone or (not) write to anyone.'

Due to the idiolectal variation in (i) and the licensing of negative pronominals in subject position, I will not discuss this phenomenon in detail here. See Progovac (1993) and references therein for a discussion of the licensing of Negative Polarity Items. Progovac argues that NPIs are subject to Principle A of the Binding Theory and to certain entailment factors. Such an analysis might provide a basis for explaining why the scope of negation appears to differ for the licensing of NPIs and the genitive of negation.

¹²Note that *li* questions are generally more felicitous in embedded

clauses. I have given matrix clause examples for ease of explication.

¹³Catherine Chvany (p.c.) points out that certain infinitives are relatively acceptable in this construction. For speakers who find such constructions acceptable, the analysis of *li* questions must be extended. One possibility is that these speakers might allow movement of infinitives in V^0 to Σ^0 , from whence they can then move to C^0 . This analysis is potentially tenable on the basis of certain scrambling facts.

¹⁴Halpern (1992) suggests that SC clitics are adjoined to IP (to CleftP in certain constructions). For the discussion here, I will use the C^0 analysis since it unifies the behavior of SC clitics with that of BL in that both adjoin to functional heads. The exact nature and position of true second position clitics, as opposed to the verb oriented clitics of BL, warrants further research.

¹⁵Rivero (1993) uses this data to argue that *li* lowers in BL, but not in SC. In King (1994), I argue that her lowering account is empirically inadequate and that in fact prosodic inversion occurs in the BL *li* questions. Izvorski (1994) provides evidence that the structure of *li* questions in BL differs substantially from that proposed for RS and SC. In particular, in BL *li* is not in C^0 , but in a focus projection between I^0 and C^0 . Note that under Izvorski's account the positioning of *li* when it is not preceded by a maximal projection is the result of prosodic inversion, not syntactic lowering.

¹⁶This paper is not concerned with the details of *li* questions. However, brief discussion of (15b) is necessary. If negation, the clitics, and the tensed verb are in Σ^0 , then this complex head can move to C^0 to host *li*. The placement of *li* is determined by the prosody; *li* occurs after the first stressed element, e.g., in (15b), *li* cliticizes to *mu* which is stressed due to its position immediately following *ne*. See the references in §2.3 for details.

¹⁷The sentence in (i) shows how the clitic group can cliticize onto the participle if the auxiliary itself is a clitic.

- (i) Viždal go e. (BL)
 saw him-CL aux-CL
 'He saw him.' (Rivero 1993:570)

¹⁸Stating that SC has a nonclitic form of the negated auxiliary, while CZ and SL do not, is a stipulation. However, this stipulation is relatively free; the (non)clitic nature of each of these elements must be stated independently. Also, this (non)clitic status cannot be derived from (non)incorporation of one head into another, because certain combinations of clitics give rise to non-clitics, while others remain clitics. For example, in BL the clitic *ne* followed by another clitic, including a clitic auxiliary, forms a non-clitic, but Rivero (1993) argues that there is no incorporation in BL.

In addition, an account in which TnsP is higher than NegP in some languages and lower than it in others requires a statement for each language as to which order is found, in addition to a statement as to whether NegP acts as a barrier for head-movement. In contrast, the analysis presented here posits Neg⁰ and Tns⁰ as a single head, Σ^0 , in each of these languages, eliminating the need for either of these statements (note that this still leaves the possibility of languages in which finite verbs do not move to Σ^0 until after s-structure).

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The Russian Copula: A Unified Approach

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0. Introduction

In the world's languages the copular verb *be* behaves in roughly two ways. In some languages copular *be* must appear in all tenses; such languages are English, German, French, to name just a few. In other languages *be* must appear in the past and future tenses, but is omitted or appears irregularly in the present tense; to this second group belong Russian, Turkish, Hebrew, Arabic, and many others.

In this paper I am going to analyze the Russian copula and show that its irregular behavior in the present tense becomes explained if we assume that *be* is a “dummy” inserted in the structure to perform a certain syntactic function. I am going to argue that the function of *be* is to support either Tense, or Existential Operator \exists_{op} , or both.

I am going to assume that in Russian (and, presumably, in other languages where *be* can be omitted in the present tense) the present tense morphology is “weak” and, consequently, is not required to be checked at S-structure (in the sense of Chomsky 1992). If we combine this assumption with the proposal about the “dummy” nature of *be*, it will follow that in those languages where the present tense is weak *be* will not be found in the present tense at all, due to the Economy principle (Chomsky 1991).

However, this is not the case in Russian, where *be* is obligatorily present in some present tense sentences, obligatorily

absent in other present tense contexts, and seems to be optional in some limited number of cases.

Therefore, the properties of the present tense morphology *se* cannot account for the complexity of the emerging picture. In the rest of this paper I will be defending the claim that the \exists_{op} needs lexical support to perform the Existential Closure over the VP (Heim 1982), and those cases where we see an overt present tense *be* in Russian are cases where the Existential Closure applies.

The paper will be organized as follows. I will first present the data on present tense usage of *be*. Then I will present the proposal in some detail. After this I will show how this proposal accounts for the cases where *be* is obligatorily absent. Next, I will discuss cases where *be* is obligatorily present together with those where the copula is possible but not obligatory. Thirdly, I will discuss at some length a problematic case of “inalienable possession” structures. Finally, I will overview semantic, syntactic, and morphological evidence for the proposed syntactic structure.

1. Present tense BE structures in Russian: data

In Russian, seven structures can be listed where *be* appears in the past and future tenses. The data are given in the present tense, and the possibility of using *be* overtly is shown by the standard parentheses/asterisk notation.

- (1) auxiliary *be* (passive, category of state)
 - a. Kolja (*est') obmanut.
Kolja-NOM is deceived
“Kolja is deceived.”
 - b. Mashe (*est') obidno.
Maša-DAT is offended
“Maša is offended.”

(2) equative (*eto*)

- a. Naš učitel' (*est') Kolja
our teacher-NOM is Kolja-NOM
"Our teacher is Kolja."
b. Kolja (*est') naš učitel'
Kolja-NOM is our teacher
"Kolja is our teacher."

(3) predicative (*javljat'sja*)

- a. Kolja (*est') durak.
Kolja-NOM is fool-NOM
"Kolja is a fool."
b. Maša (*est') umnaja.
Maša-NOM is smart-NOM
"Maša is intelligent."

(4) generic/definitive (*javljat'sja*)

- a. Sobaka (*est') drug človeka.
dog is friend person
"A dog is a friend of man."
b. Vorona (*est') ptica.
crow is bird
"A crow is a bird."

(5) locative (*naxodit'sja*)

- a. Kolja (*est') v Moskve.
Kolja-NOM is in Moscow
"Kolja is in Moscow."
b. Mašina (*est') pered domom.
car-NOM is front house
"The car is in front of the house."

(6) existential (*suščestvovat'*; *imet'sja*)

- a. V Moskve (est') tramvai.
in Moscow is street-cars-plNOM
"There are street cars in Moscow."
b. V dome (est') telefon.
In house is phone-sgNom
"There's a phone in the house."

(7) possessive (*imet'*; *obladat'*)

a. "alienable" possession

U Koli (est') mašina.

PP-GEN is car-NOM

"Kolja has a car."

b. "inalienable" possession

U Maši (*est') xorošee nastroenie/ sinie glaza

PP Maša-GEN is good mood-NOM/ blue eyes-NOM

"Maša is in a good mood / Maša has blue eyes."

In auxiliary *be*, equative, predicative, generic, and locative structures (examples (1-5)) the presence of *be* in the present tense is ungrammatical.

In two other structures, existential and possessive sentences ((6) and (7)), the present tense copula is present in some contexts and absent in other contexts. Note that parentheses around *be* do not mean that its usage is optional.

2. Proposal

I will follow Heim (1982) in assuming that indefinite NPs introduce free variables that need to be bound by a quantifier to get interpreted. In the absence of a "lexical" quantifier, the variables introduced by indefinite NPs are bound by an Existential Operator \exists_{op} via Existential Closure. Heim assumes that Existential Closure is a default operation, i.e., an \exists_{op} is always available when there is a free variable for it to bind.

Counter this last assumption, I claim that Existential Closure is not default, and \exists_{op} is available only if a certain condition is met. This condition, the Lexicalization Requirement, is stated in (8).

(8) Existential Closure over the VP can occur iff \exists_{op} has lexical support.

Notice that this condition can be falsified if we find a sentence where an NP gets an existential interpretation without lexicalization of an \exists_{op} .

Now we need to be more specific about the mechanism of lexicalizing the \exists_{op} . In the spirit of Diesing's Mapping Hypothesis (Diesing 1990, 1992) which limits the scope of Existential Closure to the material inside the VP, I propose a functional projection $\exists P$, immediately above the VP, where \exists_{op} is located.

- (9) \exists_{op} is associated with a functional projection $\exists P$, located immediately above the VP.

Coming back to the Lexicalization Requirement, it basically says that there must be some lexical material in the $\exists P$ for the \exists_{op} to do its semantic job.

Lexicalization of the $\exists P$ can proceed in two major ways: (i) via verb-movement into \exists , and (ii) via lexical insertion into SPEC or head of the $\exists P$. I am claiming that in copular structures with existential reading *be* is inserted in \exists to support an \exists_{op} .

Thus, the big picture of the behavior of the copula will follow from the proposed mechanism of *be*-insertion.

- (10) Mechanism of *be* support
 (i) *be* is inserted in T if there is a Tense feature that needs support;
 (ii) *be* is inserted in \exists if there is an \exists_{op} in the structure.

As was mentioned above, present tense in Russian does not require support. Assuming the mechanism in (10), it will follow that in the present tense sentences *be* will be found only in existential contexts. I will also follow Chomsky's Economy principle (1991) which will rule out "unnecessary" insertions.

Based on these assumptions and proposals, let us state the predictions this analysis makes for "weak" present tense languages and then look at Russian data to see if these predictions are borne out.

- (11) Predictions of the analysis:
 (i) Present tense *be* will be ungrammatical in non- \exists structures.
 (ii) Present tense *be* will be grammatical in \exists structures.

In the next section, I will examine the data in (1-7), first checking the prediction in (11(i)), and then the one in (11(ii)).

3. *Interpreting the data*

Let us first look at the structures where the copula is always ungrammatical in the present tense. On the *be*-insertion analysis, these structures should have a non-existential interpretation. This, in fact, is the case: none of these structures contains an NP that can be interpreted existentially.

Auxiliary *be* structures (1) contain a referential NP and a predicate—no free variable to be bound by an \exists_{op} . In equative structures there are two NPs, both of them referential, and no possibility of an existential reading. Predicative sentences contain a referential NP and a predicate that is either an adjective or an NP denoting a property—no free variable to be Existentially Closed. Generic structures are similar to predicative in the interpretation of the predicate, which denotes a property; the other NP, although indefinite, has a generic interpretation, and cannot get bound by an \exists_{op} because it is bound by a generic operator. Finally, in locative structures both the PP denoting location and the NP are referential and cannot be interpreted existentially.

What is it, then, that makes present tense *be* ungrammatical in these cases? There can be two reasons for this. Firstly, these sentences may be ruled out by the Economy Principle. This will be the case if *be*-insertion takes place in the present tense, without a free variable in the structure to be bound by an \exists_{op} , and *be* is inserted in T or any projection other than $\exists P$. Secondly, the sentences in (1-5) may be ungrammatical because of vacuous quantification effects. Vacuous quantification will arise if *be* is inserted in \exists in the present tense, lexicalizing the \exists_{op} , but there is no free variable for the operator to bind.

Thus, we have seen that the first prediction (11(i)) is borne out, i.e., non- \exists structures are only good in the present tense without *be*, and are ungrammatical if *be* is used. Let us now turn to the second prediction (11(ii)).

There are two structures, existentials (6) and possessives (7), that allow present tense *be*. In order to check the prediction we need to see if they contain a free variable that needs to be bound by an \exists_{op} to get an existential interpretation.

In the examples given in (6a,b) and (7a) the structure consists of a PP and an NP. NPs in all these examples are indefinite, and, according to Heim, introduce free variables. They all get existential interpretations; therefore, the variables must be bound by an \exists_{op} .

So far, the second prediction is also borne out: in structures where NPs get existential interpretation *be* appears in the present tense. However, existential and possessive structures are not fully explained yet, because inside these structures there is a variation with respect to the possibility of using the present tense *be*. Therefore, we need to look more closely at these structures to see if those cases where the copula is used are always \exists cases, and if in non- \exists cases *be* is always bad.

In the next section I will briefly show that this is, in fact, the case for structures exemplified in (6a,b) and (7a). In Section 5, I will turn to a seemingly problematic case of “inalienable possessives” to show how the proposed analysis can account for the variation that possessives demonstrate.

4. Existentials and Possessives: Definiteness effect

A detailed study of existential and possessive structures (presented in Kondrashova 1996) shows that the presence/absence of the present tense copula depends mainly on the interpretation of the NP in these structures. If the NP gets a definite (referential) interpretation, the copula cannot be used in the present tense. Examples follow.

(12) Possessive structure: definite NP

- a. *U moego druga est' samaja dorogaja mašina
at my friend is most expensive car
vo vsej okruge.
in all neighborhood
- b. U moego druga samaja dorogaja mašina
vo vsej okruge.
“My friend has the most expensive car in the whole
neighborhood.”

(13) Existential structure: definite NP

- a. *V Moskve est' moj drug.
 in Moscow is my friend
 b. V Moskve moj drug.
 “My friend is in Moscow.”

The examples in (12a) and (13a) show that existential and possessive structures in which NPs get a definite interpretation are ungrammatical with the present tense copula. (12b) and (13b) show the corresponding grammatical sentences, without *be*.

On the other hand, those sentences that contain NPs that get existential interpretation always allow usage of *be* in the present tense, as shown in (14a) and (15a).¹

(14) Possessive structure: nonspecific indefinite NP

- a. U moego druga est' mašina. On ezdit na nej každyj den'.
 at my friend is car he drives on it every day
 b. U moego druga mašina. On ezdit na nej každyj den'.
 “My friend has a car. He drives it every day.”

(15) Existential structure: nonspecific indefinite NP

- a. V Moskve est' tramvai.
 in Moscow is street cars
 b. ?V Moskve tramvai.
 “‘There are street cars in Moscow.”

Here we see that overt present tense *be*-structures behave similarly to English *there*-insertion sentences (see, *inter alia*, Milsark (1974)), i.e., they demonstrate the Definiteness Effect. This behavior is exactly what is expected on the proposed *be*

¹ In some cases the copula is allowed to be omitted in the present tense existential sentences. This may be so because in spoken Russian variables can be licensed from outside the sentence, in the discourse. This conclusion derives from the fact that in presentational existential contexts the copula must always be present (as the contrast in (14) demonstrates), but in answers to questions it is often optional. The sentence in (15b) is, actually, semantically and syntactically ambiguous, and is unacceptable as a discourse-opening statement. See Kondrashova (1996) for further discussion of optionality problem, and an analysis of structural ambiguities in null copula sentences.

-insertion analysis, because appearance of the copula in the present tense without a free individual variable in the structure creates vacuous quantification effects and/or violates the Economy Principle.

According to Heim (1982), definite NPs cannot be bound by an \exists_{op} because they do not conform to the Novelty Condition. Novelty Condition, basically, requires that Existential Closure should apply only to those variables that are “novel” in the discourse. Notice that although definite NPs introduce variables, they cannot be bound by an \exists_{op} . Therefore, in all cases when the NPs have definite interpretation (e.g. (12a,b), (13a,b)) there is no free variable for the \exists_{op} to bind. Thus, in these cases overt *be* is ungrammatical because it either violates the Economy Principle, or creates vacuous quantification effects, as discussed above. The “good” examples with present tense *be* ((14a), (15a)) all contain indefinite NPs, and, consequently, *be* -insertion is forced by the Lexicalization Requirement (8).

Now we are left with an unexplained case of “inalienable” possessives (7b), repeated here as (16a,b).

- (16) a. *U Maši est' xoroshee nastroenie.
 at Maša is good mood
 “Maša is in a good mood.”
 b. *U Maši est' sinie glaza.
 at Maša is blue eyes
 “Maša has blue eyes.”

Notice that the sentences in (16a,b) contain indefinite NPs, and therefore should allow *be* in the present tense. However, they are sharply ungrammatical with the present tense copula. This paradox cannot be resolved by ascribing the difference between (7a) and (7b) to a well-known semantic distinction between individual-level and stage-level predicates (Kratzer 1989), since both stage-level (16a), and individual-level (16b) predicates are ungrammatical in (7b)-type structures.

In the next section I will propose an answer to this puzzle that hinges on the properties of Existential quantification in natural languages.

5. “Misbehaving” indefinites and the Proper Subset Condition

In this section I will examine the cases that I listed as “inalienable possessives” in the Data section (7b). I will argue that the reason why present tense *be* is bad in these examples has nothing to do with “inalienability” of the possession relation, but is a result of a constraint of Existential quantification in natural languages which I will call the Proper Subset Condition.²

I will start with English *have*-sentences³ that demonstrate an interesting ambiguity of interpretation, and compare them to Russian *be* possessives in which the same semantic ambiguity is syntactically resolved.

The English sentence in (17a) can have two interpretations, formalized in (17b,c).

- (17) a. John has stupid teachers.
 b. $\exists x$ [teacher(x) \wedge stupid(x) \wedge have(j,x)], where $x \geq 2$
 c. $\forall x$ [[teacher(x) \wedge have(j,x)] \rightarrow stupid(x)], where $x \geq 2$

The readings in (17b) and (17c) can be paraphrased as follows.

- (17) b. Some of John’s teachers are stupid.
 c. All of John’s teachers are stupid.

Compare these readings with Russian sentences in (18).

- (18) a. U Koli est’ glupye učitelja.
 at Kolja is stupid teachers
 “Kolja has (some) stupid teachers.”

² The Proper Subset Condition is similar to Chierchia’s (1992) non-vacuity presupposition, which has been proposed to account for anomalous readings created in some contexts by adverbs of quantification.

³ *Have* sentences in English are also parallel to Russian *be* possessives, as well as English *there*-insertions, in that in some contexts they demonstrate the Definiteness effect (Partee 1983, Stowell, p.c.). This fact is explained on this theory by allowing *have* to have two derivations, one where it goes directly to T, the other where it first lands in \exists , and then moves on to T (see details of this analysis in sec. 6). The second derivation will be expected to show Definiteness Effects.

- b. U Koli glupye učitelja.
 at Kolja stupid teachers
 "Kolja has (all) stupid teachers."

The structure with the present tense *be* (18a) has an existential reading, whereas the *be* less structure (18b) has a generic interpretation restricted by the possessor phrase; both sentences are unambiguous. The readings for (18a) and (18b) can be expressed by the formulae in (18a', b') which exactly match the ones in (17b,c).

- (18) a'. $\exists x [učitel'(x) \wedge glupyj(x) \wedge u(k,x)]$
 b'. $\forall x [[učitel'(x) \wedge u(k,x)] \rightarrow glupyj(x)]$

Thus, in Russian present tense copular structures we see an overt syntactic reflex of ambiguities between existential on the one hand, and universal/ generic interpretation on the other.

Now I will demonstrate a similar effect in singular NPs, which will make us look at existential vs. referential readings. The English sentence in (19a) is ambiguous between existential and non-existential interpretations of the NP *car*. The non-existential interpretation corresponds to the referential reading here. The readings are given in (19b,c).

- (19) a. Mary has a good car.
 b. $\exists x [car(x) \wedge good(x) \wedge have(m,x)]$, where $x=1$
 c. $\iota x: car(x) \wedge have(m,x)[good(x)]$

Paraphrases of the readings in (19b,c) are given in (19b',c').

- (19) b'. Mary has one/a good car.
 c'. Mary's car is good.

Again, as in the case of plural NPs, Russian disambiguates the structures. The sentences in (20a,b) correspond to the two readings given in (19b,b') and (19c, c').

- (20) a. U Maši est' xorošaja mašina.
 at Maša is good car
 "Maša has one/a good car."
 b. U Maši xorošaja mašina.
 at Maša good car
 "Maša's car is good."

(20a) shows that with overt *be* in the structure this sentence gets only an existential interpretation. In fact, the speakers cannot use it if they know that Maša has only one car. In contrast, (20b) is saying something about the car that Maša has, i.e., the NP gets a definite referential interpretation.

It is not surprising that present tense *be* is ungrammatical with definite NPs. As we have shown earlier, this is fully predictable on the *be*-insertion analysis. However, what is interesting is that we can analogize definites to universals and generics, so that we will have an existential reading on the one hand, and non-existential readings, including universals, generics, and definites, on the other hand.

Next, I will show how we can define the \exists /non- \exists distinction using the formalism of the Set Theory. After that I will return to the problem of "inalienable possessives" to demonstrate that the proposed constraint can account for the notoriously capricious behavior of these structures.

Let us start with an illustration of how truth conditions can be determined by introducing sets of individuals. Take the sentence in (17a).

- (17) a. John has stupid teachers.

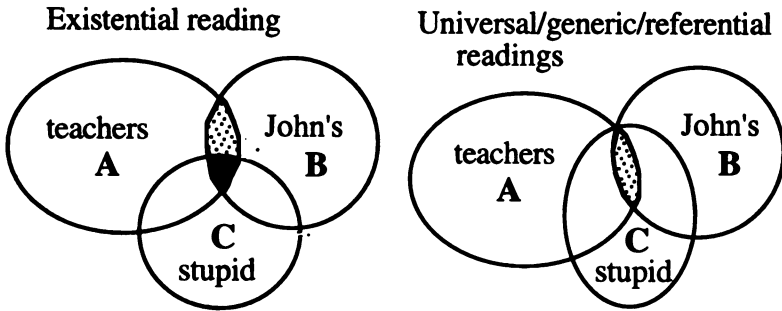
Let *A* be a set of individuals that are teachers, *B* a set of individuals who have some relation to John ("John's"), and *C* a set of individuals that are stupid.

Obviously, the sentence (17a) is true if and only if there exist individuals (x =individual, $x \geq 2$) that belong to all three sets, i.e., iff $\exists x \in A \cap B \cap C$. However, as is shown in diagram (21), the intersections of the sets can be in two different relations:

- 1) intersection of the first two sets can be larger (contain more elements) than the intersection of all three sets;
- 2) intersection of the first two sets can be equal to the intersection of all three sets.

If we look at (17b,c) where two semantic interpretations of (17a) are given, we will find that they are exactly what the situations 1) and 2) describe. This gives us a clue to how \exists and non- \exists readings can be distinguished. The left hand side of the diagram (21) shows situation 1), i.e., \exists reading; the right hand side represents situation 2), i.e., non- \exists reading. Notice that non- \exists reading in such contexts will correspond to a universal or generic interpretation if the NP introducing a variable is plural, and to a referential/definite interpretation in the case of a singular NP.

(21) Defining \exists /non- \exists ambiguity



Let us now formulate the constraint that disallows existential quantification in situation 2) (right-hand side of the diagram). Logically, in both 1) and 2) the existence of individuals that belong to the intersection of the three sets is truth conditionally implied. However, in natural languages, if a variable is quantified over by a Gn operator or Universal quantifier, it excludes the usage of an Existential operator, due, perhaps, to the prohibition on vacuous quantification.

In order to derive the \exists /non- \exists distinction in a formal way, I will use the definitions in (22), and formulate the constraint on Existential quantification in (23).

(22) Definitions:

- Let D be the intersection of A and B ($D = A \cap B$), and X be the intersection of A , B , and C ($X = A \cap B \cap C$), then
 (i) for non-existential readings $X = D$;
 (ii) for existential readings $X \subset D$, $X \neq \emptyset$.

(23) The Proper Subset Condition (PSC):

- An existential operator \exists_{op} binds a variable $x \in X$ in its scope iff X is a proper subset of D

where D is the restriction on \exists_{op} , established or presupposed pragmatically.

A linguistic comment is due here. Notice that D cannot be the intersection of *any* two sets. It must be the intersection of the sets introduced by NPs. Interestingly, the adjective works as a restriction here, and ultimately determines whether *be* can be used in the present tense in these structures.

I will make more comments as we start looking at examples illustrating violations of the PSC. I will first look at “alienable” possessives and show that they are sensitive to the PSC, and then demonstrate that “inalienability” effects are, actually, the PSC violations.

- (24) a. U Koli est’ otec.
 “Kolja has a father.”
 b. U Koli est’ deduška.
 “Kolja has a grandfather.”
 c. U Koli est’ brat.
 “Kolja has a brother.”

In (24a-c) we see possessive structures with overt *be*. PSC does not apply to these cases, as there is no restrictive adjective that introduces the third set. These cases assert the existence of $x \in D$, but there is no X created.

- (25) a. *U Koli est' vysokij otec.
 "Kolja has a tall father."
 b. U Koli est' vysokij deduška.
 "Kolja has a tall grandfather."
 c. U Koli est' vysokij brat.
 "Kolja has a tall brother."

The sentences in (25a-c) are the ones to which the PSC applies. Let us see how it works. The set D is an intersection of "Kolja's" and "fathers" in (25a), "Kolja's" and "grandfathers" in (25b), and "Kolja's" and "brothers" in (25c). The number of elements belonging to D is established pragmatically. In (25a) $D = 1$; in (25b) $D = 2$; in (25c) $D \geq 1$.

The next step is to apply the restrictive set "tall," which yields the set X . The number of elements in X will be 1, as NPs in (25a-c) are in the singular. Now it is clear that in the case when X is not empty (i.e., if in all three cases there actually exist individuals that have the three properties: "belong to Kolja," "tall," and "being father/grandfather/brother"), only (25b,c) will conform to the PSC, while (25a) will violate it. Grammaticality judgments demonstrate this.

- (26) a. *U Koli est' vysokie otcy.
 "Kolja has tall fathers."
 b. *U Koli est' vysokie deduški.
 "Kolja has tall grandfathers."
 c. U Koli est' vysokie brat'ja.
 "Kolja has tall brothers."

Now let us look at the case of plurals in (26a-c). The "sizes" of sets D for (26a-c) will remain the same as in (25a-c), i.e., $D = 1$ in (26a); $D = 2$ in (26b); and $D \geq 1$ in (26c), but X will be different. The sentences will be true if and only if there exist at least 2 individuals with the relevant properties, i.e., $X \geq 2$.

(26a) is trivially excluded, since with $D = 1$, plural NP "father" cannot be used. It will also violate the PSC in the same way the sentence (25a) does, and thus is excluded twice.

An interesting case is (26b). Since D is pragmatically limited to the number of 2, and $X \geq 2$, X can only be an improper subset of D. Thus, (26b) is a clear case of PSC violation.

In (26c) the number of elements in D is not restricted pragmatically. The parameters will, therefore, be $D \geq 2$, $X \geq 2$. The sentence is acceptable on all readings where X is “smaller” than D.

Finally, let us look at “inalienable” possessives repeated here from (16a,b).

- (27) a. *U Maši est' xoroshee nastroenie.
 “Maša is in a good mood.”
 b. *U Maši est' sinie glaza.
 “Maša has blue eyes.”

The ungrammaticality of (27a,b) is clearly due to PSC violations. In (27a), Maša cannot have more than 1 mood at a time, so this case is exactly like “father” examples. (27b) is exactly like “grandfather” cases where D is limited to 2. Now we see that those “inalienables” that come in as “singletons” and “doublets” in the real world must be used in possessive structures without *be*, since existential quantification will be blocked by the PSC in these cases.

In order to prove that “inalienability” is not really a factor in determining whether to use *be* or not, let us look at things that are inalienable pragmatically and are “owned” in numbers exceeding 2. Such examples are given in (28) and (29).

- (28) a. U Maši est' sedye volosy.
 at Maša is gray hair-pl
 “Maša has some gray hair.”
 b. U Maši sedye volosy.
 “Maša has gray hair, her hair is gray.”
- (29) a. U Koli est' černaja rodinka.
 at Kolja is black mole
 “Kolja has a black mole (and may have other moles
 too).”
 b. U Koli černaja rodinka.
 “Kolja has a mole, and it is black.”

The sentences in (28a) (adapted from Seliverstova 1990) and (29a) are perfectly grammatical with the present tense copula. This is because they do not violate the PSC, the number of “hairs” being large enough (note that the NP “hair” is plural in Russian), and the number of moles an individual can have also is not limited to any particular number. As a result, the “size” of D in each of these cases is flexible, and a reading where X is “smaller” than D is available.

Notice that in these cases “inalienables” behave exactly like “alienables” analyzed above: (18a,b) and (20a,b). They have existential readings when the copula is present ((28a), (29a)). But without *be*, “inalienables” in (28b) and (29b) get non- \exists interpretations, generic and referential, which correspond to improper subset situations. Compare semantic formulae for (28a,b) and (29a,b) given in (28a',b') and (29a',b') with (18a',b') and (19b,c).

(28) a'. $\exists x[\text{hair}(x) \wedge \text{gray}(x) \wedge \text{have}(m,x)]$, where $x \in X$, $X \subset D$
 b'. $\text{Gn} [[\text{hair}(x) \wedge \text{have}(m,x)] \text{gray}(x)]$, where $x \in X$, $X = D$

(29) a'. $\exists x[\text{mole}(x) \wedge \text{black}(x) \wedge \text{have}(k,x)]$, where $x \in X$, $X \subset D$
 b'. $\forall x : \text{mole}(x) \wedge \text{have}(k,x) \rightarrow [\text{black}(x)]$, where $x \in X$, $X = D$

Therefore, we can conclude that the “alienable/inalienable” distinction is an epiphenomenon; in essence, the presence vs. absence of *be* corresponds to \exists /non- \exists interpretation of the Theme.

Before I finish this section, I want to mention an additional result that adopting the PSC gives us. It has been noted by many, and convincingly described by Seliverstova (1990) in her insightful book, that present tense *be* structures imply the existence of an entity which does not have the relevant property. For example, the sentence in (28a) implies that Maša has some hair which is not gray, whereas the *be*-less structure in (28b) does not have this implicature.

The Proper Subset Condition gives us a principled account of this descriptive fact. It follows directly from the PSC that if there exists an x , such that x belongs to a set X , and X is a proper subset of D , then there exists a y , such that y belongs to D , and y

does not belong to X . In our example (28a), which has an \exists -reading, $x \in X$ means that there exist x 's that have three properties: "being hair," "gray," and "being Maša's;" also, there must exist some y 's that have 2 properties: "being hair" and "being Maša's," but do not have the property "gray" (i.e., $y \in D$, $y \notin X$). This dependency is formalized in (30).

$$(30) \quad \exists x (x \in X) : X \subset D \Leftrightarrow \exists y (\exists y \in D) : y \notin X$$

This result is important, since this implicature is strongly present in the semantics that the native speakers of Russian construe for these cases. For example, as was noted by Seliverstova, the reason all native speakers reject "U Maši est' sinie glaza" ("Mary has blue eyes" — with overt *be*) is because they get an absurd reading on which Maša has another pair of eyes, that is not blue, but perhaps brown, that she is wearing on weekends, for example.

In summary, we have seen that *be* appears in the present tense only in those contexts where Existential quantification occurs, to support the \exists_{op} . In non-existential sentences, the presence of *be* in the present tense is ruled out by the Economy Principle and by the constraint on vacuous quantification. The Proper Subset Condition is a filter which blocks Existential quantification in certain restrictive contexts where introducing an \exists_{op} would result in vacuous quantification. Therefore, applying the PSC to relevant contexts we can predict the behavior of the copula in the present tense.

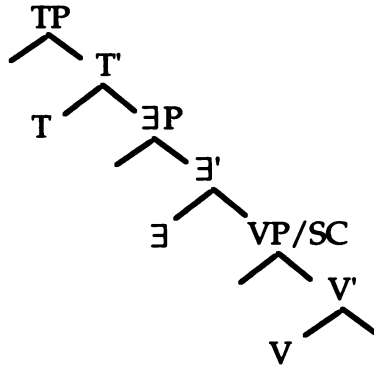
6. The syntax of Existential Closure

In this section I will describe the structure proposed at the beginning of this paper in more detail. First, I will repeat the Lexicalization Requirement introduced in Section 2.

- (8) Existential Closure over the VP can occur iff \exists_{op} has lexical support.

In copular structures this requirement forces *be*-insertion in the present tense as a last resort if and only if there is a free variable that needs binding by an \exists_{op} . I suggested that the position where the copula is inserted in existential contexts is the head of $\exists P$. This structure is given in (31).⁴

(31)



In existential structures in Russian, the copula is inserted in \exists and stays there in the present tense sentences. In past and future tense structures, \exists to T raising takes place, since Tense features [past] and [future] are “strong” and require support at S-structure.

In English, all tenses are morphologically “strong,” therefore, we expect *have* and *be*, which are auxiliary verbs, to always end up in T, in all tenses.

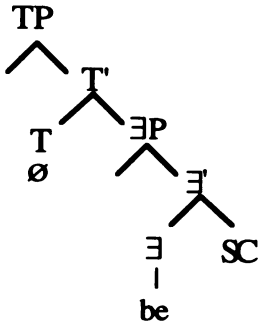
Non- \exists sentences in Russian show contrast between past and future on the one hand, and present tense on the other hand, w.r.t. using the copula. In the past and future, *be* is inserted directly in T, to support the relevant morphological features. In the present tense, *be*-insertion does not take place at all.

In English non- \exists structures, no contrasts will be found: in all tenses the auxiliary is in T, supporting the tense features.

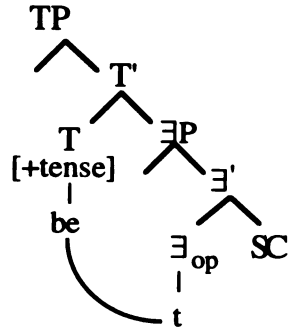
⁴ I am assuming Stowell’s (1978) small clause analysis of copular structures, although other analyses may also be compatible with the *be*-support proposal.

The trees for Russian \exists -structures are given in (32).

(32) a. Present tense

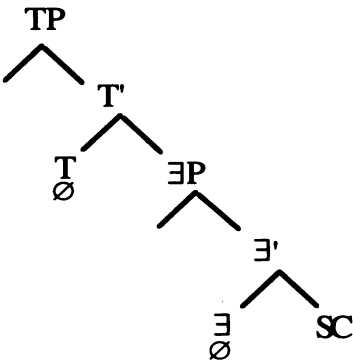


b. Past and Future tenses

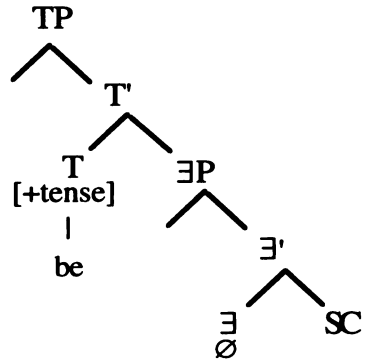


I am going to adopt the Economy of Projection Principle (Speas 1994), which requires that a functional projection be projected in the structure iff it has semantic or syntactic content at some level of representation. Since in non- \exists structures the \exists P is empty at all levels of representation, I will assume it is not projected at all. The structures for non- \exists sentences in Russian are given in (33).

(33) a. Present tense



b. Past and Future tenses



Thus we see that sentences with overt copula are only superficially similar; structurally they must be represented in three different ways, by trees in (32a), (32b), and (33b).

English *have*-sentences have only a two-way structural ambiguity, distinguishing between \exists / non- \exists structures, since the present tense in English behaves syntactically the same way other tenses do.⁵

It follows from this analysis that Russian should be similar to English in all but present tense structures. In fact, this is precisely the case. In the past and future contexts, Russians copular structures show the same ambiguity as English sentences.

- (34) a. U Koli byli glupye učitelja.
 “Kolja had stupid teachers.”
 b. U Maši byla xorošaja mašina.
 “Maša had a good car.”

(34a) is ambiguous between universal and \exists readings (compare these with English examples in (17)), (34b) is ambiguous between \exists and referential readings (compare to (19)).

Not surprisingly, all the “bad” present tense examples are grammatical in the past and future, cf. (35).

- (35) U Maši byli sinie glaza.
 “Maša had blue eyes.”

This sentence, however, does not become ambiguous in the past tense: since \exists -reading in these cases is blocked by the PSC, the \exists P is not projected and the structure of this sentence is the one in (33b).

In conclusion, I am claiming that Russian copular sentences and English *have* possessives can have different underlying representations and derivations, which is reflected in their semantics (in both Russian and English) and surface syntax (in Russian).

⁵ For English *have* I am assuming that it is projected as a VP, and raises V to T in non- \exists contexts, and V to \exists to T in \exists contexts.

7. Evidence for the two-loci *be*-insertion

We have seen that the proposed syntactic analysis can distinguish between cases with different semantic interpretation. This constitutes semantic evidence for this proposal. Without assuming two different locations for *be* it would be hard (if possible at all) to explain the contrast in (36).

- (36) a. U Koli est' xorošie knigi.
 at Kolja is good books
 "Kolja has some good books." (non-ambiguous)
- b. U Koli byli xorošie knigi.
 at Kolja were good books (ambiguous)
 "Kolja had some good books./All his books are good."

If we assume that the copula is in the same position in (36a) and in (36b), why does the sentence (36b) have two interpretations (existential and generic), while (36a) only has an existential reading? We will have to find answers to questions (i) what blocks the generic reading in (36a)? (ii) how the ambiguity in (36b) is derived?

I do not see a simple solution to these questions under the assumption that *be* is uniformly located across tenses. Besides purely semantic considerations, some morphological and syntactic facts suggest that more than one position is available for *be* at S-structure. The first piece of evidence comes from morphology. In Russian, present tense *be* is different from other tense forms of *be* (as well as from all other verbs) in that it has no agreement morphology. Compare the tense paradigms of *be* in (37).

(37) a. Present tense *be*: est'

 b. Future tense *be*:

person:	singular :	plural:
1	budu	budem
2	budesh	budete
3	budet	budut

c. Past tense *be*:

gender:	singular:	plural:
Feminine	byla	byli
Masculine	byl	byli
Neuter	bylo	byli

In the future tense, the copula agrees with the subject in person and number. In the past tense it agrees in number and gender. In contrast, in the present tense there is no agreement whatsoever. This striking fact is further illustrated by the examples in (38), with a plural subject, and (39), where the subject is 3rd person, singular, feminine gender.

- (38) a. U Koli byli glupye učitelja.
 at Kolja be-Pst-pl stupid teachers-Nom-pl
- b. U Koli budut glupye učitelja.
 at Kolja be-Fut-pl stupid teachers-Nom-pl
- c. U Koli est' glupye učitelja.
 at Kolja be-Pres-∅ teachers-Nom-pl
 "Kolja had/will have/has stupid teachers."
- (39) a. U Maši byla mašina.
 at Maša be-Pst-sg-F car-Nom-3sg-F
- b. U Maši budet mašina.
 at Maša be-Fut-3sg car-Nom-3sg-F
- c. U Maši est' mašina.
 at Maša be-Pres-∅ car-Nom-3sg-F
 "Maša had/will have/has a car."

It is clear that the copula agrees with the Nominative argument in the past (38a), (39a), in the future (38b), (39b), but not in the present tense (38c), (39c).

On the theory that I am proposing, this puzzling fact is easily explained. In fact, it follows directly from the structure in (31). Assuming that AgrsP is located immediately above the TP, and that agreement is triggered by T to Agrs movement (Chomsky 1992), it follows that agreement will be available for *be* in past and future tenses (see structures (32b) and (33b)), but the copula will be too low in the present tense to be able to trigger agreement, as seen in (32a). Therefore, morphological facts confirm the proposed analysis.

Finally, I would like to show that there exists syntactic evidence for the split positioning of *be*. This evidence comes from historical facts about Russian discussed in Ševeleva (1993), and modern Russian dialects (Kuz'mina and Nemčenko 1968, Ševeleva 1993).

Ševeleva describes sentences found in Church Slavonic texts of the XIV-XVI centuries written in north-western parts of Russia, where two forms of *be* cooccur inside one clause. These sentences, she notices, have existential meaning, and are anomalous for Church Slavonic grammar. Ševeleva argues that these forms were introduced into Church Slavonic texts under the influence of contemporary Russian spoken in north-western provinces. Examples from Ševeleva (1993) follow.

(39) *be*-doubling in Church Slavonic

- a. *bjaše obitel' est' nekoja ne ot slavnyx v predelax velikogo*
was cloister is some not of great within limits of great
Novagrada
Novgorod
"There was a monastery, not a famous one, in the lands
of the Great Novgorod."
- b. *bjaše že est' episkop Stefan iskusen syi knigami*
was prt is bishop Stephan skilled being (with) books
"There was a bishop Stephan who was experienced with
books."

In (39a,b) the sentence initial *be* form is in the past tense, the second *be* is unmarked for tense, and is identical to modern

Russian present tense *be*. Notice that the whole sentence is interpreted as a past tense event.

On the proposed analysis, the first *be* form is in T, supporting the [past] feature, and the second “est” form is in \exists supporting Existential Closure. The syntactic difference between modern Russian copula and *be* in the texts cited by Ševeleva is that in modern Russian *be* can perform more than one function via head movement. In those contexts where both tense and Existential Closure need support, *be* moves from \exists to T, thus performing two functions. In cited Church Slavonic texts (and, presumably, in Old Russian), the auxiliary strategy was used instead of the movement strategy to support tense. The reasons for this remain to be investigated, but it is clear that two loci for *be* -insertion are needed to provide structure for sentences in (39).

The same phenomenon is found in modern Russian dialects spoken in the north-west. Morphological forms of the copula in these dialects are the same as in standard Russian (with some phonetic variation). Therefore, it is easy to see that tensed forms agree with the subject, while the untensed form (present tense form) has no agreement.

(40) *be*-doubling in North-Western dialects

- a. žara taka byla esti
 heat-3sg-F such was-sg-F is- \emptyset
 “There was such a heat.”
- b. jarmanki byli est’ častye
 fairs-pl were-pl is- \emptyset frequent
 “There were frequent fairs.”

These dialects can be analyzed similarly to the Church Slavonic examples (39a,b) where each functional head, i.e., T and \exists , gets lexical support independently, which results in having two auxiliaries in the structure. In standard modern Russian, the number of auxiliaries is limited to one, and head movement strategy is used to provide support for Tense in existential structures.

8. Conclusions

In this paper I have proposed an analysis of the copula that treats it as an expletive auxiliary, void of lexical content. *Be* is not projected as a main verb at D-structure, but is inserted into one of the functional projections on the course of the derivation as a Last Resort, to perform syntactic functions of Tense-support and/or \exists support.

It has been shown that Existential Closure requires lexical support, since the presence/absence of the copula directly correlates with existential/non-existential interpretation of the structures.

Finally, I am proposing that \exists -support can occur in two ways:

- (i) in copular structures \exists_{op} is supported by the mechanism of *be*-insertion;
- (ii) in non-copular structures lexical support for an \exists_{op} must be achieved by V to \exists movement.

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Licensing and Identification of Null Subjects in Slavic*

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0 Introduction

From the perspective of ‘null subject’ phenomena, the Slavic languages are surprisingly diverse. Some freely drop referential subject pronouns, others do not. Moreover, in some otherwise null subject languages there are what appear to be overt expletive subjects, although their properties differ from dialect to dialect. Since the prevailing intuition in the null subject literature is that the availability of phonologically null pronominal subjects somehow depends on verbal agreement morphology, it is possible that this traditional wisdom may be expressed in terms of functional categories which actually find overt realization in the various Slavic languages. Here too there is considerable diversity, although attempts to correlate clause structure and subject types are not completely successful. In this paper, we characterize the range of null and overt expletive and referential subject types found in the Slavic languages within the context of current theories of licensing and identification and the facts of Slavic functional clause structure. Section 1 considers the null subject status of the various Slavic languages, and it is argued that, of the major languages, all except Russian are canonical null subject languages. This correlates with the lack of consistent person agreement in Russian verbal morphology. Section 2 examines the Slavic null subject data from the perspective of Rizzi’s (1986) licensing and identification approach to null pronouns, augmented by proposals put forward in Jaeggli and Safir (1989) and Roberts (1993). Section 3 discusses problems posed by Upper Sorbian for various implementations of the licensing and identification system and section 4 raises some unresolved issues for future investigation.

1 Null Subject and Non Null Subject Languages

1.1 Null Subject Diagnostics

Consider first how some fairly reliable diagnostics for whether or not a language is of the canonical null subject type divide up the Slavic languages. Typical characteristics of null subject languages are given in (1).

- (1) The following properties hold true of null subject languages:
 - a. **Only null** pronominal subjects are stylistically unmarked.
 - b. **Only null** 3rd plural pronominal subjects can have arbitrary reference.
 - c. **Only null** pronouns can function as bound variables.

(1a) expresses the obvious fact that if non-emphatic pronominal subjects are regularly omitted in some language, we will want to call it a 'null subject' language. Supplementing this paramount criterion are two important diagnostics drawn attention to by Montalbetti (1984) and Jaeggli (1986). Jaeggli connected the use of third plural *pro* subjects as arbitrary pronouns with the null subject phenomenon. More importantly for our concerns, Jaeggli observed that in null subject languages only null pronouns can have this usage, as in (1b). He subsequently unified this property with Montalbetti's "Overt Pronoun Constraint," which we have restated in (1c). Jaeggli (1986:66) then achieved this unification by means of the bidirectional implication in (2).

- (2) Overt pronouns may not be arbitrary in reference iff the overt/empty alternation obtains.

Since we believe that the key factor is feature dependence rather than referentiality, (1b) should be assimilated to (1c), rather than the other way around.

Notice that the criteria in (1) could be couched as choices between null and overt pronouns. For example, a corollary of (1c) is that in null subject languages overt pronominal subjects of

embedded clauses cannot be bound, hence must be disjoint from matrix subjects (barring accidental coreference). In fact, one could flip the generalizations in (1) around so that they apply to overt pronouns instead:

- (3) The following properties hold true of null subject languages:
- a. **Overt** pronominal subjects are stylistically marked.
 - b. **Overt** 3rd plural pronominal subjects cannot have arbitrary reference.
 - c. **Overt** pronouns cannot function as bound variables.

This suggests to us that what unites the null subject diagnostics is a common division of labor between the so-called ‘proximate’ and ‘deictic’ uses of pronouns. For example, *he* in (4) could be coreferential with the c-commanding NP *Clyde*, or *he* could refer to some other third singular masculine entity whose identity has been otherwise established.

- (4) Clyde thought that **he** was the luckiest armadillo in Texas.

We believe that the ‘proximate’ use of the pronoun is actually anaphoric, in that the pronoun derives its interpretation by virtue of being bound, whereas the deictic use is purely pronominal. While in a non-null subject language such as English these two functions are merged, it seems to us that in null subject languages they are differentiated, such that the overt variant is limited to the deictic ‘free’ function and the null variant generally has the proximate ‘bound’ function.¹

1.2. Application of Null Subject Diagnostics to Slavic

By these criteria, although most West and South Slavic languages are canonical null subject languages, East Slavic languages are not. Unfortunately, as discussed in Franks (1990), several factors conspire to render this conclusion less than obvious. The problem is that Russian—which we shall take to be representative of East Slavic in general—allows fairly free discourse ellipsis of many

elements, including subjects. These discourse licensed null subjects may thus sometimes exhibit the properties in (1), giving the false impression that Russian is a null subject language. However, the important point is that overt subjects also exhibit these properties, which means any distinction in Russian between phonologically null and overt subjects is unrelated to the canonical null subject/overt subject distinction. For this reason, we focus on the interpretive possibilities associated with *overt* subjects in the various languages.

Crucially, there is nothing emphatic about expressing the subject *ja* ‘I’ in Russian (5a), although there is in Polish (5b) or Serbo-Croatian (5c).

- (5) a. **ja** ne ponimaju
I NEG understand_{1.SG}
b. **ja** nie rozumiem
c. **ja** ne razumem

This diagnostic is probably the clearest and most intuitive.² Overt subject pronouns are much more restricted in Polish and Serbo-Croatian than they are in Russian, so that a Russian speaker learning Polish or Serbo-Croatian must consciously avoid their overuse.

The facts pertaining to the second diagnostic are somewhat less transparent. Although the Russian arbitrary third plural construction is usually taught and described as requiring that the subject be null, Russian speakers we have consulted state that the presence of overt *oni* ‘they’ in examples such as (6)—even if not normative—is still consistent with the arbitrary interpretation.

- (6) a. v Amerike **oni** govornat po-anglijski
‘in America they speak English’
b. otec znaet, što **oni** syna ne primut v institut
‘father knows that they won’t accept his son into the
institute’
c. vo Francii **oni** edjat ulitok
‘in France they eat snails’

- d. na benzokolonkax **oni** prodajut sigarety
‘at gas stations they sell cigarettes’

We suspect that the non-referential status of *oni* in such examples makes it extremely likely to be discourse ellided; the point is that its presence does not actually *force* a deictic interpretation. In South and West Slavic, however, the situation is quite different—Serbo-Croatian and Polish speakers were unequivocal in their conviction that overt *oni* necessarily gives rise to the referential or specific reading. Thus, in the Serbo-Croatian examples in (7) or the Polish ones in (8), *oni* must refer to specific individuals.

- (7) a. **oni** ovdje prodaju kavu
‘they sell coffee here’
b. **oni** se me upisali u školu
‘they signed me up for school’
- (8) a. **oni** mówią, że Bush wygra wybory
‘they say that Bush will win the elections’
b. we Francji **oni** jedzą ślimaki
‘in France they eat snails’
c. w Holandii **oni** hodują tulipany
‘in Holland they grow tulips’
d. w tym mieście **oni** sprzedają dobrą kiełbasę
‘in this town they sell good sausage’

The only way to express the arbitrary reading here is to use third plural null *pro* instead of overt *oni*. The same is true in the other West and South Slavic languages: when a third plural pronominal is overtly expressed, it loses its arbitrary character and becomes referential.

The third diagnostic provides even more striking confirmation that Russian differs from the South and West Slavic languages. Whereas Russian (9a) can admit the bound variable reading despite

the presence of overt *on* 'he', the otherwise identical Serbo-Croatian (9b) and Czech (9c) cannot.

- (9) a. *každyj student думаet, что on полуčit pјatěrku*
 'every student thinks that he will get an A'
 b. *svaki student misli da će on dobiti desetku*
 c. *každý student myslí, že on dostane jedničku*

In the above Serbo-Croatian and Czech examples, overt *on* can only have a deictic interpretation. The bound variable reading thus only obtains in these languages when the subject is phonologically null. Roughly the same results obtain if the QP is replaced by a referential NP, as in (10a-c):

- (10) a. *Ivan_i думаet, что on_i полуčit pјatěrku*
 'John thinks that he will get an A'
 b. *?*Jovan_i misli da će on_i dobiti desetku*
 c. **Jan_i myslí, že on_i dostane jedničku*

This follows if null pronouns are treated as bound variables whenever possible. Using the overt pronoun instead of *pro* therefore leads to the deictic interpretation, so that intentional coreference with the matrix subject should be impossible. On the bases of these various criteria, we thus conclude that Russian is not a null subject language, although other Slavic languages, including Polish, Czech and Serbo-Croatian, are null subject.

1.3. Correlation with Agreement Types

This conclusion raises the inevitable question of why Russian should differ from these other languages in terms of the viability of null referential pronominal subjects. Under the assumption that subjects originate as VP-specifiers and ultimately (whether in the syntax or at LF) end up as specifiers of some functional projection of V, their properties ought to be connected to the functional

categories which enable them. We therefore believe that an appropriate answer to the question of “Why is Russian different?” should be found in anomalies of the extended projection of V. From this perspective, one correlation that immediately comes to mind is that East Slavic differs from South and West Slavic in the realization of agreement.

Although Slavic verbs potentially exhibit both person-number agreement (AGR_{pers}) and gender-number agreement (AGR_{gend}), this potentiality is realized differently in East Slavic than in South and West Slavic.³ A quick survey reveals that whereas AGR_{pers} is consistently marked in South and West Slavic, in East Slavic it is absent in certain forms. Specifically, the East Slavic copula lacks AGR_{pers} agreement morphology in the present tense and—since the auxiliary *is* is the clitic form of the conjugated copula—all verbs lack it in the past tense. Compare the Russian forms in (11) with the Serbo-Croatian and Polish ones in (12) and (13):

- (11) a. **ja** student/molod
‘I am a student/young’
b. **ja** čital knigu
‘I read the book’
c. **ja** čitaju knigu
‘I am reading the book’
- (12) a. **pro** student/mlad **sam**
b. **pro** čitao **sam** knjigu
c. **pro** čitam knjigu
- (13) a. **pro** **jestem** studentem/mlody
b. **pro** **czytałem** książkę
c. **pro** **czytam** książkę

These examples confirm a rough correlation between the availability of a null theta-marked *pro* subject and the presence of AGR_{pers} . While this suggests that the acceptability of *pro* should indeed be formulated in terms of ‘richness of inflection’, several interesting problems remain. For one thing, the Russian present tense form *čitaju* in (11c) *does* show full person agreement, yet *pro* is no more appropriate in this sentence than in past tense (11b), which only shows AGR_{gend} . It thus seems that what is important is the role of

AGR_{pers} in the inflectional *system*, rather than its presence in individual forms. A second and no less significant point is that the presence of AGR_{gend} in Russian past tense forms, even though it reflects subject-verb agreement, does not make the system rich enough to allow *pro*.

2 Identification and Licensing

So far, even though it was necessary to subdivide Slavic agreement into two distinct types, we have referred to “richness of inflection” as if there were a single threshold, beyond which an agreement system would be deemed rich enough to tolerate null subjects. It has, however, long been clear that null subject phenomena are far from uniform, and that a more complex approach is warranted. At this point we therefore turn to specific proposals in the literature about two different kinds of morphological richness. A number of researchers, beginning in the early 1980’s and including Jaeggli, Rizzi and Safir, distinguish *licensing* and *identification* of null pronouns. Licensing is a purely formal criterion, something that all empty categories are subject to. Identification, on the other hand, is a more substantive or contentful criterion, since it refers to the availability of some mechanism for recovering the essential grammatical information left unexpressed. This bifurcation is akin to the division of labor between head-government and antecedent-government for traces, the former being a formal licensing requirement and the latter, as a type of binding, being a mechanism for identifying the empty category and providing it with some kind of content.

2.1. Expletive Subjects

Within such a scheme, empty categories which lack content need only meet the formal requirement of licensing, since identification is irrelevant to their recoverability. Although traces of movement, for example, need to meet both criteria, an element such as deleted *that* in COMP—having no substantive features to be identified—need only be licensed under head-government. Null subjects are similarly

of two types: referential *pro*, as in (12) and (13) above, and expletive *pro*, as in the Serbo-Croatian and Polish examples in (14):

- (14) a. *pro* čini mi se da Jovan nije došao
 '(it) seems to me that John didn't come'
 b. *pro* zdawało się jej, że ...
 '(it) seemed to her that ...'

The *pro* subjects in (14) are expletives since they have no referential content. In Serbo-Croatian and Polish, in which AGR_{pers} is sufficiently rich to allow the use of null referential subjects, null expletives are also licensed. In a non null subject language such as English, on the other hand, null expletives are impossible:

- (15) *(it) seems that everyone forgot about the meeting

However, the existence of languages which exhibit 'mixed' behavior with respect to the lexicalization of such subjects suggests that there is no monolithic "null subject parameter." Crucially, although we have seen that in Russian referential subjects are generally not omitted, expletive subjects are, as follows:

- (16) a. *pro* kažetsja, čto my zabludilis'
 '(it) seems that we are lost'
 (cf. *ono kažetsja, čto my zabludilis')
 b. *pro* temneet
 '(it) is getting dark'
 (cf. *ono temneet)

One might therefore argue for two (or more) distinct parametric choices that relate to null subject phenomena. One standard approach to this problem is to capitalize on the distinction between licensing and identifying conditions for null subjects. The licensing conditions specify the environments in which null subjects are allowed to occur. All null subjects, independent of their thematic status, must

be formally licensed. However only referential null subjects require additional identification to ensure unambiguous ‘recoverability’ of their pronominal content. Null expletives, on the other hand, merely need to be licensed. In such a system, then, the distribution of null subject types in Russian can be understood as the result of licensing but not identifying null subjects. Note that the only reason for the overt occurrence of overt expletives—which by definition lack any referential function—should then be that the language does not license null subjects at all.

2.2. Morphological Uniformity

The upshot of the licensing/identification dichotomy is that it is much “easier” for expletives to be null than for referential pronouns to be null, since their pronominal content does not need to be identified. If so, it makes no sense to talk about identification without licensing, since if null subjects in some language were identified without being licensed they still could not exist, so that the fact that they were identified would have no empirical consequences. Moreover, our consideration of the role of agreement in Slavic suggests that agreement properties are at work in allowing both types of null subject.

This intuition, however, requires that we make the concepts of licensing and identification explicit. One possible interpretation of licensing can be found within the Morphological Uniformity Hypothesis first articulated by Jaeggli and Hyams (1987). The idea is intuitively that verbal agreement morphology must be consistent in order for null subjects to be permitted. Jaeggli and Safir (1989:29-31) describe this consistency in terms of the verb paradigm having uniformly derived or underived inflectional forms, where by “derived” they simply mean having some kind of affix. Turning in this light to Slavic, we will need to conclude that all Slavic languages are morphologically uniform, since they all license null expletives. To see that this is so, consider the present and past paradigms in Russian (17) and Polish (18):

- (17) a. my govori-m b. my govori-l-i
 we speak_{1.PL} we speak_{PAST.PL}
- (18) a. *pro* mówi-my b. *pro* mówi-l-i-śmy
 speak_{1.PL} speak_{PAST.FEM.PL-1.PL}

Crucially, Russian is uniform even though AGR_{pers} is not expressed in the past; compare Russian (17b) with Polish (18b). It appears that so long as there is some kind of agreement affix—even if only AGR_{gend} —Russian qualifies as morphologically uniform, hence null expletives are licensed.

Within the Jaeggli and Safir system forms with zero endings pose a possible problem. If these zeros are truly affixes, then the paradigm can still be uniform, but if they represent no ending at all, then the paradigm will be derivationally mixed, hence null subjects will not be licensed. Licensing in this sense is the consequence of consistency in the entire paradigm. In order to accommodate null subject languages that seem to have non-derived forms, therefore, we will need to argue that there are indeed endings throughout. In the Slavic verbal paradigms, second and third person singular aorist forms and third person singular present tense forms (in most languages except Russian) might be problematic, since these look like they might be bare stems, as in Old Church Slavonic (19) and (20), Serbo-Croatian (21).

- (19) a. moliti ‘to beg’ Infinitive
 b. moli Aorist: 2nd/3rd sg
- (20) a. dělati ‘to do’ Infinitive
 b. děla Aorist: 2nd/3rd sg
 c. dělaj Imperative
- (21) a. čitati ‘to read’ Infinitive
 b. čita Present: 3rd sg
 c. čitaj Imperative

In keeping with Jakobson's (1948) "one stem system" analysis, we claim that the (b) forms actually involve a consonantal ending, since truncation of the stem final consonant *jot* takes place in (20b) and (21b), just as in the infinitives (20a) and (21a) before the consonantal ending. This *jot* is evident in the imperative forms in OCS (20c) and Serbo-Croatian (21c). This allows us to continue to assume that all Slavic languages have morphologically uniform derived verb forms throughout their conjugations, hence null subjects are always licensed in Slavic.

2.3. *Syncretism and Identification*

The problem, as we have seen, is that only null *expletive* subjects are allowed in Russian. Identification must therefore fail in this language. We suggest two ways of making sense of the claim that identification fails in Russian. In keeping with the distinction we have made between AGR_{pers} and AGR_{gend} , the assumption that AGR_{pers} is the only agreement affix relevant to identification will prevent identification in Russian. That is, null subjects in Russian are not identified since AGR_{pers} is not always present in the paradigm. The presence of AGR_{gend} in the past tense (17b), for example, is sufficient to keep Russian morphologically uniform, hence for null subjects to be licensed, but is inadequate to identify the pronominal features of null subjects. AGR_{gend} thus appears to be irrelevant to identification. Furthermore, the fact that a different and greater amount of subject-verb agreement appears in the past in Polish than in the present is also irrelevant. In other words, for identification to fail in Russian the important factor could be that (17b) lacks person-number agreement, despite the presence of gender agreement, and Polish (18) must identify despite the lack of gender-number agreement in (18a). We thus conclude that AGR_{pers} is true subject-verb agreement, and what we have called AGR_{gend} is completely irrelevant to the identification of null theta-marked subjects.

Highlighting the role of AGR_{pers} in this way raises the question of its status in the system of verbal functional projections, as well as the issue of how to treat AGR_{gend} . It seems to us appropriate to

analyze AGR_{pers} as what has come to be known in the literature as AGR_S . This element agrees with the subject NP by virtue of some process of spec-head agreement, simultaneously endowing (or checking) Nominative case on that NP. AGR_{gend} , on the other hand, could be some kind of defective AGR_S head itself, or it could be a completely different kind of entity. While treating the gender-number agreement found in Russian in the past tense in e.g. (18b) as a kind of AGR_S found with an overt tense morpheme may initially seem appealing, we think that this kind of solution may turn out to be unworkable. The problem is that both types of agreement are found in South and West Slavic past tense constructions, as in Polish (18b). What is worse, AGR_{pers} and AGR_{gend} occupy distinct positions, the former being a relatively free clitic and the latter unequivocally appearing as an ending after the tense suffix *-l* of the verb. In a full-blown functional projection system, therefore, the gender-number ending should be a distinct head. For our purposes, however, it suffices that we *not* treat it as AGR_S . We remain agnostic as to its exact status, simply remarking that the AGR_{gend} endings found in the various Slavic languages are suspiciously identical to the gender-number endings of nouns and pronouns in the Nominative case. We thus believe that, in keeping with its historically participial status, the tense suffix *-l* has a nominalizing function, and that the endings which follow it essentially reflect an NP-NP agreement relation. Simply put, the $-\emptyset$ masculine singular ending found on predicate nouns and adjectives in Slavic is the same as the $-\emptyset$ masculine singular ending found on *l*-participle verbs.

We turn now to an alternative approach to identification which might be developed in terms of observations due to Roberts (1993:125-128) in analyzing the history of French.⁴ Roberts proposes that two different types of “richness” can be invoked for identification, and that languages can avail themselves of either depending on their licensing mechanism. Identification can be characterized in terms of “formal” richness,⁵ or it can be characterized in terms of “functional” richness. A *formally* rich paradigm has all derived forms, therefore does not admit zero endings. *Functional* richness, on the other hand, is compatible with a zero ending for one person, since this will not interfere with the

function of identifying the pronominal features of the subject. Furthermore, Roberts (1993:127) make the specific hypothesis that a functionally rich paradigm allows up to one syncretism. Roberts follows Rizzi (1986) in defining licensing in terms of AGR being a licensing head assigning Nominative case. Nominative, as a matter of parametric choice, can be assigned under either government or agreement, but *if it is assigned under agreement only, then only "functional" richness can be used for identification* (cf. Roberts 1993:207).⁶

We assume that in the Slavic languages Nominative is assigned under agreement, hence only functional richness is applicable.⁷ Returning in this light to the issue of what prevents Russian from being a null subject language, it again seems to us that defects in the past tense paradigm are the culprit. It is, however, an open question what exactly makes this paradigm insufficiently rich. If the problem were merely that person distinctions are lacking in the past tense paradigm, then how would one avoid having the lack of gender distinctions cause a similar result in the non-past? It therefore cannot be that *all* pronominal features of the subject must be identified (up to one syncretism). Conceivably, the proponent of a Roberts-type analysis could claim that, as a principle of UG, person rather than gender is what needs to be identified, but this is tantamount to our claim that AGR_{pers} is all that counts. On the other hand, under the syncretism option a relatively straightforward explanation presents itself: Russian past tense verbs are marked for gender in the singular, but this opposition is completely neutralized in the plural. Since the singular distinguishes masculine, feminine, and neuter, there must be a *double* syncretism of gender features in the plural. Identification by functional richness thereby fails.

Note that a tolerance of one syncretism may be necessary to include some null subject Slavic languages, particular those with complex tense systems. For example, there is a syncretism in Bulgarian between second and third person singular endings in both the imperfect and aorist tenses, *jadeše* '(you-sg/(s)he) was eating' and *jade* '(you-sg/(s)he) ate', respectively, as in (22) and (23).

(22) *jadeše* Imperfect: 'eat' 2nd/3rd sg

(23) *jade* Aorist: 'eat' 2nd/3rd sg

Note that this situation does not count as two syncretisms, presumably since they occur in different tenses. Somewhat more problematic might be the situation in Old Church Slavonic, where one finds two syncretisms within a single tense. In OCS both imperfect and aorist display, in addition to the syncretism just mentioned for Bulgarian, a syncretism between second person plural and third person dual:

(24) *jaděaše* Imperfect: 'eat' 2nd/3rd sg

(25) *jaděašete* Imperfect: 'eat' 2nd pl or 3rd dual

(26) *jast*" Aorist: 'eat' 2nd/3rd sg

(27) *jaste* Aorist: 'eat' 2nd pl or 3rd dual

To accommodate this we would need to limit the syncretism criterion to a single number. Odd as this may initially seem, we believe such a restriction to be in keeping with the spirit of Roberts' idea. A syncretism reflects a single form that is non-distinct from multiple feature complexes, i.e. a defective feature matrix. Verb forms that are lexically associated with defective feature matrices can be substituted for multiple fully specified AGR matrices in the syntax. So, for example, a form such as (24) *jaděaše* '(you-sg/(s)he) was eating' can be analyzed as having the pronominal features [-1st, -pl], rendering it non-distinct from both second and third person singular AGR_{pers}. It is, however, impossible to make a similar collapsing when the features cut across both person and number, as in (25) *jaděašete* '(you-pl/(s)he-dual) was eating'. There is no non-Boolean way to express this as a single form. It is, in other words, not feature neutralization, hence cannot be expressed using a single entry in the lexicon. Since this is technically not a syncretism, it does not count to block identification in OCS.

3 Problems and Extensions

3.1 Thematic Subjects in Upper Sorbian

Upper Sorbian dialects provide a telling counterexample to the otherwise regular relationship between consistent realization of AGR_{pers} in Slavic and the null subject properties of a language.⁸ Our examination of contemporary dialect texts reveals a surprising level of overt subject pronoun use, comparable to that of Russian. The following are some typical examples cited by Faßke and Micháček (1989):

- (28) a. do pównoce smó **mó** khodžili
 ‘we walked until midnight’
- b. a jako dyš je **wón** wumrěw, dys su delka kěrlus spěwali,
 je **wón** z wóknom horka deli ladaw a fajfu kuriw
 ‘and when he died, when they sang a choral downstairs,
 he looked down from the window above and smoked his
 pipe’
- c. tujs sej **woni** žane(j) rade wejdžili nejsu...
 ‘and since they didn’t know what else to do ...’
- d. ale **ja** sn něk tam wele moli ribach bów a **ja** (ja)c jich ničo
 widžiw nejsym
 ‘but I often used to go for mushrooms there and I didn’t
 see anything’

In keeping with the null subject criterion in (3a), this rampant use of unemphatic pronouns strongly suggests that Upper Sorbian is not a null subject language as defined above, but, instead, really looks more like Russian.⁹ An interesting discussion of the problem of overt personal pronouns is provided by Faßke (1964). According to current school grammars of Upper Sorbian and also older influential grammars such as Jordan (1841), Liebsch (1884) and Kral (1895), personal pronouns should only be used in emphatic contexts. However, as Faßke concludes from an analysis of a large number of recordings of speakers from various regions, this is in

contrast to the actual modern spoken language. Furthermore, Seiler's 1830 grammar states: "Die persönlichen Fürwörter werden zum Zeitworte erfordert ..." (Seiler 1830:113), which suggests that even older Sorbian was not pro-drop in the same sense as other West Slavic languages. This raises the question of why Jordan, Liebsch and Kral described Sorbian as a language which omits personal pronouns in non-emphatic discourse. One plausible reason is offered by Faßke (1964). According to him, the reason is Czech influence and, indeed, all of these authors had studied in Prague.

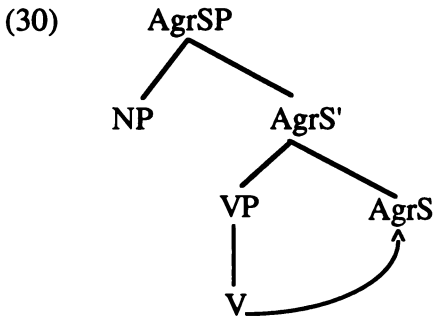
The conclusion that Sorbian is not a canonical null subject language can also be drawn from the appearance of overt *wón* 'he' and *woni* 'they' in the bound variable contexts in (29a-c), following criterion (3c). Examples (29a) and (29b) were taken from original texts; (29c) was presented by us to native speakers, who judged it to be grammatical.

- (29) a. Feliks njepytny, zo **wón** hižo hodžinu po měsće honja
 'Felix didn't realize that he had already been running
 through town for an hour'
- b. a tym rózku horka, woni prajachu, zo šćen su **woni** tam
 měli pwut wokowo
 'and up there in that corner, they said, that they had a
 fence around'
- c. kóždy nan mysli, zo **wón** ma mudreho syna
 'every father thinks that he has a smart son'

In fact, the second occurrence of *woni* in (29b) might instead be analyzed with arbitrary reference—therefore pertaining to criterion (3b)—rather than as a bound variable. In any event, from the context it is clear that *woni* does not have a deictic reading, so that either way its overtness further supports our contention that Upper Sorbian resembles Russian. Further support comes from examples (29d) and (29e), which were produced by native speakers as translations of German sentences with arbitrary *sie* 'they'.

- (29) d. w Londonje su **woni** zaso stawkowali
 ‘in London they striked again’
 e. wón je sej nohu złamał a **woni** dyrbjachu lěkarja hólwać
 ‘he broke his leg and they had to get the doctor’

The question is now “Why should this be so?” In what follows, we consider two possible explanations. Since Upper Sorbian has rich agreement comparable to other West Slavic languages, its non null subject status should perhaps be attributed to some other aspect of its syntax. An inspection of the texts from which these items were culled reveals a curious preponderance of verb-final sentences.¹⁰ Although typologically odd from the Slavic perspective, this word order is typical of subordinate clauses in German, which is standardly assumed to be SOV. It seems possible that Upper Sorbian may have developed its predilection for final position of the finite verb under the influence of German, especially given the close proximity of the two languages and the fact that *all* Upper Sorbian speakers are bilingual with German.¹¹ For German, SOV order is often derived by analyzing AGR_SP as right-headed, so that when V raises to AGR_S it will end up in clause final position, as in (30).



We therefore propose that the right-headedness of AGR_SP also accounts for this order in Upper Sorbian, the difference being that since AGR_S (unless it is a clitic) does not raise to C in Upper Sorbian, conjugated verbs are final in both main and embedded clauses. Notice in this light that German, despite its uniform realization of (a relatively rich) AGR_{pers} , is also not a null subject

language. We believe that in both languages this fact may somehow be connected with the direction of branching.¹² Assuming that Nominative case is the consequence of spec-head agreement between AGR_S —perhaps enriched by the tense head T —and the NP in the specifier position of AGR_{SP} , we speculate that the problem in German and Upper Sorbian may have to do with the non-adjacency of head and specifier in (30).

An alternative explanation for why Upper Sorbian is not null subject might be formulated in terms of Roberts' (1993) restriction on the number of syncretisms tolerable for successful identification. Under the assumption that *pro* in Slavic is formally licensed under agreement only, formal richness (i.e. morphological uniformity, which we argued earlier is the case for all of Slavic) is not relevant for identification in these languages. A comparison of Upper Sorbian with the OCS forms in (24)–(27) reveals that in Upper Sorbian there are indeed two 'real' syncretisms, in both the aorist and imperfect. Both tenses display not only the original syncretism between the second and third person singular, but also a new syncretism between the second and third person dual, which was not present in OCS. The resulting two syncretism system consequently blocks identification by functional richness.¹³

- | | | |
|---------|-------------|--|
| (31) a. | piješe | Imperfect: 'drink' 2 nd /3 rd sg |
| | b. piještaj | Imperfect: 'drink' 2 nd /3 rd dual |
| (32) a. | wupi | Aorist: 'drink' 2 nd /3 rd sg |
| | b. wupištaj | Aorist: 'drink' 2 nd /3 rd dual |

Upper Sorbian (31) and (32) exhibit two real syncretisms within a single tense paradigm (as evidenced by the "2nd/3rd" notation), whereas OCS did not, since (25) and (27) are technically disjunctions (hence represented with "or" rather than "r").

3.2 Expletive Subjects in Upper Sorbian

The examples under (33) show that Upper Sorbian also has overt elements that look very much like expletive subjects.¹⁴ Depending on the dialect zone, one finds *wono*, *wone* or *wón*. The latter is restricted to the southeast corner of the Sorbian speaking territory and is homonymous with the masculine personal pronoun *wón* ‘he’. The neuter personal pronoun form *wono* is found in the north and the neuter personal pronoun form *wone* is found in the remaining parts of the Upper Sorbian language territory. The frequency of these overt expletives varies from dialect to dialect, with the highest concentration probably in the Catholic region around Radibor, Crostwitz, Rosenthal and Ralbitz. The use of overt expletives is always optional, and there is no apparent difference between the so-called ‘weather’ expletives, as in (33a-d), which might actually be theta-marked, and ‘real’ expletives, as in (33e) and (33f). No emotive component is associated with the use of these expletives.¹⁵

- (33) a. *wone/wón hrima*
 ‘it is thundering’
 b. *wone/wón bě wětrokojte*
 ‘it was windy’
 c. *wone/wón so deščuje*
 ‘it is raining’
 d. *wone/wón taje*
 ‘it is thawing’
 e. *wone tež je tak potom, zo*
 ‘it is then also so, that ...’
 f. *wone je možno, zo wón hišce přindže*
 ‘it is possible that he still comes’

However, there seems to be a syntactic incompatibility between expletives and *wh*-phrases or complementizers, as shown in (34), which are examples we constructed and tested on native speakers.¹⁶

- (34) a. hdyž (*wone) taje, nejmóžemy so smykać
 ‘when it thaws, we can’t skate’
- b. nejńdu won, dokelž so (*wone) deščuje
 ‘I don’t go outside because it is raining’
- c. wón je prajil, zo (*wone) w horach hižo taje
 ‘he said that it is already thawing in the mountains’
- d. wón je prajil, zo (*wone) je možno zo wón hišce přindže
 ‘he said that it is possible that he still comes’

Faßke (personal communication) provided us with examples of overt expletives collected from recordings of spontaneous speech in virtually all dialects. *Wono*, *wone* and *wón* are found with different frequency in the different dialects. However, in only one single case was there an overt expletive after a *wh*-phrase. The fact that *wone* seems to be incompatible with the *wh*-word in (34a) and the complementizer in (34b) leads us to conclude that these expletives are actually in SpecCP, perhaps under the influence of German *es* inserted in V2 contexts. Although expletive *wone* cannot follow the complementizer *dokelž* ‘because’ in (34b), it can follow the conjunction *ale* ‘but’, since this is in a position outside CP. This is illustrated in (35):

- (35) chcyła bych won hić, ale **wone** so deščuje
 ‘I would like to go outside, but it is raining’

A curious type of construction was discovered in a dialect text from the Mješic region, cited by Faßke and Mikatš (1989:41). Example (36) is an arbitrary third plural construction with an expletive in initial position. This indirectly supports our hypothesis that the overt expletive in Upper Sorbian is *not* in SpecAgr_SP, since otherwise we would be faced with a very unusual situation of non-agreement between the singular pronominal subject *wón* and the plural verb *su pójdali*.

- (36) wón su jow wele pójdali, zo ...
 ‘one used to say here often, that ...’

4 Conclusions and Open Questions

To summarize, we argued in this paper that all of the Slavic languages, except Russian (and presumably also Belarusian and Ukrainian) and colloquial Upper Sorbian, are canonical null subject languages. Whereas all the Slavic languages license null subjects, the exceptions apparently fail to identify them, so that null expletives are allowed but null thematic subjects are not. We considered several ways of capturing this difference between the two classes of languages, each with its own difficulties. Although the Russian facts suggest that inconsistent realization of AGR_{pers} may be the culprit, this idea will not carry over to Upper Sorbian. Coincidences with German on the other hand suggest that some aspect of SOV word order may drive Upper Sorbian’s failure to identify null subjects, but this idea cannot help with Russian. Although we suspect that the non null subject status of these two language types may turn out to be distinct, we were able to show that they may in fact be unified using a version of Roberts’ (1993) system of *pro* identification.

We conclude by articulating some residual questions. These are empirical issues that can only be answered pending further careful research on null subject phenomena in Slavic.

The first question is whether the observed SOV word order and overt pronominal subjects really correlate in Upper Sorbian dialects. We regard as a potential problem the fact that all Upper Sorbian dialects are supposedly V-final but not all seem to be non null subject.

Second, if overt expletives in Upper Sorbian are really something other than subjects and occur in SpecCP, then they should occur in Upper Sorbian dialects independently of their null subject status. The evidence available to us suggests that they do.

Third, although not possible in modern dialects, a few old manuscripts show agreeing expletives (reminiscent of the Czech construction in fn. 14). One such text is Swětlik’s bible translation of 1704, examples from which are cited from Michałk (1972:93):

- (37) a. **ha woni** přistupichu joho hučowniki k njomu
 ‘and expl_{PL} his disciples_{PL} came to him’
- b. ... **ha wona** so sta jena **wulka cíchota**
 ‘and expl_{FEM} became a great calm_{FEM}’

A final major question concerns how one might go about using Slavic data to compare the predictions made by the different accounts of identification. We leave this puzzle to future research.

Notes

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¹Following this reasoning, criteria (1b) and (1c) are the most transparent, and provide us with the impetus to try to assimilate criterion (1a) to this scheme.

²Benedicto (1994) argues that Russian, despite the non-contrastive nature of examples like (5a), should be classified as a null subject language. She claims that overt pronominal subjects in Russian are in fact realizations of AGR, supporting this proposal with arguments from word order. The problem with Benedicto’s account is that the same word order arguments would lead to a similar conclusion about the other (canonical null subject) Slavic languages, yet, as we show in this section, they are typologically quite distinct from Russian.

³For discussion of this and related issues see Franks and Greenberg (1994).

⁴Apparently, since at least the 13th century, the French verb paradigm was comparable to the modern situation, where only first and second plural verb forms have distinct endings, yet French did not actually cease to be a null subject language until about the 16th century.

⁵In the Jaeggli and Safir system formal richness corresponds to morphological uniformity but, unlike Roberts, Jaeggli and Safir employ it as a licensing rather than identification criterion.

⁶In his account, Roberts argues that formal rather than functional richness was relevant for identifying null subjects in French during the transition period. The early Old French paradigms were functionally rich and, after restructuring, the paradigms became formally rich, i.e. morphologically uniform. A change in the nominative assignment parameter in the 16th century caused the loss of null subject properties in modern French. Nominative was now assigned under agreement only, which was in conflict with identification by a formally rich paradigm.

⁷This assumption is far from universally held; cf. King's (1993) analysis of Russian. However, adopting Nominative assignment by government for Russian, for example, would make formal richness the relevant notion, with the undesirable result that Russian should be an archetypical null subject language.

⁸For a linguistically sophisticated and readily accessible discussion of Upper Sorbian, the reader is referred to Stone (1993).

⁹As Stone (1993:668-669) notes, this is true of the colloquial language and dialects but not the literary language. He attributes "the expression of the nominative pronoun in cases where it is redundant" to German, remarking that "in literary Upper Sorbian the nominative personal pronouns are supposed to be omitted unless there is a positive reason for their inclusion". Of course, this says nothing about why German should be so 'redundant'.

¹⁰The details are somewhat complicated. Although synthetic finite verbs appear in final position, in analytical tenses the auxiliary (clitic) usually stands in second position (presumably C), with the participle or infinitive remaining at the end. However, when the auxiliary is negated—hence not a clitic—it too appears in final position. See Stone (1993:652-656) and references therein for further examples and discussion.

¹¹In contrast to German, Upper Sorbian generalized this word order also for main clauses; deviations are mostly related to functional sentence perspective. As observed by den Besten (1983), movement to C in German embedded clauses is blocked by the presence of a complementizer in C; we suspect that clitics (or whatever abstract features drive clitic movement to C) have a similar effect in Upper Sorbian, *in both main and embedded clauses*.

¹²One obvious problem with implicating direction of branching is that there are many SOV null subject languages, which raises the question of why adjacency should be a factor in Upper Sorbian and German but not, say, in Hindi or Turkish. We suspect that the answer will have to do with properties of the CP system shared by Upper Sorbian and German that differentiate them from the other SOV languages. In particular, C in both languages is filled by verbs (although only in main clauses in German and limited to auxiliaries in non-interrogative sentences in Upper Sorbian) and, as discussed in the next section, the presence of overt expletives in SpecCP indicates that this position is filled whenever possible in both Upper Sorbian and German. See also Speas (1994) for an alternative model that attempts to relate null subjects with the content of AGR projections in a language.

¹³This account makes the bizarre prediction that loss of the dual should reinstate successful identification of null subjects in Upper Sorbian.

¹⁴Our attention was drawn to this problem by Schuster-Sewc (1974).

¹⁵As discussed in Lindseth (1994), colloquial Czech has apparent expletive subjects. Interestingly, and in contrast to Upper Sorbian, these elements add some sort of emotive value on the part of the speaker, such as surprise, joy or disappointment. Moreover, and so far as we can tell and again in contrast to Upper Sorbian, expletive *ono* subjects in Czech can co-occur with lexical NP subjects, as follows:

- (i) a. **ona ta myšlenka** má něco do sebe

- 'explFEM this thoughtFEM has something to it'
- b. **ono se ti to lhaní jednou vymstí**
'explNEUT this lyingNEUT will come back to haunt you sometime'
- c. **oni si Polaci volili krále**
'explPL the PolesPL elected a king'
- d. **ona se tu naskytlá ta vosoba**
'explFEM that personFEM suddenly appeared there'
- e. **on náš táta je hrozně nervózní**
'explMASC our daddyMASC is terribly nervous'
- f. **ono tam bylo moc lidí**
'explNEUT many peopleGEN.PL were there'

As the examples in (i) show, the expletive in such constructions has to agree with the referential subject in pronominal features. On the basis of these and other facts, Lindseth (1994) argues that these elements are in SpecAgrSP in Czech, although they are in SpecCP in Upper Sorbian.

¹⁶Although in Czech as well some speakers find the cooccurrence of expletives with material in C and SpecCP awkward, Lindseth (1994) attributes such incompatibilities to pragmatic rather than syntactic considerations, since the use of overt expletives is reserved for emotive contexts in Czech.

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Serbo-Croatian Clitic Placement: An Argument for Prosodic Movement

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1 Introduction

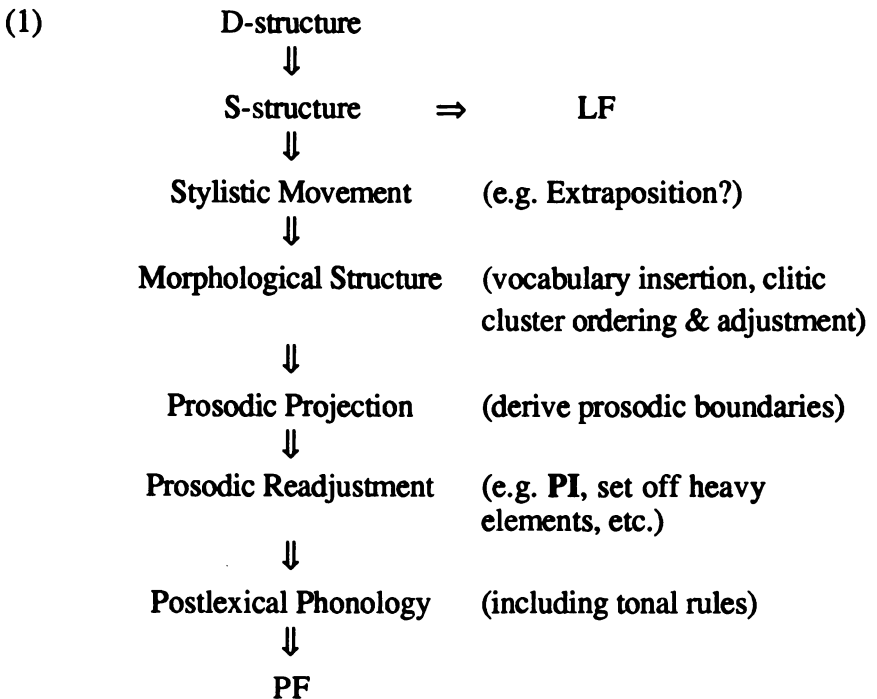
1.1 Theoretical overview

The analysis of Serbo-Croatian (SC) second position clitic placement has been the source of much controversy in generative linguistics. The most important points of disagreement among competing analyses have been the extent to which the various components of the grammar—syntax, morphology, phonology—are implicated in determining the position of the clitics, and the type of interaction among these components that is required. My aim in this talk is to argue for a specific class of solutions to these issues. In particular, I will show that the position of the clitic cluster in a clause cannot be completely determined by the syntax, although the syntax does have a crucial role to play. Rather, I will argue that the position of the clitic cluster is subject to purely phonological constraints that can not only filter out syntactically valid orderings but also trigger a re-ordering of morphemes that does not conform to the syntax. This analysis supports a strictly derivational theory in which syntax feeds phonology, with no “look-ahead” from one component to the next, where each component can affect the linear order of morphemes in a sentence subject to its own constraints.

More specifically, I will argue for the necessity of Halpern’s (1992) proposed operation of Prosodic Inversion (PI), which can re-order a clitic and a potential host word in order to satisfy the clitic’s need for a host to its left. In SC, this will allow enclitics that are clause-initial at S-structure to surface encliticized to the first prosodic word of the clause. I assume for concreteness that clitics are in Comp at S-structure, so that phrases that move to Spec-CP or heads that move to C⁰ are potential hosts for the clitics, but neither of these movements is obligatory. The S-structure tree is subject to a process of prosodic mapping that derives a hierarchical prosodic

structure for the sentence from its syntactic structure. I claim that prosodic mapping must happen in two stages, the first a blind application of constituent-forming rules sensitive only to syntactic boundaries, the second a repair phase that modifies the output of the first based on prosodic requirements of the language. I claim that PI is part of this second stage, repairing sentences wherein clitics are unlicensed due to the lack of a host by performing the minimal change needed to license them, namely inverting the linear order of the clitic cluster and the following prosodic word.

My assumptions about the overall structure of the grammar and the ways in which the components interact are shown diagrammatically in (1).



1.2 Descriptive background

In contrast to the generally free ordering of clausal constituents, SC has a set of enclitics whose position in a sentence is fixed: they must appear in “second position,” not first (2) or later than second (3):

- (2) ***Je ga dao Mariji.**
 AUX it given Mary
 (‘He has given it to Mary.’)
- (3) ***Ivan Marije je ga dao.**
 Ivan Mary AUX it given
 (‘Ivan has given it to Mary.’) (Ćavar & Wilder 1993: 9)

Whenever more than one of these clitics occurs in a clause, they must be adjacent to one another. The order of clitics within the cluster is fixed for most dialects, as shown in the following template (Browne 1974):

(4)

<i>li</i>	AUX	DAT	ACC/GEN	<i>se</i>	<i>je</i>
Q (question particle)	auxiliaries (except <i>je</i>)	dative pronoun	accusative/ genitive pronoun	REFL (reflexive pronoun/ particle)	3sg AUX

The full set of pronominal and auxiliary clitics is given in (5).

(5)

a. Pronouns 1sg 2sg 3sg-m/n 3sg-f refl 1pl 2pl 3pl

Dative:	mi	ti	mu	joj	si	nam	vam	im
Genitive:	me	te	ga	je	(se)	nas	vas	ih
Accusative:	me	te	ga	je/ju	(se)	nas	vas	ih

b. Auxiliaries 1sg 2sg 3sg 1pl 2pl 3pl

Future ('will'):	ću	ćeš	će	ćemo	ćete	će
Conditional ('would'):	bih	bi	bi	bismo	biste	bi
Past/Copula ('AUX'):	sam	si	(je)	smo	ste	su

Traditional descriptions distinguish two sub-cases of second position placement: following the first word of a clause ("1W") versus following the first constituent ("1C"). (6a) illustrates the former, with clitics apparently interrupting the subject NP; (6b) shows them following this constituent; (6c) shows that the first constituent can be anything, including an adjunct. (6d and e) are parallel to (6a and b) except that the initial adverbial has been added, separated off by a pause (denoted by "I") from the rest of the clause and not affecting clitics, which can still come after the first word or first constituent of the clause proper, i.e. the subject. Thus, "second position" must apparently be defined not with respect to the entire sentence, but with respect to some notion of elements "internal" to the clause. This is confirmed by the facts in (7): clitics cannot follow the first word if it is in turn followed by a pause; the pause apparently demarcates the clause boundary in the relevant sense.

(6) a. Taj mi je pesnik napisao knjigu.
 that me AUX poet written book
 'That poet wrote me a book.'

b. Taj pesnik mi je napisao knjigu.

c. Ove godine mi je taj pesnik napisao knjigu.
 this year
 'That poet wrote me a book this year.'

- d. Ove godine | taj **mi je** pesnik napisao knjigu.
 e. Ove godine | taj pesnik **mi je** napisao knjigu.
 (Browne 1974: 41)

- (7) a. Noću **je** ovdje mirnije.
 at-night AUX here more-quiet
 'At night it is more quiet here.'
 b. *Noću | **je** ovdje mirnije.
 c. Noću | ovdje **je** mirnije. (Radanović-Kocić 1988: 106)

Examples (8), (9) and (10) further illustrate the 1W/1C alternation. Despite various claims in the literature about preferences between the two placements, I assume both are made available by the grammar.

- (8) a. Moja mladja sestra **će** doći u utorak.
 my younger sister will come on Tuesday
 'My younger sister will come on Tuesday.'
 b. Moja **će** mladja sestra doći u utorak.
 (9) a. Sovjetske goste **je** primio i predsjednik
 Soviet guests AUX received also president
 Republike Austrije Jonas.
 republic Austria Jonas
 'The President of the Republic of Austria, Mr. Jonas, also received the Soviet guests.'
 b. Sovjetske **je** goste primio i predsjednik Republike
 Austrije Jonas.
 (10) a. Prošle godine **su** otvorili ugostiteljsku školu.
 last year AUX open hotel-and-catering school
 'Last year they opened a hotel-and-catering school.'
 b. Prošle **su** godine otvorili ugostiteljsku školu.
 (Browne 1975: 113–114)

The element preceding the clitics can be a tensed main verb or a participle as well:

- (11) Dolazi li Marija?
comes Q Mary
'Is Mary coming?' (Progovac 1993: 18)
- (12) Pripremila sam si ga za sutra.
prepared AUX REFL it for tomorrow
'I made it ready (for myself) for tomorrow.'
(Mišeska Tomić 1993: 4)

Considering now the 1W option in more detail, it turns out that not just any word can precede clitics sentence-initially: most prepositions cannot (13b), nor can the verbal negation marker (14b) or certain conjunctions (15b).

- (13) a. Na sto ga ostavi.
on table it leave
'Leave it on the table.'
- b. *Na ga sto ostavi. (Progovac 1993: 4)
- (14) a. Ne vidim ih.
not see them
'I don't see them.'
- b. *Ne ih vidim. (Browne 1975: 112)
- (15) a. ...i ne gledaju me.
and not look me
'...and don't look at me.'
- b. *...i me ne gledaju. (Browne 1975: 113)

The relevant generalization seems to be that the host element to the left of the clitics must be a prosodic word, rather than just any syntactic terminal; proclitic and enclitic cannot combine to form a prosodic word. By prosodic word (PWd) is meant a phonologically independent word, i.e. not a clitic; the set of prosodic words is often characterized by the ability to bear accent, although this latter criterion is highly problematic. There is independent evidence that most

prepositions in SC are proclitics, as is *ne*, and most likely *i* as well. Thus the explanation for the clitic as the fourth syntactic element in (15a) is that *i* and *ne* are both proclitic on *gledaju*, the first PwD in the clause, and *me* is in 1W position because it is enclitic on that PwD.

As a result of the possibility that clitics can follow the first PwD of a sentence, clitics may break up a constituent into pieces that are not themselves syntactic constituents, as with the PP in (16), where *na veoma* is presumably not a constituent, but it is a single PwD.

- (16) Na veoma si se lepom mestu smestio.
 on very AUX REFL nice place placed
 'You've placed yourself in a very nice place.'
 (Mišeska Tomić 1993: 6)

I will use examples like this to argue that syntactic movement is insufficient for clitic placement, and PI is necessary.

In section 2 I will summarize the major analyses of SC clitic placement in the literature. This will motivate the detailed argument for prosodic movement in section 3. The next two sections of the paper are devoted to analyzing instances where the standard pattern of 1W/1C does not hold, which I claim are more readily explainable with an analysis that includes PI. Section 4 covers cases of obligatory 1W placement, i.e. the impossibility of 1C in certain constructions. Section 5 looks at the opposite problem, instances of obligatory 1C where 1W is blocked. Finally, section 6 presents some broader theoretical implications of the analysis and conclusions.

2 Previous Analyses

For my purposes, it is useful to divide the major accounts of SC clitic placement in the literature into three classes.

2.1 Pure phonology accounts

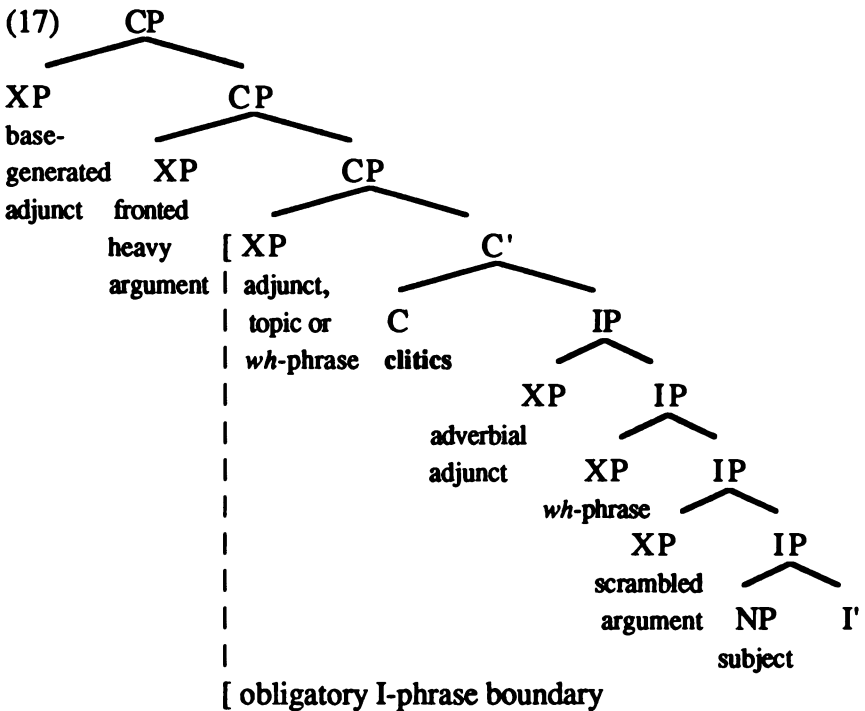
Accounts of this type include those by Radanović-Kocić (1988, 1993) and Hock (1992, 1993). For reasons of space I will not discuss these because they have little in common with my proposal and

have not been elaborated to deal with the full range of data I wish to consider.

2.2 Pure syntax accounts

By a pure syntax account of SC clitic placement I mean an account under which the syntax is fully responsible for the linear position of clitics in the sentence string, i.e. clitics do not move in the phonology.

The most detailed pure syntax accounts I have seen are those of Progovac (1993, 1994) and Čavar and Wilder (1992, 1993; Wilder & Čavar 1993). I adopt essentially their syntactic assumptions. (17) shows the schematic structure for the top of SC clauses that I will assume for concreteness in the rest of this paper (order among adjoined elements may be free):



Their explanation for the 1W/1C alternations like (18) is based on noticing that in most of these cases, one can show independently that the first word is extractable and questionable independent of the presence of clitics, as in (19) and (20).

(18) a. [Anina drugarica] mu nudi čokoladu.
 Ana's girl-friend him offers chocolate
 'Ana's friend is offering him chocolate.'

b. [Anina] mu drugarica nudi čokoladu.

(19) Anina dolazi sestra.
 Ana's comes sister
 'Ana's sister is coming.'

(20) Čija dolazi sestra?
 whose comes sister
 'Whose sister is coming?' (Progovac 1993: 3)

Thus, the claim is that whatever is responsible for the word order in (19) is also responsible for 1W clitics intervening in the NP in (18b): presumably, *Anina* has extracted from the subject NP and fronted. Conversely, prepositions generally cannot host clitics, and they also cannot be extracted from their PPs, so this restriction is captured without appealing to the status of prepositions as proclitics. I accept their extraction account for the cases they discuss, but I argue that there are instances of 1W that cannot be analyzed in this way. They claim that some element must always move to Spec-CP or to Comp when clitics are present, but I claim it is possible for neither movement to happen, since I believe that clitics can lack a host at S-structure.

2.3 Mixed accounts

By a mixed account of SC clitic placement I mean one under which both syntax and phonology play an active role in the eventual linear position of clitics.

Halpern (1992) proposes a mixed account (refined by Percus 1993) that forms the basis of my own. His fundamental claim is this: phonology can move clitics if and only if their prosodic re-

quirements are not satisfied, and it can move them only the minimal distance necessary to satisfy those requirements (cf. Sproat 1988, Marantz 1988, 1989, Sadock 1991, Percus 1993, and others). Halpern dubs the process responsible for this movement Prosodic Inversion (PI), since it inverts the order of a clitic and its host prosodic word. This approach makes the following correct predictions about SC, as he notes. 1) The entire set of second position clitics shows the 1C/1W alternation—there are no idiosyncratic differences among them; it is not obvious that this would follow from a pure phonology approach. 2) In a given sentence, the clitic cluster cannot be split between 1C and 1W positions, and there is no “doubling” of the same clitic in both positions. These predictions follow from the fact that clitics have a unique syntactic position and PI, when applicable, is not optional. 3) There is no allomorphy sensitive to the 1C/1W distinction, since at the point when clitic morphemes are inserted PI has not applied.

Halpern’s particular construal is that PI is a last-resort option for saving otherwise ill-formed structures, i.e. “The surface order of two lexical items reflects the order established by the syntax unless this would lead to an ill-formed surface (prosodic) representation” (p. 23). It is the “result of the mapping between syntactic and prosodic structure; its scope is limited to affecting adjacent elements, and its application makes reference only to prosodic constituency” (p. 2). Thus, clitics can move only the minimum distance required for them to have a valid host, namely one prosodic word; this restriction need not be stated on a rule, but rather is a general property of the phonology. He provides the following formulation, which I adopt verbatim (“ ω ” denotes a phonological word):

- (21) Prosodic adjunction of clitics: For a DCL [directional clitic], X, which must attach to a ω to its left,
- a. if there is a ω , Y, comprised of material which is syntactically immediately to the left of X, then adjoin X to the right of Y.
 - b. else attach X to the righedge of the ω composed of syntactic material immediately to its right. (Halpern 1992: 81)

(22) Sample applications of rules (21a and b) to sentences in (18):

- S-structure* *PF*
- a. [Anina]_ω [drugarica]_ω mu ⇒ [Anina]_ω [[drugarica]_ω mu]_ω
 Ana's girl-friend him
- b. Mu [Anina]_ω [drugarica]_ω ⇒ [[Anina]_ω mu]_ω [drugarica]_ω
 (Prosodic Inversion)

His explanation for clitics later than absolute second position (e.g. (6d and e)) is as follows: “A constituent which is stylistically fronted is separated from the rest of a clause by a (large) prosodic boundary—that is, the fronted constituent is in a separate intonational phrase” (p. 91), the left edge of CP in (17); “A clitic must be contained in the same intonational phrase as its host” (p. 152–153). The latter is a constraint on the prosodic adjunction rule, blocking clause (21a) in some cases, thus triggering clause (21b).

An immediate consequence is that any clitic placement that is not derivable purely in syntactic terms must involve rightward movement over exactly one prosodic word in the phonology.

3 An Argument for Prosodic Movement

I will now argue that phonological re-ordering is crucially required in a full analysis of SC clitic placement, as argued by Halpern and Percus and contra the claims of Progovac, Ćavar and Wilder, etc.

Conceptually, the form of the argument is very simple: the claim is that there are certain clitic placements that are not derivable by the syntax at all, because the string preceding the clitics cannot undergo syntactic movement, but these placements are derivable by phonological movement, since they involve clitics being exactly one PWD from the beginning of a constituent. The details are complex, due to the abundant extraction possibilities afforded by SC. The origins of this argument are in Percus 1993.

The crucial constructions involve sentence-initial PPs that contain prenominal modifiers in the NP object of P, where the preposition is a proclitic, as in (23) and (24).

(23) U veliku je Jovan ušao sobu.
 in big AUX Jovan entered room
 'Jovan entered (the) big room.'

(24) U ovoj je sobi klavir.
 in this AUX room piano
 'In this room is the piano.' (Percus 1993: 2)

If PI is truly part of SC grammar, then we expect to find clitics following the first modifier, since it forms a single PWD together with the procliticized preposition, and this is indeed what we find. The question is whether there is an alternative, pure syntax account of this clitic placement.

Now it is certainly true that prepositional phrases in SC can be interrupted by other material, as in (25).

(25) U veliku Jovan ulazi sobu.
 in big Jovan enters room
 'Jovan enters (the) big room.' (Percus 1993: 2)

Thus, independently of the clitic facts we need a syntactic way to derive this sentence, i.e. to split *u veliku* from *sobu*. There are in principle two ways of doing this: either by fronting the non-constituent *u veliku* and stranding *sobu*, or by extracting *sobu* first, then moving *u veliku*. The latter gains empirical support from the fact that head nouns can be independently shown to extract from their NPs:

(26) Studentkinje dodjoše sve njegove.
 students came all his
 'All of his students came.' (Mišeska Tomić 1993: 52)

While the precise nature of this movement remains obscure, I suggest that it is an instance of XP-movement rather than head movement, where the XP in question might be the NP complement of DP, given a suitably articulated DP structure. From the facts at hand, we cannot determine whether this movement is leftward or rightward, since the remnant constituent itself appears to front after NP extraction.

Thus, if all we had were sentences like (23) and (24), there would be at least one palatable syntactic approach to derive the clitic placement. However, NPs can have multiple modifiers preceding the head noun, and when they do, we find a contrast between clitics and other material regarding where the PP can be split. Specifically, clitics can always appear after the first modifier ((23), (24), (27), (28)), that is after the first PWd, but nonclitics can appear only after the last modifier, that is, immediately preceding the head noun ((23) and (29a) versus (29b and c)).

(27) U ovu **je** veliku sobu Jovan ušao.
 in this AUX big room Jovan entered
 'Jovan entered this big room.'

(28) a. U velikoj **je** sobi klavir.
 in big AUX room piano
 'In the big room is the piano.'

b. U ovoj **je** velikoj sobi klavir.
 this

(29) a. ??U ovu veliku Jovan ulazi sobu.
 in this big Jovan enters room

b. *U ovu Jovan ulazi veliku sobu.

c. ???U ovu Jovan veliku ulazi sobu.

d. ?U ovu **je** veliku Jovan ušao sobu.

(Željko Bošković: p.c.; Ljiljana Progovac: p.c.)

Note that (29c) splits the PP twice and is pretty bad; my account predicts that splitting the PP twice with a clitic as the first separator is good, which is true (29d). (Although my principal informant firmly attests to the distinctions in grammaticality as indicated, what is crucial for my argument is merely that (29a and d) are better than (29b and c).)

Under a theory that includes PI, these facts are exactly what we expect: PI can move clitics to their position following the first PWd when they would otherwise lack a host sentence-initially, but any

other interruption of a PP must be syntactically derived, and the only way the syntax can split a PP is by extracting the NP from its DP complement. In cases with a single modifier, we cannot tell whether syntactic or prosodic movement is involved since they yield the same result, but with multiple modifiers we see a difference. Thus, the prosodic movement account is strongly supported.

In contrast, I claim there is no reasonable analysis of these facts under a pure syntax approach. Given that clitics contrast with non-clitics in their placement options, a pure syntax approach must posit two different kinds of syntactic movement for the two cases and explain why they correlate with different kinds of intervening material. In particular, it is necessary to block nonclitics after an extraction that moves a P+modifier sequence to the left. Getting this contrast requires an arbitrary stipulation under any pure syntax account of the PP paradigm, because of the basic descriptive fact that clitics go where nothing else can: to accomplish this in syntax requires a type of movement for which there can in principle be no independent motivation.

Note that one could not even say that it is the first subconstituent of the NP that can move, taking the preposition along by some sort of prosodic “pied piping.” It is really only the first word that can split off: an Adjective Phrase containing an adjective and a modifier cannot host clitics when more modifiers follow it (30c); again (30a and b) involve NP extraction, followed by fronting of the remnants of the DP:

- (30) a. Izuzetno veliku je Jovan učinio uslugu Petru.
 extremely big AUX Jovan did favor to-Peter
- b. U izuzetno veliku je Jovan ušao sobu.
 in extremely big AUX Jovan entered room
- c. *U izuzetno veliku je Jovan ušao praznu sobu.
 empty
 (Željko Bošković: p. c.)

This makes the process look even more like a PWD-based one and even less syntactic: why should a modified adjective have different extraction properties from an unmodified one?

It ought to be possible to construct the same kind of argument based on other constructions in SC as well. I have come across two paradigms that might serve as a starting point:

The first involves a modified predicate adjective phrase: (31a vs. b) show that only clitics can intervene between the adverb and the adjective, which is expected if *vrlo* cannot extract. If it is replaced with a *wh*-word that *can* extract, other material can more easily intervene: (32b), (33).

(31) a. *Vrlo je visoka Bojanova sestra.*
 very AUX tall Bojan's sister

b. *??Vrlo je Bojanova sestra visoka.*

(32) a. *Koliko tvrdis da je visoka Bojanova sestra?*
 how.much claim that AUX tall Bojan's sister
 'How tall do you claim that Bojan's sister is?'

b. *??Koliko tvrdis da je Bojanova sestra visoka?*

(33) *??Koliko je Bojanova sestra visoka?*

(Željko Bošković: p.c.)

The second involves conjoined NPs with pre-nominal modifiers:

(34) a. *Tvoja su ti ga mama i tvoja sestra kupile.*
 your AUX you it mom and your sister bought
 'It was your mother and your sister that bought it for you.'

b. **Tvoja mama su ti ga i tvoja sestra kupile.*

(Mišeska Tomić 1993: 51–52)

Unfortunately, one of my informants finds (34a) completely bad, but if some speakers get a contrast here it could constitute another instance of the same type of argument.

4 Analysis of obligatory 1W placement

In this section and the next I analyze constructions that do not follow the usual 1C/1W clitic placement alternations. In this section the focus is on predicative constructions, which have been claimed to disallow 1C placement and require 1W placement. Here are Browne's description and examples (also cf. Bennett 1987):

If a clause begins with a verb, or with a form of 'to be' plus a predicate (predicate noun, predicate adjective, participle, adverb, prepositional phrase), the enclitics come after the first word. Here the alternative of putting them after a whole phrase is not open... In this position when an adjective modifies a noun, or an adverb modifies an adjective, the two together form a phrase, and the enclitics, again, must come after the first word of the phrase. (Browne 1975: 118)

- (35) a. **Odličan je student.**
 excellent AUX student
 'He is an excellent student.'
- b. ***Odličan student je.**
- (36) a. **Jako si mi dosadan.**
 very AUX me boring
 'You're very boring (to me).'
- b. ***Jako dosadan si mi.**
- (37) a. **Jako mi je dosadna njegova posljednja knjiga.**
 very me AUX boring his last book
 'His last book is very boring (to me).'
- b. ***Jako dosadna mi je njegova posljednja knjiga.**
- (38) a. **U drugoj su sobi.**
 in other AUX room
 'They're in the other room.'
- b. ***U drugoj sobi su.** (Browne 1975: 118)

Why should multi-word copular predicate phrases not be able to be followed by clitics? Some of these are bad because clitic-final

sentences are often bad (almost always bad unless the sentence contains only one PWd), but since (37b) does not end in a clitic and is still bad, I will assume that Browne's generalization is correct over and above that. Under my theory, we have to say that the adjective phrase in (37) cannot front ahead of the clitics in the syntax; in particular, it cannot front to Spec-CP. If the Adjective Phrase always follows the clitics syntactically, perhaps sitting in a Focus position between Comp and IP, the clitics must move rightward in the phonology to derive a valid sentence, and since I have claimed that they never move more than one PWd in the phonology, the ungrammaticality of (37b) would be explained. Of course, it remains to be argued why fronting of *predicate* AP to Spec-CP is impossible, but it seems plausible to suggest an explanation related to that position's function as Topic: in a copular sentence, the predicate is typically new information, and thus incompatible with Topic position, which houses given information. A pure syntax account would be hard-pressed to explain why *part* of a copular predicate can front but the whole predicate cannot.

5 Analysis of "fortresses" (obligatory 1C placement)

It has been known at least since the work of Browne (1974, 1975) that some 1W placements are not as good as others. Specifically, there is a class of NPs that seem to resist 1W clitic placement within them when clause-initial, in the sense that there is much dialectal and/or inter-speaker variation regarding how good they are (Halpern 1992, Zec 1987, Radanović-Kocić 1988), they may be worse with multiple clitics interrupting them than with a single clitic (Progovac 1993), they are claimed to be much more common in written than in spoken language and in earlier rather than current-day usage (Browne 1975), etc. I annotate such sentences with "%*". I shall follow Halpern in lumping these constructions together under the rubric of "fortresses" (they resist invasion by clitics) and searching for something that they have in common that distinguishes them from uncontroversially good cases of 1W placement.

The set of fortress NPs can be catalogued as follows: multi-word proper names (39), conjoined NPs (40), post-head genitives

(41), and post-head PPs (42). In all cases, the variant with the clitic following the entire initial NP is fine.

- (39) %*Lav je Tolstoj veliki ruski pisac.
Leo AUX Tolstoj great Russian writer
'Leo Tolstoj is a great Russian writer.'
- (40) %*Sestra će i njen muž doći u utorak.
sister will and her husband come in Tuesday
'My sister and her husband will come on Tuesday.'
- (41) %*Prijatelji su moje sestre upravo stigli.
friends have my-GEN sister-GEN just arrived
'My sister's friends have just arrived.'
- (42) %*Studenti su iz Beograda upravo stigli.
students AUX from Beograd just arrived
'Students from Beograd have just arrived.'
- (Halpern 1992: 94–95)

Progovac (1993) suggests a pure syntax account of these constructions. Under such an account, clitics can only appear within an NP if the part that precedes them is syntactically extractable. Thus, she claims this fails to be the case in (39)–(42): at least according to her intuitions, none of these elements independently allows extraction. The data for one of the fortress types is given in (43).

- (43) a. [Roditelji uspešnih studenata] su se
parents successful-GEN students-GEN AUX REFL
razišli.
dispersed
'The parents of the successful students dispersed.'
- b. *Roditelji su se uspešnih studenata razišli.
- c. ?*Roditelji su se razišli uspešnih studenata.
- d. *Ko su se uspešnih studenata razišli?
who (Progovac 1993: 5–6)

For speakers for whom some of (39)–(42) are fine, the corresponding extractions are also fine, as far as I know.

Syntactic inextractability is insufficient under a mixed syntax-phonology approach like my own, however, since PI should be able to put clitics in these places even if no syntactic separation is possible. Extractability could be the reason why people who allow clitics in fortresses do so, but we must still explain what blocks them for those who do not allow them. Therefore, Halpern attempts to account for the degraded nature of these sentences prosodically. Specifically, it would have to be that these constructions have a different prosodic structure from good cases of interrupted constituents, and that this difference blocks the operation of PI or subsequent cliticization. We want a constraint that rules out the structures in (39)–(42), and rules in clear cases of PI, discussed in sections 3 and 4.

Halpern proposes the phrasing principle in (44):

- (44) The left edge of the head of a branching constituent corresponds to the left edge of a prosodic [phonological] phrase. (Halpern 1992: 96)

plus the constraint that PI cannot cross a phonological-phrase boundary. Thus, in (41), *prijatelj* is the head of an NP that branches, since it contains a following genitive NP, so the left edge of this word initiates a phonological-phrase, as shown in (45), where ϕ denotes a phonological phrase. A clitic that originates in Comp, to the left of this NP at S-structure, would then be outside that phonological-phrase after prosodic mapping, and PI would require it to cross that phrase edge if it were to invert with and cliticize to *prijatelj*, which Halpern disallows. In contrast, a good case of 1W placement such as (46) has the ϕ -boundary later, as shown in (47), so PI can apply without crossing it.

- (45) Output of Prosodic Projection for sentence (41):
 ([ϕ = phonological phrase boundary])

su [ϕ prijatelj] moje [ϕ sestre upravo stigli
 AUX friends my-GEN sister-GEN just arrived

(*Prosodic Inversion blocked, sentence starred*)

(46) Moja **je** sestra stigla.
 my AUX sister arrived
 'My sister arrived.'

(47) Output of Prosodic Projection for sentence (46):

a. **je** moja [ϕ sestra stigala

(*Prosodic Inversion allowed:*)

Output of Prosodic Readjustment:

b. [[Moja] ω **je**] ω [ϕ sestra stigala

Halpern's idea suffers from numerous problems. For one thing, examples like (46) are derivable without PI anyway, so this example is actually irrelevant to the proposed constraint. It is also not at all clear that his proposal will extend to cover the various other types of fortresses while allowing cases like (27) (a PP with modifiers) and (37a) (a predicative AP) above, and there are other problems. Nonetheless, I believe that something along these lines is right.

A possible generalization is that PI cannot move clitics across the head noun of an NP, regardless of branching. This would at least unite (40)–(42); something special would have to be said about proper names like (39).

To the extent that we can find a natural prosodic constraint on PI, this supports the mixed approach to clitic placement if an alternative syntactic constraint would be unappealing or unstatable. One intriguing fact that supports this reasoning is the following, noted by Percus (1993): postnominal PP fortresses become better when the PP portion is made heavier—compare (48) with (42) above.

(48) **Studenti su** iz prelepog grada na moru upravo stigli.
 students AUX from beautiful town on sea just arrived
 'The students from the beautiful town by the sea have
 already arrived.' (Percus 1993: 24)

Percus claims that the length of the PP forces a phrasal stress to be placed on *studenti* that is not required in (42), perhaps a sign that *studenti* is phrased separately from the PP in (48) but not in (42), an idea that is corroborated by the fact that (42) improves if a pause is inserted after *studenti*. Getting these facts, if they turn out to be fully general across fortress types, evidently requires a more complex constraint on PI than the ones I have considered. Perhaps the first noun of the NP likes to phrase with following material, but cannot do so if that material is set off due to heaviness. This in turn could be because phonological phrases prefer to be binary branching (Dresher 1994). Whatever the explanation, the fact that the crucial contrasts come from presumably identical structures that differ only in heaviness or pause strongly supports the idea that the constraint must be a prosodically-based one.

6 Conclusions

In conclusion, Halpern's (1992) framework for the treatment of clitic placement receives considerable support. I have shown that his proposals can be extended to cover a substantially wider range of facts in SC than he or others have discussed.

The notion that clitics can be re-ordered with respect to an adjacent word in the way proposed by Halpern is key to understanding constraints on clitic placement. We have seen considerable evidence that this is a phonological process. (One would obviously like to study other instances of prosodic movement to see what generalizations can be made about it.) An important implication of this study bears on the nature of the phonology-syntax interface more generally. The facts of SC were used by Zec and Inkelas (1990) to support their view of this interface as a co-present, non-derivational one. I have shown that the facts do not warrant this type of model: we can explain the 1W/1C alternations in a purely derivational model wherein the syntax has no access to phonological information, and the phonology has only a constrained form of access to the output of the syntactic component.

Serbo-Croatian second position clitic placement is evidently a very complex phenomenon involving sometimes opaque interactions

among several modules of the grammar. In this paper I have striven to clarify the role that the phonology plays in this system.

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Bulgarian Psych Verbs

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Beauty is in the eye of the beholder.
Margaret Wolfe Hungerford
1855-1897

1. Introduction

The syntactic behavior of Bulgarian psych verbs is idiosyncratic: they do not exhibit the fundamental asymmetries as to passivization, binding properties and causativity versus stativity exemplified in the Italian *temere* and *preoccupare* classes (Belletti and Rizzi 1988), the English *fear* and *frighten* classes. Thus the first part of my paper will contain negative results. I will demonstrate that the treatment of these verbs in recent literature (Belletti and Rizzi 1988, Pesetsky 1987 and 1990, Grimshaw 1990, Jackendoff 1990) does not explain the Bulgarian data. Then I will propose a solution to the problem, namely a new semantic structure representation of these verbs. I will argue that they come lexically prelinked not only to different Theme theta-roles (Pesetsky), but to different Experiencer theta-roles as well. Thus they do not violate the stronger version of the UTAH (Baker 1988). I will try to explain the solution with the discourse-oriented nature of Bulgarian syntax.

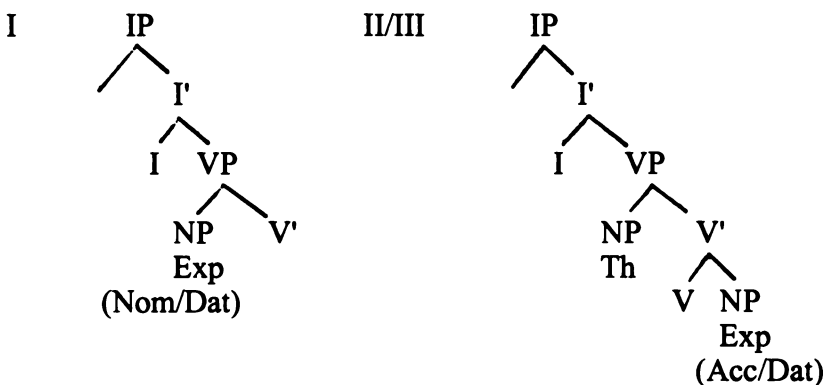
2. Classification

Bulgarian psych verbs can be divided in three classes, much as the Italian classes in Belletti and Rizzi 1988, and as the Russian classes postulated by King (1992). The three classes have the following surface configurations:

- I. Experiencer - Verb - Theme
- II. Theme Verb - Experiencer - (Acc)
- III. Theme - Verb- Experiencer (Dat)

Class III contains only a few verbs, I and II are more numerous. What is interesting, though, is that class I subjects (Experiencer) can sometimes be with the Dative, which draws a very natural parallel between classes I and III.

The D-structure representation of the classes is proposed to be as follows:



The above D-structures are supported by the binding behavior of the verbs discussed in subsections 3.2, 3.3 and by the arbitrary *pro* and passivization facts discussed in 4.2 and 4.3.

3. Binding Properties

3.1 Introductory Remarks. Before introducing Bulgarian binding facts, some remarks about Bulgarian may be useful. Bulgarian is a Slavic language, but it also shares many features with its geographically neighboring Greek and Romanian, being a member of the Balkan *Sprachbund*. It is an SVO language with a rather free word order. It is a *pro*-drop language, i.e., there is a tendency to omit subject pronouns, with various degrees of optionality. Surprisingly, and unlike other Slavic

languages, Bulgarian does not have a rich case system. Nominative, accusative, genitive and dative can be distinguished in the pronominal system though case endings do not appear on nouns. Adjectives agree with nouns in gender and number. Verbs agree with subjects in person and number. There is a rich aspectual system in the syntax and in morphology. Reflexives, as other pronouns, have strong and weak forms. The strong forms *sebe si* can bear emphasis, the weak ones, *se* and *si*, are clitics. The latter distinguish accusative and dative case. The possessive reflexive *svoj* functions as a specifier of a DP and distinguishes gender and number. Bulgarian has three reciprocals: *edin drug*, *sebe si* and *svoj*, though the former is very rarely used. As in Czech (cf. Toman 1991), the reflexives and reciprocals are generalized to all persons.

3.2 Local Anaphora. One of the best known properties of psych verbs is their behavior with respect to anaphora, recently investigated by Giorgi (1984), Pesetsky (1987), Belletti and Rizzi (1988), Cheng (1987). The familiar “flip” in binding, or backward binding, stands for the ability of objects of *preoccupare/frighten* type verbs to bind anaphors within the subject, but not the subject itself. Thus they seem to violate Chomsky’s (1981) Condition A of the Binding Theory which requires an anaphor to be bound within its Governing Category. I will give examples from Italian, English and Chinese exemplifying the phenomenon.

- (1) a. Questi pettegolezzi *su di se* preoccupano Gianni piu
 these gossips about himself worry Gianni more
 di ogni altra cosa
 than anything else
- b. Questi pettegolezzi *su di se* descrivono
 these gossips about himself describe
 Gianni meglio di ogni biografia ufficiale
 Gianni better than any biography official
 (from Belletti and Rizzi 1988)

- (2) a. Pictures of himself_i annoy John_i
 b. The professors like each other's students
 c. Each other's_i students annoy the professors;
 d. *Each other's_i students like the professors;
- (3) a. Ziji_i de chenggong jili le Fangfang_i
 self DE success encourage ASP Fangfang
 "Her own success encouraged Fangfang."
 (Experiencer object, synthetic)
- b. Ziji_i de chenggong shi Fangfang_i hen xingfen
 self DE success make Fangfang very excited
 "Her own success made Fangfang very excited."
 (Experiencer object, periphrastic)
- c. *Ziji_i de fumu danxin Fangfang_i de shengti
 self DE parents worry about Fangfang DE health
 "Her own parents worry about Fangfang's health."
 (Experiencer subject)

We would expect the same binding flip in Bulgarian as well. Indeed, it has been claimed for so many languages that it looks like a candidate for a language universal. Instead, we find a different picture:

- (4) a. *Kljuki za (samija) sebe si_i trevožat Ivan_i
 gossips about himself worry Ivan
 poveče ot vsičko
 more than anything else
- b. *Kljuki za (samija) sebe si_i predstavjat Ivan_i
 gossips about himself represent Ivan
 v loša svetlina
 in bad light
- c. Kljuki za (samija) nego_i trevožat Ivan_i
 gossips about him worry Ivan

poveče ot vsičko
more than anything else

- d. Kljuki za (samija) nego; predstavjat Ivan;
gossips about him represent Ivan
v loša svetlina
in bad light
- (5) a. Ivan_i pravi snimki na sebe si_i
Ivan makes pictures of himself (Agent subject)
- b. Ivan_i haesva snimki na sebe si_i
Ivan likes pictures of himself (Exp. subject)
- c. Snimki na sebe si_i draznjat Ivan;
pictures of himself annoy Ivan (Exp. object)

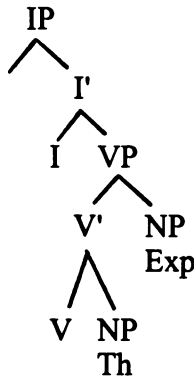
No backward binding is possible with type II and III verbs, as, indeed, it is not possible with all Bulgarian verbs (cf. 4a,b). Sentences (4c,d) attest to the fact that the language resorts to pronouns to remedy the situation.

Let us now try the possessive reflexive:

- (6) a. Ivan običa svojata kotka
Ivan loves his-REFL cat
- b. *Svojata kotka drazni Ivan
his-REFL cat annoys Ivan

Again, backward binding is not possible. Thus we can safely conclude that objects of Bulgarian psych verbs of the *preoccupare-frighten* class do not bind an anaphor contained within the subject.

Belletti and Rizzi (1988) explain the Italian facts by postulating that the Experiencer is always higher than the Theme within the VP at D-structure.

(7) *preoccupare*

This tree will not solve the Bulgarian problem, because we have to explain SIMILARITY, not difference, between classes I and II, and moreover, psych verbs' similar behavior to agentive verbs. But if we assume that Bulgarian psych verbs are like agentive verbs, then we will be forced to accept that the Experiencer can be sometimes projected higher than the Theme (type I) and at other times lower than the Theme (types II and III). This situation is a blatant challenge to the UTAH (Baker 1988) — a principle that we would like to uphold on acquisition grounds. Clearly, a new solution to this problem is needed.

3.3 Long Distance Anaphora. Many long-distance anaphors appear to take only subjects as antecedents. Yet Giorgi (1984) has demonstrated that this generalization does not hold for verbs of the *preoccupare* class in Italian. Grimshaw (1990) asserts and explains essentially the same thing for English. With those verbs, it is the object that acts as antecedent. Giorgi goes on to conclude that the long-distance anaphor *proprio* must be bound by an antecedent that is the most prominent in its thematic domain. In her thematic hierarchy, Experiencer ranks higher than Theme. It follows that the subject *preoccupare* cannot be a proper antecedent for *proprio*, because it is not thematically the most prominent. This prediction is confirmed by the Italian data.

What can we predict about the Bulgarian psych predicates, bearing in mind their local binding behavior? It would certainly be compatible with the observed facts if long distance anaphora does not distinguish among psych verb classes, and between psych verbs and agentive verbs. This is exactly what we find.

- (8) a. Prezidentüt; mrazi tezi_j, kojto poddŭrŭzat
 president hates those who back up
 svojata*_{i/j} kandidatura
 *his/their-REFL candidacy
- b. Tezi_j, kojto poddŭrŭzat svojata*_{i/j} kandidatura,
 those who back up *his/their-REFL candidacy
 mrazjat prezidenta_i
 hate president
- c. Prezidentüt; trevoŭi tezi_j, kojto poddŭrŭzat
 president worries those who back up
 svojata*_{i/j} kandidatura
 *his/their-REFL candidacy
- d. Tezi_j, kojto poddŭrŭzat svojata*_{i/j} kandidatura,
 those who back up *his/their-REFL candidacy
 trevoŭat prezidenta_i
 worry president

It seems that no long-distance anaphora is at all possible with these classes of verbs in Bulgarian. As the investigation of anaphora is well beyond the scope of my topic in this paper, I will have nothing more to say about it here. What is relevant to my analysis, however, was to show that in binding, all types of psych predicates pattern with agentive verbs.

4. Is the Subject of Type II/III Verbs a Deep Subject?

In order to prove that the subject of *preoccupare* type of verbs is NOT a deep but a DERIVED SUBJECT, Belletti and Rizzi (1988)

use five tests: anaphoric cliticization, arbitrary *pro*, causative constructions, infinitival VPs with *fare*, and passivization. All these constructions, they argue, are sensitive to derived subjects. Two of them, namely the causatives and the infinitival VPs, do not work in this way in Bulgarian. I will use the other three to demonstrate that the Bulgarian subjects of psych verbs are indeed all of them DEEP SUBJECTS. First, of course, I will check whether the tests exhibit the same sensitivity in Bulgarian.

4.1 Anaphoric Cliticization. It is well known after Rizzi (1986) that Romance anaphoric clitics cannot be bound by derived subjects, i.e., by subjects of raising, unaccusative and passive verbs. Subjects of *preoccupare* are also found to fall in that category (cf. Belletti and Rizzi 1988):

- (9) a. Gianni si teme
 Gianni himself fears
 b. *Gianni si preoccupa
 Gianni himself worries

The Bulgarian facts are as follows:

- (10) a. Ivan se običa/mrazi
 Ivan self-acc loves/hates
 b. *Ivan se trvoži/drazni
 Ivan self-acc annoys/irritates
 c. Ivan si dosažda/doskučava
 Ivan self-dat bores

Belletti and Rizzi find that Italian Experiencer subject can bind an object anaphoric clitic, but a Theme clitic cannot. They propose that the clitic cannot be bound by a derived subject. As we see, this explanation will not do for Bulgarian: classes II and III

differ now, although both their subjects have the Theme theta-role.

Grimshaw (1990) gives another solution of the Italian asymmetry within her own system of thematic and aspectual prominence of arguments, based on the idea that “the Romance clitics are not arguments but rather are valency reducing morphemes added to verb complexes as by-products of a lexical binding process (p. 152-3). Reflexive cliticization satisfies an external argument by binding, and hence cannot apply to verbs that have no external arguments: psych predicates of the “frighten” class, unaccusative *k* subject raising predicates and passives. The Bulgarian data challenge this prediction.

- (11) Ivan *si* pristigna
 Ivan self-dat arrived
 “Ivan arrived at his place” or “Ivan came back home”
- (12) Ivan *si* izgležda simpatičen
 Ivan self-dat seems sympathetic
 “Ivan seems sympathetic to himself”
- (13) Kūštata *si* beše postroena na hūlma
 the house self-dat was built on the hill
 “The house (to itself) was built on the hill”

Unaccusatives, subject raising and passive verbs are canonical predicates lacking external arguments. Yet in Bulgarian their internal argument can bind anaphoric clitics. Those sentences would argue that Principle A of the Binding Theory can be satisfied at S-structure as well as at D-structure in Bulgarian.

Let us go back to examples (10a) and (10b) now. (10b) is a perfectly grammatical sentence of the subject and *se* are not co-indexed. I shall argue in subsection 6.3 that this particle *se* exhibits mild anaphoric or broad anaphoric meaning and turns the predicate into something like a middle. That is why anaphoric cliticization is possible in (10c) but is blocked in

(10b): the two meanings would be hampered. For the time being, our conclusion should be that this test, borrowed from Italian, cannot tell us much about psych verbs, because there is something else going on with anaphoric cliticization in Bulgarian.

4.2 *Arbitrary pro*. *Arbitrary pro*, unlike anaphoric cliticization, is a test for derived subjects that works in Bulgarian. *pro* is a subject grammatically specified as third person plural, which is obvious from the verbal agreement. Unlike *they*, though, it can refer to a single person, 'somebody'.

- (14) a. *pro* obadixa mi se vküsti
 somebody called me at home
 b. *pro* arestuvaxa Ivan
 somebody arrested Ivan
- (15) a. **pro* pristignaxa u doma
 somebody arrived at home
 b. **pro* bjaxa arestuvani
 somebody was arrested
 c. **pro* storixa mi se ludi
 somebody seemed to-me crazy

Psych verbs again pattern with agentive verbs in this construction:

- (16) a. V taja strana *pro* mrazjat čuzdencite
 in this country people hate foreigners (type I)
 b. V taja strana *pro* draznjat čuzdencite
 in this country people annoy foreigners (type II)
 c. V taja strana *pro* dosaždat na čuzdencite
 in this country people bother foreigners

We thus have evidence against the derived nature of the subjects in all classes.

4.3 Passivization. It is well known that structures with derived, or non-thematic subjects cannot form the passive. Languages do not allow further passivization of passives, or passivization of unaccusatives and raising verbs. Bulgarian is not an exception in this respect:

- (17) a. **Momčeto beše pristignato*
 the boy was arrived
- b. **Momčeto se beše struvano simpatično*
 the boy was seemed sympathetic
 na vsički
 to everybody

At the same time, all three Bulgarian classes of psych verbs passivize readily:

- (18) a. *Toj beše običan/mrazen ot vsički*
 he was loved/hated by everybody
- b. *Toj beše plašen/draznen do smürt*
 he was frightened/bothered to death
- c. *Na nego mu beše dosaždano vseki den*
 to him-dat dat-CL was bored every day

What is more, this passivization cannot be explained away by claiming it is adjectival, as Belletti and Rizzi do for Italian. In fact, Pesetsky claims that even the Italian class I psych verbs passivization is not so straightforward as it seems. In Bulgarian, there is a morphological difference between the past participles and their adjectival counterparts:

- (19) *jadosvan jadosan*
 angered angry
- plašen uplašen*
 frightened frightened (adj.)

In conclusion to this section, I believe we have accumulated evidence that the subjects of all types of psych predicates in Bulgarian are not derived but are DEEP subjects.

5. Stativity vs. Agentivity

There are several linguistic environments which test the stativity versus agentivity of a predicate (cf. Lakoff 1966, Vendler 1967, Dowty 1979, Comrie 1976, Kearns 1991, Van Voorst 1992, among others). I will give them following Pustejovsky (1988). First, states allow modification by durative adverbials. Second, they do not occur as complements to 'force'-type verbs. Fourth, they do not have a habitual interpretation in the present. Applying them to Bulgarian Primary imperfective (PI) and Secondary imperfective (SI) verbs, we find the following:

- (20) a. Marija gneveše^{PI} Ivan ot dva mesaca
 Marija razgnevaše^{SI} Ivan ot dva mesaca
 Marija angered Ivan for two months
- b. *Gnevi^{PI} se/Marija!
 *Razgnevyvaj^{SI} se/Marija!
 anger yourself Marija!
- c. *Ivan nakara Marija da gnevi^{PI} bašta si
 *Ivan nakara Marija da razgnevjava^{SI} bašta si
 Ivan made Marija anger father her
- d. Cenja^{PI} Marija visoko (non-habitual)
 Ocenjavam^{SI} Marija visoko
 I-value Marija highly

The conclusion is clear cut: PIs and SIs among psych verbs are stative. Pinpointing the exact aspectual differences between them lies well outside the scope of my paper, and I will leave it at that.

Another widely accepted linguistic environment designed to indicate non-stativity is Jackendoff's (1983) pseudo-cleft, "What happened was VP." He claims that this can distinguish events from states because "events happened while states do not" (p. 170).

Using it for Bulgarian, we get:

- (21) a. *Sluči se taka, če običax^I Marija
 happened so that I-loved Marija
 "It so happened that I loved Marija."
 b. Sluči se taka, če obiknax^P Marija
 happened so that I-came-to-love Marija
 c. *Sluči se taka, če draznax/dosaždax^I na Marija
 happened so that I-annoyed/bored Marija
 d. Sluči se taka, če razdraznix/dosadix^P na Marija
 happened so that I-came-to-annoy/bore Marija

I will use these examples to discuss perfectivity vs. imperfectivity in psych verbs. At first glance, one could argue that there are instances of psych verbs that satisfy the agentivity requirements, (21b,d). But their agentive interpretation is due to their perfectivity. I have elsewhere discussed the interaction between agentivity/stativity and aspect in psych verbs (Slabakova 1994), so I will not go into details here. Crucially, notice that all types of psych verbs pattern together: primary and secondary imperfectives are stative, perfectives are agentive.

Recall that in English, *fear* and *frighten* are generally believed to be different in the aspectual dimension: *fear* verbs typically denotes states while *frighten* verbs denote events (cf. Grimshaw 1990, Pesetsky 1990, Di Desidero 1994). Thus, the aspectual distinction cuts through the psych predicates both in English and in Bulgarian, but divides them into completely unmatching groups.

A final test will be borrowed from Tenny (1988). In order to show that English psych verbs of the *fear* and *frighten* classes

are ASPECTUALLY different, she uses them in sentences with delimiting expressions. These delimiting expressions can only modify the object but not the subject of psych verbs, be it Experiencer of Theme.

- (22) a. The children feared the movie to the end (state)
 b. *The movie frightened the children to the end (event)
 c. *The children feared the movie to death (state)
 d. The movie frightened the children to death (event)

The delimiting expressions ‘to the end’ and ‘to death’ are actually resultative secondary predicates. “They refer to the central property of the internal argument which is changing and measuring out the event....When the Experiencer is the external argument, the event cannot be delimited by referring to a property of that Experiencer (22a,c). When it is an internal argument, it is quite natural to do so (22b,d)” (p. 504).

Recall that each of the two Bulgarian psych verbs under scrutiny is a representative of class I and class II, i.e., they are *fear* and *frighten* verbs.

- (23) a. Ivan želeaše šokolad do smŭrt
 Ivan desired chocolate to death
 b. Ivan poželavaše šokolad do smŭrt
 Ivan desired chocolate to death
 c. Procesŭt trevožeše Marija do smŭrt
 the trial worried Marija to death
 d. Procesŭt raztervožvaše Marija do smŭrt
 the trial worried Marija to death

The examples in (23) show, first, that Bulgarian psych verbs do not differ between themselves in the same way as English (and Italian, for that matter) ones. Delimiting expressions can modify both the subjects and the objects of these constructions.

The difference between (23a,c) and (23b,d) is still aspectual, but another type of aspect is involved. The difference between the argument structure of classes I and II is due to their different Experiencer theta roles.

In conclusion, Bulgarian psych verbs differ from English and Italian ones not only in binding behavior, but in stativity as well — the other salient characteristic of psych verbs. Thus we are looking for a solution to the problem that will account for the facts but preserve the UTAH at the same time.

6. Two Experiencer Theta Roles

6.1 Arguments from Semantics. Some fine tuning of the semantics of psych verbs is in order now. As we have seen above, morphology, including null causative morphemes, is incapable of distinguishing between classes I and II in stativity versus agentivity. What is more, when all derivative morphology is laid aside, there still remain purely *stative* uses of all three classes to be accounted for.

Pesetsky (1987) uses arguments and examples for Tenny (1963) to claim that Cause and Object of Emotion are in principle distinguishable. As syntactic evidence for that, he gives near-minimal pairs with nominal and adjectival constructions versus verbal constructions, in which the adjective or noun does not assign the Cause theta-role but the Object one, “because the related verb is a lexical causative from this adjective or noun” (p. 317). This line of analysis is elaborated in Pesetsky (1990) with a demonstration that the truth conditions of the sentences are distinct. Examples (24) are from Pesetsky (1987).

- (24) Bill was very angry at the article in the *Times*. (Target)
 The article in the *Times* angered Bill greatly. (Cause)

He claims that “a Cause argument must simply be causally connected to the emotion described in the predicate and borne

by the Experiencer. The Target argument, however is evaluated by the Experiencer as part of what Nissenbaum (1985) calls ‘the emotional episode’” (p. 34). The reader must recall that for this author, Target and Subject Matter are subsumed under the theta-role Object of Emotion.

The co-arguments in a theta grid are closely related with respect to interpretation: they function together to produce the meaning of the sentences as a unit. We cannot change the specifications of one argument without changing the other(s), because the whole must have its equal share of active and passive argument features. This is simply a matter of redistribution. Thus, we cannot claim that the Theme surfacing as subject is a Cause argument, and expect the Experiencer to stay unchanged.

Let us look more closely at the argument Experiencer. I shall claim that this is a cover term for two distinct theta-roles, namely Source of Emotion and Recipient of Emotion, and that their surfacing depends on the discourse structure of the intended sentences. I distinguish those theta-roles on the basis of *who is the Focus of Attention* in the sentence, or who do we want to say something about. Compare:

- (25) Ivan običa / mrzi / nenavižda / prezira / obožava /
 Ivan loves hates detests scorns adores
 harseva Marija
 likes Marija
- (26) Marija dražni / interesuva / vūlnuva / privliča /
 Marija irritates interests excites attracts
 užasjava Ivan
 horrifies Ivan

Note that both groups of verbs are purely stative, with no causative or inchoative additions. The difference between the two is that it is Ivan and the feelings he generates that are in the focus of attention in (25), while in (26) the speaker focuses on

- b. ??*pro* vŭlnuvam Marija
I-excite Marija
- c. ??*pro* draznja Marija
I-annoy Marija
- d. ??*pro* privličam Marija
I-attract Marija

The verb *draznja* ‘annoy’ in (30c) is among the type II verbs that have a morphologically indistinguishable causative counterpart, and the sentence will be interpreted as causative in the majority of contexts. Sentences (30b) and (30d) will be much more acceptable if the subject is not dropped.

6.3 *Is se an Anaphoric Clitic?* If the claim that the two Experiencer theta roles are distinct is justified, then the language must have the means to express both. For example, an emotion like annoyance should be able to be conveyed with the focus of attention on the Source AND on the Cause of Emotion. This is what we have in (31):

- (31) a. Ivan drazni Marija
Ivan annoys Marija (Cause-V-Recipient)
- b. Marija se drazni ot Ivan
Marija self-acc annoys by Ivan
Marija is annoyed by Ivan (Source-V-Object)
- c. Marija e razdranena ot Ivan
Marija is annoyed by Ivan (Source-V-Object)

The difference between (31b) and (31c) is one of length or duration of the feelings, but the three predicates express unquestionably a state. (31c) conveys a state of affairs that has been current for a short time and is not likely to obtain for much longer. With the right context, it can be interpreted as a resultative predicate. (31b), though, depicts a steady characteristic of the relations between the two protagonists. On the surface,

the particle *se* in (31b) looks like an anaphoric clitic, but for all practical purposes is not one. It does not relate the action back to the subject and is thus not synonymous with the same sentences when the anaphoric clitic is substituted with the full anaphor *sebe si*. In fact, such a sentence is strongly ungrammatical:

- (32) *Marija drazni sebe si ot Ivan
 Marija annoys self by Ivan

This is a crucial fact that distinguishes those pseudo anaphoric clitics from the genuine ones in (10), for example. We suggest that the particle *se* turns the predicate into something like a middle construction, which is the canonical way of Bulgarian to turn type II psych verbs into type I ones, or to shift the focus of attention.

But this is not all. Compare:

- (33) a. Marija se trevoži za statijata
 Marija *se* worries about the article
 “Marija is worried about the article”
 b. Statijata trevoži Marija
 the article worries Marija
- (34) a. Marija se drazni ot televizijata
 Marija *se* annoys by the television
 “Marija is annoyed by the television”
 b. Televizijata drazni Marija
 the television annoys Marija

6.4. Implication Structures and Truth Conditions. It is not that the different Experiencer roles are connected with the positions in the sentence: if it was so, our analysis would have been in danger of collapsing. There is a more subtle difference between the (a) and (b) sentences in (33) and (34). In the (a) examples the state is felt to be due much more to the personal charac-

teristics of Marija: she is that sort of person, easily irritated, or worrying about so many things. In the (b) examples Maria cannot help but worry or get irritated, because the provocation coming from outside is so drastic, television is so intolerable. To some extent, the broadly reflexive meaning of *se* is not entirely obliterated, and Marija is jointly the generator and the cause of her own worries or annoyance, the article and television pure subject matter.

In other words, if we want to put the above observations into implication structures, we will get:

- (35) Marija se dražni ot televizijata
 Marija se annoys by the television
 sledovatelno tja e razdražnitelna
 therefore she is irritable
 "Marija gets annoyed by television, therefore she is
 an irritable person." TRUE
- (36) Televizijata dražni Marija, sledovatelno
 the television annoys Marija therefore
 tja e razdražnitelna
 she is irritable
 "Television annoys Marija, therefore she is an
 irritable person" FALSE

6.5 Theta-Grid Linking. We have shown that the Experiencer theta-roles are not only connected to the shift in the focus of attention that comes with the different syntactic positions in the sentence, but that they also lead to different implication structures. Let us now try to envisage how the linking of the theta-grid is accomplished. We cannot make use of Jackendoff's (1990) and Grimshaw's (1990) tiers of thematic and aspectual prominence, which seems a very good account for the English and Italian data. Bulgarian types of psych verbs do not differ in the aspectual dimension. This is why we are left with the alternative to postulate with THEMATIC tiers, with the theta-

roles Source and Cause of Emotion being the prominent ones. Whenever one of them is assigned, it will activate its co-argument on the same tier. Above that in the D-structure will come the aspectual tier, as the case may be. Its additional morphology could be reflected adequately by a biclausal tree structure. Thus the existence of the three classes will be due to lexical pre-association, and will not violate the strict version of the UTAH, which is a very desirable result from an acquisition point of view.

7. The Quirky Dative Case

As mentioned in 2, Source of Emotion subjects of class I verbs can also appear with the dative as Recipient of Emotion objects of class III verbs. We shall assume that in those cases the Source and Recipient are inherently associated with the dative case.

- (37) a. Na mene mi domučnja za Marija
 to me dat-cl become-sad for Marija
 "I miss Marija" (class I)
- b. Na mene mi haresva Marija
 to me dat-cl likes Marija
 "I like Marija"
- (38) a. Marija mi dosažda
 Marija dat-cl bothers
 "Marija bothers me"
- b. Marija mi doskučava
 Marija dat-cl bores
 "Marija bores me"

The implication structures and the truth conditions between (37) and (38) are exactly the same as the ones we claimed for (35) and (36). In other words, the dative case associated with the two types of Experiencer make no differences for the interpretation

of the sentences. Thus class III verbs pattern together with class II verbs in their relation to class I psych verbs. And this should not be surprising, because we have postulated an identical semantic structure for the former as opposed to the latter.

8. Conclusion

I have argued that the syntactic behavior of Bulgarian psych verbs defies analysis in terms of derived Theme subject (Belletti and Rizzi) or in terms of thematic and aspectual prominence (Jackendoff, Grimshaw). On the other hand, redefinition of the Theme theta-role as Cause of Emotion and Object of Emotion (itself a cover term for Target/Subject Matter) (Pesetsky) logically leads to redefinition of the Experiencer theta-roles. It is as if a redistribution of “active” and “passive” features occurs among the co-arguments. The two possible configurations exist on separate thematic tiers, and the verbs are born lexically pre-associated to one to the other of them.

The proposed solution implies that existing classes of psych verbs will not violate the strict version of the UTAH (Baker 1988), which is a very desirable result from an acquisition point of view. At the same time, while not a structure-based solution, it seems the only one capable of accounting for the Bulgarian data. This situation is in keeping with the Lexical Parametrization Hypothesis of Manzini and Wexler (1987). Thus it challenges the view that theta-role labels are best left alone (Levin and Rappaport 1986) and psych verbs’ differences - explained only structurally.

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Evidence from Aphasia for a Subject Topic Slot in Bulgarian

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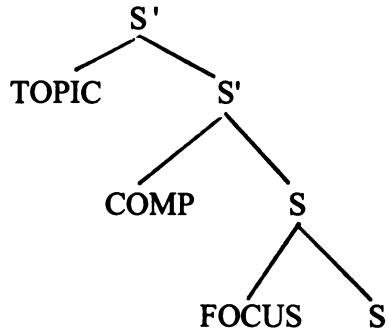
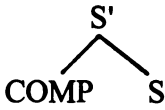
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Introduction

This report is a sequel to a paper given at the 1993 conference of the American Association of Teachers of Russian and East European Languages (AATSEEL) which examined utterances by a single Bulgarian patient with aphasia, or language impairment resulting from brain injury (Vakareliyska 1993a). Although Bulgarian is a null-subject language, in reading test sentences that had no overt subject, the patient frequently either inserted a sentence-initial subject pronoun, or reordered sentence constituents to conform to what would be canonical order for an overt-subject sentence. The paper concluded that such pathological utterances suggested that there may be an underlying subject slot in Bulgarian null-subject sentences, and that the slot may exist in all languages (see also Vakareliyska 1991, 1993b).

During the discussion period following the presentation, the issue was raised by some members of the audience that since Bulgarian constituent order is based on topic/focus considerations, with the topic appearing to the left of the verb in intonationally unmarked sentences, the data might just as easily indicate that the patient was filling an overt pre-verb TOPIC slot, which is postulated for Bulgarian in Rudin's 1986 model (1986: 28):

(1)



The subject of this report is the proposal of an alternative explanation, influenced by this comment, which constitutes a refinement both of my original position, and of Rudin's TOPIC/FOCUS model.

1 Null-Subject Sentences

The term "null-subject sentence" is used here to denote a personal construction containing no lexical subject which is used in environments where the equivalent English sentences would require a subject pronoun:

- (2) \emptyset *Vizdam* *go*.
 see-1PSg him-AccPC¹
 "I see him."

In null-subject languages, the personal marking on the verb makes a subject pronoun semantically superfluous, as the verb ending already supplies the same basic information about the subject that a pronoun does. The use of subject pronouns is generally reserved for emphasizing the subject, or for disambiguation where two or more personal verb forms share a single grammatical ending:²

- (3) *Az go viždam.*
 I him-AccPC see-1PSg
 "I see him." / "It's I who see him."

Although null-subject constructions are often referred to as "pro-drop" sentences, I shall avoid this term because of its implication that a subject was initially present but later was deleted. The data from this study suggest only that an empty subject slot exists in null-subject sentences, without indicating necessarily that such slot is first filled and then emptied.

2 Patient KG

The patient KG, a right-handed 68-year-old former army officer, was born in northern Bulgaria and had lived there for 36 years before moving to Sofia, where he was tested. He had suffered a stroke two years prior to testing, and he displayed some paralysis on the right side, and some left visual field distortion. A CT-scan revealed damage to the parieto-frontal area of the left hemisphere. The patient had been diagnosed with a moderate degree of acoustico-amnesic aphasia, a form of Wernicke's aphasia resulting from injury to the posterior half of the dominant hemisphere of the brain, and characterized by anomia, or word retrieval difficulties.

Spontaneous utterances by the patient in an informal conversational setting revealed difficulty in word retrieval as well as mild problems in understanding oral speech. His speech also exhibited perseverations, or the involuntary repetition of a word, syllable, morpheme or phoneme used earlier in the discourse. Utterances contained paraphasias, i.e., substitutions or metatheses, on the semantic level (e.g., "write" for "read"), the verbal level (e.g., "banana" for "read"), and the phonemic level (e.g., the nonsense syllable "rad" for "read"). The patient's speech also contained neologisms, or "coined" words (e.g., "footgame" for "football"). Of particular interest to the original study was the patient's tendency toward paragrammatisms, or substitutions of one grammatical

morpheme for another of the same class (e.g., use of a Dat case ending where the Acc would be required grammatically). Most notably, spontaneous utterances were often characterized by the inappropriate insertion into sentences of certain "favorite" words that appeared to have emotional significance for him: "daughter" (*dúĚterja*) and "she" (*tja*). KG did in fact have a daughter.

3 Test Results

The speech samples under study were collected from KG's responses to a language test which I had administered to a group of aphasia patients at a neurological clinic in Sofia. The test was part of a larger study of Bulgarian, Russian, and Latvian aphasic speech, and was designed to identify error patterns in pronominal case marking (see Vakareliyska 1990). The Bulgarian test version consisted of 75 transitive sentences, 55 of which happened to be null-subject constructions (for the complete list of test sentences, see Vakareliyska 1991). The patients were presented individually over several sessions with the 75 fill-in sentences. Each sentence was printed in large letters on a separate card, with the Dat and Acc forms of a specific object PC appearing directly above the sentence. The patients were required to read the test sentence aloud and to complete it by selecting orally one of the two specified pronoun forms.

KG's overall test responses contained errors in case, person, number and gender. In addition, over 40% of his responses to the null-subject test sentences were characterized by one of two distinct syntactic anomalies which were always in complementary distribution. The first anomaly was the superfluous, but syntactically acceptable, insertion into pre-verb position of a subject pronoun in responses to 13 of the 55 null-subject test tokens: the "favorite" word *tja* ("she") in 11 instances, and *te* ("they") in 2 instances (underlining indicates correct response):

- (4) *Četa* ___ *pismata*. [*mu* go]
 read-1PSg letters-the [him-DatPC him-AccPC]

KG: *Tja mi* [1PSg for 3PSg *mu*] *pisa* [paraphasia of 3PSgAorImpf verb *pisa* ("wrote"): semantic paraphasia for 1PSg verb *četa*, and/or phonemic paraphasia for noun *pismata*] ... *pismata, pismata*.

The second anomaly, which occurred in a further 13 responses, was the movement of the pronominal clitic into sentence-initial position, with no accompanying insertion of an overt subject pronoun:

- (5) *Staraem* ___ . [*si* se]
 try-1PPl DatReflPC AccReflPC
 VO

KG: *Staraem. *Se staraem.*
 *V *OV

Although this latter construction violates a basic rule of Bulgarian word order, it would have been the grammatically correct word order had a sentence-initial subject been present. Thus it appears that in sentences like (5), KG was treating the sentence as if there were an initial overt subject.

The fact that subject insertion was restricted to null-subject and non-subject-initial sentences indicates that the extraneous subject pronoun was not simply a perseveration from earlier discourse. If that were so, one would expect KG to have inserted a superfluous subject pronoun into all types of sentences, and the subject pronoun probably would not have been confined only to sentence-initial position.

KG's need to insert subject pronouns suggests that he may have been trying to preserve the syntactic "well-formedness" of null-

subject test sentences, at least as he perceived it, by filling sentence-initial position with an all-purpose Nom pronominal form. The inserted pronoun subject seldom agreed with the personal ending on the verb, and it was always a 3rd-person pronoun (either "she" or "they"), which is the personal pronoun with the lowest degree of Empathy (Kuno 1984). These two facts together suggest that KG was using the inserted subject pronoun simply as a pleonastic grammatical marker with no real lexical content.

With regard to movement of the pronominal clitic in sentences like (5), in light of the fact that conscious inversion of the test sentences would require an unusual amount of effort and skill from an aphasic speaker, it appears more likely that KG's sentence-initial placement of the pronominal clitic reflects a subject-initial ordering configuration that exists at an underlying syntactic level, i.e., a level where he appeared to be "stuck".

It is significant that movement of the pronominal clitic into barred sentence-initial position occurred only when KG did not insert his own initial subject pronoun. In contrast, with a single exception which he immediately corrected, in every instance where KG inserted a spurious initial subject pronoun into a response, he moved the object PC from its original post-verb position into grammatical pre-verb position, immediately following the subject. The fact that inserted sentence-initial subject pronouns and sentence-initial placement of the pronominal clitic appear in complementary distribution in the responses suggests that KG felt compelled either to fill this underlying sentence-initial subject slot lexically, or to treat it as filled, by always positioning the pronominal clitic object after the phonologically empty slot.³

4 Issue: Subject vs. Topic

The issue raised by the data presented above is whether the slot that KG insisted on filling, or treated as filled, is a subject slot or a topic slot, and whether such slot is language-specific or universal. As a working definition of the terms "topic" and "subject", I shall adopt

Rudin's broad discourse definition of topic as "what the sentence is about" (usually old information or information assumed to be known to the listener; 1986: 20, 22), as opposed to focus, which is defined as "the most salient information conveyed by the sentence" (1986: 22). In most languages, canonical word order requires that the topic appear leftward in the sentence, with the focus following it. This order may be altered in emphatic sentences, if accompanied by emphatic intonation or other contextual cues.

A subject will be defined here as a sentence constituent, on the syntax level, which governs a verb in the sentence. However, subjects are inherently very high in topicality, because the subject referent usually constitutes given information. Indeed, this explains why sentences with a pronominal subject or a null subject appear to be far more frequent in all languages in normal speech than are sentences with an overt subject noun. Subject pronouns and null subjects (i.e., personal marking on the verb as the equivalent of a subject pronoun) are particularly high in topicality because they generally refer to antecedents that appeared earlier in the discourse or whose referents are otherwise identifiable to the addressee.

Yet subjects can be non-topics and topics can be non-subjects, as illustrated below by (6)(a) and (b), respectively:

- (6) a. *Pristigna* *edin* *lekar.*
 arrived-[3PSgAor] one doctor
 "A doctor arrived." / "There arrived a doctor."
- b. *Bolnija* *pregleda* *edin lekar.*
 the-patient-[Oblique] examined-[3PSgAor] one doctor
 "A doctor examined the patient." / "The patient was
 examined by a doctor."

In fact, overt emphatic subject pronouns, as in (3) above (*az go viždam* - "I see him") also possess some degree of topicality in the

discourse sense, even when in non-TOPIC position, since they always refer to an identity that is given information:

- (7) *Tova kaza tja.*
 that said-[3PSgAor] she
 "She said that." / "That's what she said."

Thus subject pronoun insertion *ipso facto* constitutes topicalization, but on the other hand, topicalization of the subject requires subject pronoun insertion. The issue is, then, whether one of these two functions is fundamental and the other simply a coincidental byproduct (if indeed this can even be determined), and if so, which of the two functions is the primary one. Here again, the aphasia data provide some circumstantial evidence.

5 Analysis

The great majority of the test sentences in this study were simple null-subject canonical constructions like (2) above (*viždam go* - "I see him"), consisting of a verb and an object PC. Thus insertion of a subject pronoun into initial position in these sentences, or movement of the PC to the left of the verb, could be interpreted either as subject-marking or as topic-marking. However, since the words that KG inserted into sentence-initial position were always subject pronouns, and never nouns or object pronouns, which are also high in topicality, a characterization of KG's anomalous constructions as topicalization does not explain this distribution.

The test contained a single sentence with an overt subject in non-TOPIC position:

- (8) *Xaresva li __tozi film? [te ti]*
 pleases [Ptcl] this film-[subject] [you-AccPC you-DatPC]
 "Do you like this film?"

KG: *Tja mi tozi film. Tozi film.*

She me-[DatPC] [for "you-[DatPC]"] this film. This film.

In this instance it appears that as soon as KG saw the initial verb *xaresva*, he did not look further for the subject, but instead inserted his own subject immediately to the left of the verb. The automatic subject-insertion into this sentence might by itself suggest that KG was indeed filling a TOPIC slot rather than a subject slot, and was simply using a subject pronoun as a topic-marker.

It is also noteworthy, however, that KG inserted an initial subject pronoun into several null-subject sentences which contained a *non*-subject NP in TOPIC position, as in the following impersonal expression:

- (9) *Obače ___ e strax. [mi me]*
 but is fear [me-DatPC me-AccPC]
 "But I'm afraid." (impersonal expression)

KG: ... *se strax ... Strax ... obače ... e strax. Će e strax. ĉe e strax. Obače tja me e strax. Me. Mi e strax, da ... obiĉete*, [neologism: 2PP1 *obiĉate*, "you love" + *obače*, "but"]. *Obiāe* [neologism: 3PSg *obiĉa* ("loves") + *obače*, "but"] *e strax. Mi se strax. Mi se sūs strax. Obiĉame* [1PP1 "we love" for *obače*, "but"]. *Da. Obače... mi e strax. Me e strax. Mi.*

"... [ReflAcc] fear ... Fear ... however ... is fear. That it's fear. That it's fear. But **she** me-[Acc] is fear. Me-[Acc]. Me-[Dat] is fear, to ... [neologism: "you love" + "but"]. [Neologism: "loves" + "but"] is fear. Me-[Dat] [ReflAccPC] fear. Me-[Dat] [ReflAccPC] with fear. We love. Yes. But ... me-[Dat] is fear. I'm afraid. Me-[Dat] [specifying incorrect selection of object PC].

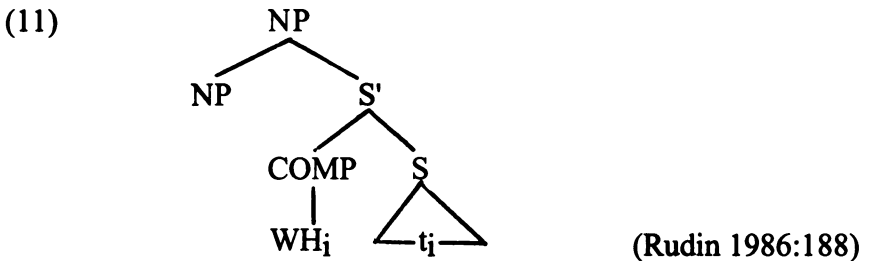
Here the sentence begins with *obače* ("but" or "however"), with the topic direct object PC *me* ("me") in pre-verb TOPIC position. Yet KG still inserted a subject pronoun, not sentence-initially, but in proper sentence order, immediately following *obače*.⁴

The test also included three null-subject sentences which contained an object noun in sentence-initial position. KG inserted a subject pronoun into first position in these sentences as well, despite the presence of the NP.

In the first sentence, an interrogative, the direct object *kakvo* ("what") is sentence-initial, but it is not the topic and is not in TOPIC position according to Rudin's model; as a WH-word, it is in COMP position as a result of WH-movement:

- (10) *Kakvo si _____ kupila?* [si se]
 What [Aux-2PSg] bought-[PPPFemSg][ReflDatPC] [ReflAccPC]
 "What did you buy (for) yourself?"

KG: *Si... Tja si kupila...Tja si kupkúpila* [neologism] *si kúpila... si kúpila... si kúpila...*



Here again, it might be argued that KG's subject-insertion is simply topic insertion, and is motivated by a need to fill the TOPIC slot. In the second object-initial sentence, however, the direct object NP *tezi pari*, which is doubled by the Acc PC *gi*, is indeed the topic of the sentence, and it is in canonical TOPIC position according to Rudin's model:

- (12) *Tezi pari* — *davam* *na bašta*
 these money give-[1PSg] to father
mu. [*gi* *im*]
 him-[[DatPC] them-AccPC them-DatPC
 "This money I'm giving to his father."

KG: *Da, tja --- hmm ... ?Tezi pari im davat na bašta mu..*⁵
 "Yes, she -- hmm .. ?This money they're giving to them to/for
 his father."

Nevertheless, here too KG immediately inserted a subject pronoun, although after some hesitation he retracted it. It could perhaps be argued that KG interpreted the direct object noun as a non-topic because of its inanimacy: after all, inanimates are inherently lower in topicality than animates, and aphasics tend to rely on semantic features such as animacy in their judgments of thematic roles (Heeschan 1980 (German), Smith & Bates 1987 (Serbo-Croatian)). Thus it could be argued that KG found it necessary to supply a topic to fill what he perceived to be an empty TOPIC slot to the left of *tezi pari*.

This is unlikely, however. Studies by Hagiwara & Caplan (1990) and MacWhinney & Osmán-Sági (1991) suggest that aphasic speakers of Japanese, Turkish and Hungarian, all of which are topic-dominant languages like Bulgarian, tend to rely primarily on the canonical word order of their own languages in order to interpret thematic relations in sentences, regardless of animacy, case-marking and other cues. Since according to canonical Bulgarian word order, the object *tezi pari* in (12) is in TOPIC position, on the basis of these two studies there is no reason to expect KG not to have recognize it as the topic. Indeed, since TOPIC position is most commonly filled by a subject, simply because subjects are inherently so high in topicality, one would expect KG to interpret *tezi pari* as the subject and hence not to insert a pronoun at all. Thus it appears more likely

that KG recognized that the sentence-initial inanimate NP *tezi pari* was not the subject, but failed to look to end of the sentence, as normal speakers would, in anticipation of the subject. Instead, he seems to have processed the sentence in linear syntagms, and to have stopped searching for the subject upon encountering the verb, apparently assuming that if a subject did not appear to the left of the verb, there simply was no subject.

The third object-initial test sentence had a clitic-doubled Dat-marked indirect object NP (*na prijateljka i i* - "to her girlfriend", with Dat clitic doubling) in TOPIC position, rather than a direct object like (9) and (11):

- (13) *Na prijateljka i* _____ *dadox*
 to girlfriend-the her-[DatPC] _____ gave
cvetja. [ja i]
 flowers her-[Acc] her-[DatPC]
 "To her girlfriend I gave flowers."

KG: *Cvetjata. Tja napravi* [verbal paraphasia: "sent"-[3PSgAor] for *na + prijateljka i* ... *hm, ja... dojdox* ["I came" for *dadox* ("I gave")] *cvetjata. Ja napravjat cvetja.*
 "The flowers. She did for her ... hm, her-[Acc] ... I came the flowers. Her-[Acc] they will do flowers."

Here too, KG inserted a sentence-initial *tja*, and then, through a paraphasia, he transformed the object *na prijateljka i* into the 3PSg verb *napravi* ("she did"), in order to preserve the well-formedness of the sentence by replacing the original 1PSg verb *dadox* ("I gave"), which failed to agree with the inserted 3PSg subject. Thus in all four sentences, by inserting an initial subject pronoun, KG forced the non-subject topic out of TOPIC position. It appears that he did this because, as he perceived it, the TOPIC position must be filled by a subject. In other words, for KG the pre-verb position was not simply a topic position, but a subject position as well.

As seen earlier, in null-subject test sentences like (2) above, where the discourse topic was indeed a subject, but not an *overt* one, KG marked the subject/topic as such by placing a subject marker in TOPIC position (either overtly, through subject insertion, or by reordering the pronominal clitic as if a topic (of any kind) were occupying that initial slot). This marking could easily be construed as TOPIC insertion. However, where a non-subject already occupied TOPIC position in a test sentence such as (12) or (13), KG had to erase this relationship in order to reestablish the canonical subject-topic relationship. Moreover, where the subject was not the topic and did not appear in TOPIC position, as in (8), *xaresva li tozi film* ("do you like this film?"), he had to erase that relationship as well, by inserting a second subject into TOPIC position. In this sense KG's two complementary strategies can be viewed as (uppercase) "TOPICALIZATION" in that they require an overt NP in the TOPIC slot, but this sort of topicalization is also dependent on the notion of subject, since for KG, the overt topic in canonical TOPIC position must always be a subject.

The analysis above leaves open the issue of whether the proposed subject topic slot is a language-specific slot, or a universal slot existing in all languages on some underlying level. Support for the language-specific position might be found in the previously-mentioned studies of Japanese aphasics by Higawara & Caplan (1990), and of Turkish and Hungarian aphasics in MacWhinney & Osmán-Sági (1991). Both studies show that Wernicke's aphasics like KG tend to preserve intact the canonical word order of their own languages, and that they use canonical word order as a heuristic device to interpret sentences where they have lost access to case-markers, thematic roles and other cues. However, both studies focused on the thematic role of *object* NPs, not subjects. Although canonical word order for objects differed among the three languages, the patients in each group managed not only to keep intact the word order rules for their own languages, but to allow word order rules to override case-marking, animacy, and other cues.

While these studies suggest that object placement follows language-specific rules, and that there is no universal underlying object slot, it is significant that all three languages examined in the studies are subject-initial, like Bulgarian, and, indeed, like most languages.⁶ The existence of a canonical sentence-position subject position in most languages suggests that an underlying slot to the left in the sentence is reserved not just for topics, but specifically for *subject* topics. Thus KG may indeed have been acknowledging an underlying and universal slot, and not necessarily a slot specific to Bulgarian.⁷

6 Conclusion

As shown above, a "topic-only" explanation for KG's complementary anomalous constructions does not account for why the topic inserted into null-subject sentences was consistently a subject pronoun as opposed to any other type of topic. Nor can it account for why non-subject topics were demoted out of TOPIC position and replaced with a subject pronoun. For this reason a tentative compromise solution has been proposed which preserves Rudin's general TOPIC/FOCUS model for Bulgarian word order, but at the same time treats subjects as a specific type of topic which has its own slot in canonical Bulgarian sentences.

The brief statement made here on the relationship between topic and subject in Bulgarian null-subject sentences raises broader issues concerning the relationship between the discourse categories of topic and focus, and the relationship between syntactic TOPIC and discourse topic.⁸ Further testing with KG and other aphasic speakers for subject-insertion patterns on non-topic subjects and sentences with object nouns (as opposed to object PCs) may provide more information not only on the nature of the sentence slot which KG felt compelled to fill, but also on the relationship between topics and subjects, and between syntax and discourse phenomena in general.

Notes

* I would like to express my appreciation to Olga T. Yokoyama and David J. Birnbaum for valuable comments on an earlier version of this paper. Of course, I remain solely responsible for any errors.

¹ The following abbreviations are used throughout this paper: Acc — accusative morphological form, Aor — aorist, Aux — auxiliary; Dat — dative morphological form, Impf — imperfective, Nom — nominative case form, PC — pronominal clitic, PPP — past passive participle, Pf — perfective, Pctl — particle, Refl — reflexive, 1PSg — first person singular, 2PSg — second person singular, 3PSg — third person singular.

² For example, the first and second persons singular share a single verb form in the aorist (Pf *pristigna*/Impf *pristiga*): "you/he-she-it arrived") and imperfect (Impf *pristigaše* /Pf *pristignaše* "you/he-she-it was arriving/arrived").

³ The test results are analyzed in detail in Vakareliyska 1993; see the appendix for transcripts of all responses containing the syntactic anomalies described above.

⁴ KG's omission of the word *obače* in his response to this sentence also resulted in the utterance "*me e strax*". The fact that this fragment was repeated several times, however, suggests that it may have been simply an attempt to complete the sentence and not necessarily an anomalous construction of the type \emptyset *go viždam*.

⁵ This sentence was judged marginally correct by normal native speakers if interpreted as "This money is being given to them for their father".

⁶ Japanese and Turkish have canonical SOV order, like Bulgarian overt-subject sentences with a pronominal clitic object as in (3) above (Hagiwara & Caplan 1990:161, MacWhinney & Osmán-Sági 1991: 237). Hungarian order is SOV for what is describe as "unmarked indefinite objects with no article" (i.e., [-specific] objects), and SVO for objects "with either definite article or a marked indefinite article" (i.e., [+specific objects]) (MacWhinney & Osmán-Sági 1991: 237).

⁷ A hypothesis which incorporates the notions of both topic and subject is not new; similar models have been proposed to account for constructions in other languages which cannot be explained in terms of either topic or subject alone. See, for example, Choi 1986 on the interchangeability of subject-marking and topic-marking particles for subject topics in Korean, proposing that in sentences such as the example below, the particle *nun*, which is generally understood to be a topic marker, is limited in function to marking the general topic of the

sentence, while specific topics are marked by the subject-marker *ka* (Choi 1986: 351):

Khokkili-nun kho-ka kilita.
 Elephant-[topic] nose-[subject] long
 "As for elephants, their noses are long."

A subject/topic model has also been proposed for the distribution of obligatory subject demonstrative pronouns in Hungarian, which are required where the topic of the preceding sentence is neither a subject nor a Dat experiencer (Pléh 1982: 450):

A fiú megismerte a férfit. Ø Odament hozzá.
 The boy recognized the man. went-over to-him

A lány sürgette a fiút. Az megértette miről van szó.
 "The girl hurried the boy. **That** (he, the latter) realized what it was about."

Pléh notes: "[O]n the basis of performance criteria one can conclude that with respect to anaphora identification-interpretation Hungarian is subject prominent in some cases and topic prominent in others, but the role of subject is more expressed." (1982:459).

⁸ An apparent paradox in the discourse topic/focus opposition is illustrated in Bulgarian by the effect of certain so-called "topicalizing" devices, i.e., overt subject pronouns, nonclitic object pronouns, and optional PC doubling of object nouns and non-clitic object pronouns (e.g., *nego go viždam*, "I see *him* [as opposed to someone else]"; on the functions of PC doubling, cf. Vakareliyska 1994). While all three of these devices mark topics, in the sense that all three are pronouns, which *ipso facto* represent referents deemed by the speaker to be given or known to the addressee, their effect is to mark a topic (a pronoun, or, in the case of PC doubling, a topic noun or pronoun) for logical or contrastive emphasis (see Rudin 1986: 23 on the emphatic quality of overt subjects). By emphasizing the topic, however, the "topicalizing" pronominal forms in effect make that topic a *focus* of the sentence, because the emphasis indicates that the identity of the topic referent (most often in implicit or explicit contrast with another possible referent or referents) is new and salient information. The apparent ability of non-clitic pronouns in such constructions to function as both topic (in the general sense, by virtue of their pronominal form) and focus (in a narrower sense, as the new information in the particular sentence) raises the

question of whether the topic/focus relationship is perhaps not a true opposition, but a sliding-scale of varying degrees of topicality vs. focality.

With respect to the relationship between the TOPIC/FOCUS syntax model and the discourse topic/focus opposition, the use of the classic discourse terms "topic" and "focus" in the syntax model to identify specific sentence positions in context-free, intonationally-unmarked sentences is quite different from their use in discourse analysis (see Rudin 1986: 19-24), and this overlap in terminology leaves the parameters of syntax TOPIC/FOCUS *vis-à-vis* discourse topic/focus somewhat blurred. A clearer distinction between the syntax and discourse jurisdictions might perhaps be facilitated by labeling the TOPIC and FOCUS positions in the syntax model with terms that do not carry traditional discourse connotations.

A further issue involving the parameters between syntax and discourse topic/focus is the distinction between sentence constituents and their referents. In light of the fact that referents highest in topicality tend to become part of the context of the discourse, and thus are likely not to be reintroduced into the discourse in any given sentence, the notion of a sentence slot reserved for topic constituents may be somewhat anomalous from a discourse perspective.

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Categorial Status of the Serbo-Croatian "Modal" *da*

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0 Introduction

Rivero (1988, 1991) shows that Bulgarian particle *da* is an INFL element heading a modal projection MP internal to IP. Dobrovie-Sorin (1994) proposes that Rumanian particle *sa* has an intermediate status of a merging CP/IP constituent brought about by functional incorporation of two adjacent functional categories. The main purpose of this paper is to show that the related Serbo-Croatian (SC) conjunction *da* is a complementizer, a head M^0 of a Modal Projection MP intermediate between CP and IP. I will use the variant of the Double CP Hypothesis (Platzak 1986; Diesing 1990) to account for the constructions exemplified in (1a,b) below:

- (1) a. *Da li da Vesna čita knjigu?*
QM MM Vesna reads book
'Should Vesna read a book?'¹
- b. *Pitam se da li da Vesna čita knjigu?*
I-wonder whether MM Vesna reads book
'I wonder whether Vesna should read a book.'

¹ QM stands for "question marker"; MM stands for "modal marker".

The paper will be organized as follows. In the first section I will discuss the distribution of the "modal" *da*. In the second section I will propose the analysis of the relevant structures and give evidence for it. In the third section I will give evidence for the distinction between the two homonymous SC complementizers, the "modal" *da* and the "declarative" *da*.

1 Distribution²

1.1 Matrix clauses

Consider the examples under (2):

- (2) a. *Da Vesna pročita ovu knjigu.*
 MM Vesna reads this book
 'Should Vesna read this book?'
- b. *Da li da Vesna pročita ovu knjigu?*
 QM MM Vesna reads this book
 'Should Vesna read this book?'
- c. *Koju knjigu da Vesna pročita?*
 which book MM Vesna reads
 'Should Vesna read this book?'
- d. **Da Vesna pročita ovu knjigu.*
 MM Vesna reads this book
 'Vesna should read this book.'
- e. *Vesna treba pročitati ovu knjigu.*
 Vesna should to-read this book
 'Vesna should read this book.'

² "Modal" *da* shows up in optatives, secondary imperatives and interrogatives (both matrix and embedded). It is also used in conditional, purpose and resultative clauses. A common semantic core to all these functions seems to be possibility and/or desirability combined with counterfactuality (cf. Rudin 1983: 8-9). In this paper I am concentrating on matrix and embedded interrogatives and *da*-clauses subcategorized for by the verbs of wishing and requesting.

In matrix clauses "modal" *da* is licensed by a [+WH] element realized by the intonation in (2a), by the complementizer *da li* in (2b) and a wh-phrase in (2c). As (2d) shows "modal" *da* cannot be used in a declarative sentence for lack of a proper licenser. Rather, as in (2e) an actual modal verb has to be used in order to get the modal meaning available in (2a-c).

Examples under (3) illustrate further facts about the distribution of the "modal" *da*:

- (3) a. **Da li da je Vesna pročitala ovu knjigu?*
 QM MM is Vesna read this book
 'Should Vesna have read this book?'
- b. **Da li da će Vesna pročitati ovu knjigu?*
 QM MM will Vesna to-read this book

(3a) has a past tense verb and (3b) has a future tense verb. Both are ungrammatical since only a present tense verb (of either aspect) can follow "modal" *da* as shown (1a,b) which have verbs in the imperfective present and (2a,b) which have verbs in the perfective present.

1.2 Embedded clauses

In embedded interrogatives as in (4a) below the question marker *da li* is obligatory (unlike (2a))³ being both subcategorized for by the matrix verb and a licenser of the "modal" *da*:

- (4) a. *Pitam se *(da li) da Vesna čita ovu knjigu.*
 I-wonder whether MM Vesna reads this book
 'I wonder whether Vesna should read this book.'

³ This is not surprising since embedded interrogatives cannot be marked by an interrogative intonational curve unlike root sentences exemplified by (2a).

In embedded sentences "modal" *da* is also licensed and sub-categorized for by the verbs of wishing and requesting as in (5a). (5b,c) involve other verbs belonging to the same class:

- (5) a. *Želim da Vesna čita ovu knjigu.*
I-wish MM Vesna reads this book
'I wish for Vesna to read this book.'
- b. *Hoću da Vesna čita ovu knjigu.*
I-want MM Vesna reads this book
'I want Vesna to read this book.'
- c. *Tražim da Vesna čita ovu knjigu.*
I-demand MM Vesna reads this book
'I demand that Vesna read this book.'

Verbs of saying, like *kazati* or *reći*, both meaning "say," have an alternative interpretation of a request. Both a "declarative" and a "modal" *da* can follow (depending on the interpretation of the matrix verb) as exemplified by the ambiguity of (6a):

- (6) a. *Kaže da Vesna čita ovu knjigu.*
he-says that Vesna reads this book
'He says that Vesna is reading this book.'
or
'He says that Vesna should read this book.'
- b. *Kaže da je Vesna pročitala ovu knjigu.*
he-says that is Vesna read this book
'He says that Vesna has read this book.'

As shown in (6b) if the tense of the embedded sentence is other than the present only the "declarative" interpretation is possible being that "modal" *da*, as mentioned before, may only be followed by a verb in the present tense.

Examples (7a-c) below show facts related to wh-movement. (7a) shows that wh-movement across an embedded interrogative with "modal" *da* is ungrammatical. In contrast (7b) involving

wh-movement across an embedded interrogative without "modal" *da* is grammatical. Finally, (7c) shows that wh-movement across a non-interrogative *da*-clause yields grammatical results as well.⁴

- (7) a. *Što se pitaš da li da Vesna čita?
 what you-wonder whether MM Vesna reads
 'What do you wonder whether Vesna should read?'
 b. Što se pitaš da li Vesna čita?
 what you-wonder whether Vesna reads
 'What do you wonder whether Vesna reads?'
 c. Što želiš da Vesna čita?
 what you-wish MM Vesna reads
 'What do you wish for Vesna to read?'

1.3 Summary and statement of the problem

"Modal" *da* occurs in both matrix and embedded clauses. Its licensors are either [+WH] elements or matrix verbs subcategorizing for "modal" *da*-clauses. "Modal" *da* co-occurs with complementizer *da li*. This fact might lead us to suppose that "modal" *da* is within IP, i.e. an INFL element. However, long-distance wh-movement across embedded interrogatives with "modal" *da* is ungrammatical which would not be expected if modal" *da* were an INFL element. This suggests that "modal" *da* is somehow involved in the islandhood of the embedded interrogatives exemplified by (7a). In the following section I will propose that matrix and embedded interrogatives involving "modal" *da* are Double CP constructions and will give evidence for the complementizer status of the "modal" *da*.

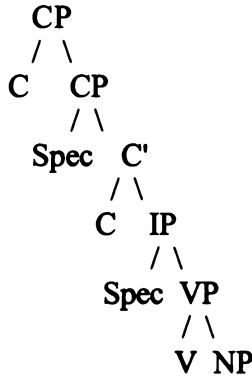
⁴ Presumably, because (7c) like (7b) involves 1CP structures unlike (7a).

2 An analysis

2.1 The proposal

The diagram (8) below is a version of the Double CP Hypothesis discussed by Diesing (1990)⁵ with regard to the structure of Yiddish embedded sentences involving both verb raising or seconding (V2), a complementizer and topicalization.

(8) Double CP Hypothesis (cf. Diesing, 1990:60)

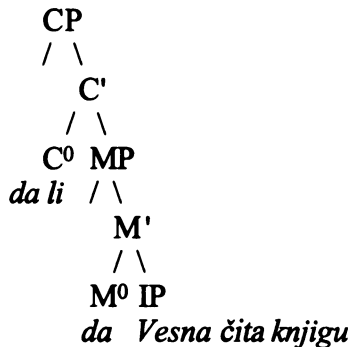


In Diesing's proposal the upper C is filled with a complementizer, the spec of lower CP with a topic, the lower C with a raised verb and so forth. Diesing ultimately rejects this hypothesis for one important reason which, on the contrary, makes me accept it as plausible for Serbo-Croatian structures under discussion. That is, one characteristics of 2CP structures is that they are islands (Holmberg 1986; Diesing 1990). However, Yiddish embedded V2 clauses are not islands to extraction. As shown in (7a) above and in contrast to (7b), embedded interrogatives with "modal" *da* do not allow long-distance wh-extraction, i.e. they are islands.

⁵ Her structure is based on a similar proposal made by Platzak (1986) in his analysis of Icelandic embedded sentences involving verb seconding, a complementizer and topicalization.

Since SC *da* in relevant examples seems to have a modal function I propose to label the projection headed by it a Modal Projection MP which is intermediate between the CP and the IP. Hence, the structure of (1a) and the embedded clause in (1b) is as shown in (9):

(9) Revised Double CP Hypothesis



2.2. *More evidence from wh-movement*

As illustrated in (7a) above wh-extraction from the clauses with two CP nodes (or rather a CP and an MP node in my analysis) is ungrammatical. Serbo-Croatian has another interrogative strategy which I will call the *za* wh-phrase-construction (cf. Progovac (1993)).⁶ In general, this construction is used as an alternative interrogative strategy, in the cases where long-distance wh-

⁶ According to Progovac (1993a:135-138) this is a non-movement interrogative strategy. The wh-phrase is generated in the SPEC of CP position and is preceded by the preposition *za* 'for' which assigns case to it. The *za* wh-phrase complex is coindexed with the resumptive pronoun in the embedded clause.

extraction would create island violations.⁷ Example (10b) below is a grammatical sentence involving *za* wh-phrase-construction corresponding to the ungrammatical example (10a).

- (10) a. **Koju knjigu se pitaš da li da Vesna čita?*
 which book you-wonder whether MM Vesna reads
 'Which book do you wonder whether Vesna should read?'
- b. *Za koju knjigu se pitaš da li da je Vesna čita?*
 for which book you-wonder whether MM it Vesna reads
 'For which book do you wonder whether Vesna should read it?'

In contrast, in (11a) below wh-extraction yields perfect results (being that these sentences are not 2CP structures) while the application of *za* wh-phrase-construction in (11b) is ungrammatical:

- (11) a. *Koju knjigu želiš da Vesna čita?*
 which book you-wish MM Vesna reads
 'Which book do you wish for Vesna to read it?'
- b. **Za koju knjigu želiš da je Vesna čita?*
 for which book you-wish MM it Vesna reads
 'For which book do you wish for Vesna to read it?'

Similarly, in (12a) below long distance wh-movement across the embedded interrogative is fine, while the use of *za* wh-phrase-construction yields ungrammatical results.

- (12) a. *Koju knjigu se pitaš da li Vesna čita?*
 which book you-wonder whether Vesna reads
 'Which book do you wonder whether Vesna has read?'

⁷ I differ here from Progovac (1993a:138) who claims that this is not a last resort strategy and that it can be used almost alternatively with wh-extraction.

- b. *Za koju knjigu se pitaš da li je Vesna čita?
 for which book you-wonder whether it Vesna read
 'For which book do you wonder whether Vesna reads it?'

The contrast between (10) on one hand and (11) and (12) on the other is important. The complementary distribution of *za* wh-phrase-construction in these examples supports the conclusions made in 2.1 with regard to the islandhood of embedded interrogatives with "modal" *da*.⁸

2.3 Further evidence for the complementizer status of the "modal" *da*

2.3.1 *Focusing*. Focusing in Serbo-Croatian seems to have at least two possible landing sites, IP-adjoined position and Spec of CP position (Progovac 1993a). This test gives further support for the positioning of the "modal" *da* as in examples (13a,b) below:

- (13) a. Da li *da* ovu knjigu [_{IP} Vesna čita]?
 QM MM this book Vesna reads
 'Is it this book that Vesna should read?'
 b. Da li ovu knjigu [_{MP} *da* Vesna čita]?
 QM this book MM Vesna reads
 'Is it this book that Vesna should read?'

⁸ Example (2c) above repeated as i) below:

(i) Koju knjigu *da* Vesna procita?
 'Which book should Vesna read?'

presents a problem for this analysis. Why is the short wh-movement across MP licit while the long wh-movement as in (10a) is not? A possible solution might be to say that in (i) the wh-phrase has really moved to the SPEC of MP position. However, the question is then why the SPEC of MP, when empty, is not available as an intermediary landing site for the long movement of a wh-phrase. I will leave this problem open at this point.

(13a) is an example of object fronting to the IP-adjoined position, while (13b) shows the fronting to the SPEC of CP position (i.e. MP in my analysis). Both examples show that "modal" *da* could not be inside IP.

2.3.2 *Word Order*. Facts of word order also support the analysis proposed. The unmarked order of constituents in sentences involving "modal" *da* is as in (14) below:

(14) (*da li*) *da* SUBJECT-NP VP

Other languages with similar modal particles, like Bulgarian and Rumanian among others, do not have this word order. Compare (15a-c) from Bulgarian:

- (15) a. *Iskam decata da pejat.* (from Rudin, 1985)
 I-want children to they-sing
 'I want children to sing.'
- b. *Iskam da pejat decata.*
 I-want to they-sing children
 'I want children to sing.'
- c. **Iskam da decata pejat.*
 I-want MM children they-sing
 'I want children to sing.'

While (15c) is the actual order of practically all my examples so far, i.e. *da* SUBJECT-NP VP, in Bulgarian this word order is ungrammatical. Nothing can separate (except negation and preverbal clitics which belong to the verbal complex, cf. Rudin (1983)) the particle *da* and the VP complex in this language. This is one of the reasons that has lead Rudin (1983, 1985a, 1985b), Rivero (1988, 1991) and Dobrovie-Sorin (1994) among others to propose that the "modal particle" is not a complementizer in the relevant Balkan languages. As for the example (15a) where the subject precedes the particle *da*, this order is possible in Serbo-

Croatian as shown in the similar (16a) below. However, the fronted NP is focused in contrast to the unmarked word order in (16b):

- (16) a. Hoću djeca da pjevaju.
 I-want children MM they-sing
 'It is the children whom I want to sing.'
- b. Hoću da djeca pjevaju.
 I-want MM children they-sing
 'I want children to sing.'

2.3.3 Coordination. Examples in (17) below give evidence from coordination. (17a) shows that declarative complementizer *da* need not be repeated in the second conjunct. This shows that in Serbo-Croatian complementizers can take a conjunction of IPs as a complement. Examples (17b) and (17c) show that modal *da* behaves in this respect just like the declarative complementizer *da*. This fact gives additional evidence for its complementizer status.

- (17) a. Tvrdim da Vesna čita knjigu, a Petar piše zadaću.
 I-claim that Vesna reads book and Petar writes homework
 'I'm claiming that Vesna is reading a book and Petar is writing his homework.'
- b. Da li da Vesna čita knjigu, a Petar piše zadaću?
 QM MM Vesna reads book and Petar writes homework
 'Should Vesna read a book and Petar write his homework?'
- c. Želim da Vesna čita knjigu, a Petar piše zadaću.
 I-wish MM Vesna reads book and Petar writes homework
 'I wish for Vesna to read a book and for Petar to write his homework.'

2.3.4 Cliticization. As is well known, Serbo-Croatian has pronominal and verbal enclitics and the enclitic question/focus

marker *li*. All clitics are strictly second position and subject to clitic movement, and not preverbal as in Macedonian and Bulgarian. It is still an arguable point what is this second position and what forces the movement of clitics into it (see Browne 1974; Čavar and Wilder 1992; Halpern 1992; Progovac 1993c; Taylor 1993 for some views among others). For the purposes of this analysis I will assume only that this position is outside the IP. Whether in an IP-adjoined position as Halpern (1992) proposes or in COMP-adjoined position as Čavar and Wilder (1992) and Progovac (1993c) suggest is not crucial at this point. Consider the examples in (18):

- (18) a. Da li da je [_{IP} Vesna čita]?
 QM MM it Vesna reads
 'Should Vesna read it?'
- b. *Da li je da [_{IP} Vesna čita]?
 QM it MM Vesna reads
 'Should Vesna read it?'
- c. Da li knjigu da mu [_{IP} Vesna čita]?
 QM MM to-him Vesna reads
 'Is it the book that Vesna should read to him?'

(18a,b) show that the pronominal clitic *je* 'it' must follow the "modal" *da*. (18b), where the clitic precedes it, is ungrammatical. It follows from this that "modal" *da* could not be an element inside IP, but rather it is a complementizer. (18c) further confirms this fact and also gives support for the Double CP analysis I have proposed, as does (18a). Namely, in (18c) the clitic is really in the fourth position in the clause rather than the second. However, if we assume that the position of clitics is defined by the most embedded CP (my MP) (cf. Progovac (1993) for a similar assumption in a somewhat different context) and that "modal" *da* is a complementizer, the positioning of the pronominal clitic *mu* "to him" in (18c) ceases to look "irregular".

The following examples involve the question/focus marker *li*.

Serbo-Croatian has another interrogative strategy beside the use of *da li*. *Li* which is itself a clitic (or according to Rivero (1992) bound morpheme) generated in C, induces verb raising, presumably to support the clitic. When *li* is preceded (hosted) by wh-phrases, it is interpreted as a focus and/or dubitative marker as in (19a) below:

- (19) a. Što li Vesna čita?
 what FF Vesna reads
 'What is it that Vesna reads?'
 'What in the world does Vesna read?'
- b. Što li mu Vesna čita?
 what FF to-him Vesna reads
 'What is it that Vesna reads to him?'
- c. Što *li da* mu Vesna čita?
 what FF MM to-him Vesna reads
 'What is it that Vesna should read to him?'
- d. *Što *li mu da* Vesna čita?
 what FF to-him MM Vesna čita

When there are more clitics in a sentence *li* is always the first one in the cluster, presumably because it is the only one base generated in C as shown in (19b) above.

Now, if a sentence has "modal" *da* in it, clitics will follow *da* rather than *li*, see (19c) in contrast to the ungrammatical (19d). This further proves that *da*, as I am proposing, is a complementizer.

2.4. Summary

In this section I have claimed that "modal" *da* in Serbo-Croatian is a complementizer. Consequently, I have proposed that matrix and subordinate interrogative sentences with "modal" *da* have a Double CP structure and have labeled the lower CP as an MP functional projection. Importantly, these constructions are islands

to long-distance wh-movement. Further evidence for the complementizer status of the "modal" *da* comes from: word order which in the unmarked case is *da* SUBJECT-NP VP; from topicalization which in Serbo-Croatian places elements either in adjunction to IP or in the SPEC of CP and hence, "modal" *da* can be both preceded and followed by focused elements; from coordination which shows that "modal" *da* like other complementizers in Serbo-Croatian can take a conjunction of IPs as a complement; from cliticization, which is either IP adjunction or COMP right-adjunction and "modal" *da* is always followed by a clitic as expected.

3 Differentiation between "modal" and "declarative" *da*

I have mentioned in the first section that sentences like (6a) repeated here as (20) below are ambiguous in meaning depending on what interpretation one assigns to the matrix verb:

- (20) Kaže da Vesna čita ovu knjigu.
 he-says that/MM Vesna reads this book
 'He says that Vesna reads/is reading this book.
 'He says that Vesna should read this book.'

The point I want to make here is that the sentence in (20) is represented by two different structures, one in which *da* is a C head of CP and another in which *da* is an M head of MP. Hence, I am proposing that the two *da*'s are really two different, but homonymous categories, one a "declarative" complementizer and the other, a "modal" complementizer. In the rest of this section I will give several arguments to support this claim.

3.1. "Modal" *da*-clauses have replaced infinitives in Serbo-Croatian. As is well known, this replacement has not been complete, however. Actually, the use of infinitivals is still preferred in the Croatian variant in control structures, cf. (21a,b).

- (21) a. *Želim da čitam ovu knjigu.*
 I-wish MM I-read this book
 b. *Želim čitati ovu knjigu.*
 I-want to-read this book
 'I wish to read this book.'

In contrast to (21a,b) the infinitivals are ungrammatical after the verbs taking "declarative" *da*-clauses such as *tvrditi* "claim", cf. (22a,b):

- (22) a. *Tvrdim da čitam ovu knjigu.*
 I-claim that I-read this book
 b. **Tvrdim čitati ovu knjigu.*
 I-claim to-read this book.
 'I claim that I'm reading this book'

3.2. The difference between the two kinds of complement clauses in Serbo-Croatian (those subcategorized for by verbs of wishing and requesting and those selected by verbs of saying) has been discussed by Progovac (1993a, b). She notices a number of differences between clauses introduced by the "declarative" *da* and those introduced by the "modal" *da*. She gives an explanation for this phenomenon in terms of "transparency" of *da* selected by subjunctive-like verbs (verbs of wishing and requesting), i.e. the "modal" *da* and "opacity" of *da* selected by indicative-like verbs (verbs of saying), i.e. "declarative" *da*. She claims that SC *da*-clauses show domain extension with regard to such local dependencies as negative polarity items, cliticization and topicalization. In addition, wh-movement uses different strategies with subjunctive-like complements and indicative-like complements. The "transparency" of such complements is claimed to be related to the tense dependency.

For instance, the domain for negative polarity items seems to extend with "modal" *da*, cf. (23a) but not with the "declarative"

da, cf. (23b) below (all examples are from Progovac's article mentioned above):

- (23) a. Ne želim [da vidim nikoga].
 not I-wish MM I-see no one
 'I do not wish to see anyone.'
 b. *Ne tvrdim [da vidim nikoga].
 not claim that I-see no one
 'I do not claim that I see anyone.'

Further, *za* wh-phrase-construction shows differences in patterning between "modal" *da* and "declarative" *da*, see (24a,b) below:

- (24) a. Za koga Milan misli [da ga Marija voli]?
 for whom Milan thinks that him Marija loves
 'Who does Milan think that Marija loves?'
 b. ?*Za koga Milan želi [da ga Marija voli]?
 for whom Milan wishes MM him Marija loves
 'Who does Milan want Marija to love?'

As (24b) shows "subjunctive-like" complements do not allow this strictly long-distance construction which is taken to demonstrate domain extension according to Progovac (1993a).

Finally, "modal" *da* clauses seem to demonstrate a certain degree of transparency with regard to clitic climbing. Some (quite) marginal clitic climbing seems to be possible in contrast to absolutely ungrammatical cases of clitic climbing across the "declarative" *da*, see the ungrammatical (25a,b) in contrast to perfectly grammatical cases without clitic climbing in (26a,b) below:

- (25) a. ?*Milan ga_i želi [da vidi t_i]
 Milan him wishes MM see
 'Milan wishes to see him.'

- b. *Milan ga_i kaže [da vidi t_i]
 Milan him says that sees
 'Milan says that he (can) see him.'
- (26) a. Milan želi da ga vidi.
 Milan wishes MM him sees
 'Milan wishes to see him.'
- b. Milan kaže da ga vidi.
 Milan says that him sees
 'Milan says that he (can) see him.'

3.3 Browne (1986) also proposes to distinguish between the two kinds of *da*. Beside the fact that "modal" *da* is only compatible with the present tense verb as was mentioned before, he also notices that while both perfective and imperfective aspect are fine with the "modal" *da*, the "declarative" *da* is compatible with imperfective verbal aspect only, see (27a) versus (27b):

- (27) a. *Tvrdim da Vesna pročita knjigu.
 I-claim MM Vesna reads-perf book
 'I claim that Vesna reads a book.'
- b. Tvrdim da Vesna čita knjigu.
 I-claim MM Vesna reads-impf book
 'I claim that Vesna is reading a book.'

3.4. Further evidence for the distinction between "modal" and "declarative" *da* is distributional. "Modal" *da* is in complementary distribution with the complementizer *što* after verbs like *voljeti* "love, like" and *mrziti* "hate", or expressions like *drago mi je* "I am pleased" and certain adjectives like *sretan* "happy", see (28a,b) below:

- (28) a. Volim da Vesna čita dobre knjige.
 I-like MM Vesna reads good books
 'I like Vesna to read good books.'
 ('I like that Vesna is reading good books.')

- b. Volim *što* Vesna čita dobre knjige.
 I-like the fact that Vesna reads good books
 'I like (the fact) that Vesna reads good books.'

(28a) seems to be ambiguous between the non-factual and factual interpretation, although in my judgment the non-factual interpretation is more preferred in this case. (28b) with the complementizer *što* is factual. Being that *što* is [+factual] it is understandable why (29a) where *što* is used after the non-factual verb *željeti* "to wish" is ungrammatical. However, *što* is not synonymous to the "declarative" *da* as the ungrammaticality of (29b) illustrates:

- (29) a. *Želim *što* Vesna čita dobre knjige.
 I-wish the fact that Vesna reads good books
 'I wish for Vesna to read good books.'
- b. *Milan kaže *što* Vesna čita ovu knjigu.
 Milan says the fact that Vesna reads this book
 'Milan says that Vesna is reading this book.'

Hence, after the verbs having no entailments with regard to factuality of their complements, "modal" *da* is used if the complement is intended to be non-factual and *što* is used if the complement is intended to be factual.

3.5 The final bit of evidence for the distinction between the "declarative" and "modal" *da* is found in the examples of co-occurrence of the "modal" and "declarative" *da* as in (30a).

- (30) a. ?Kažem da Petar da ode (a ne Vesna)
 I-say that Petar MM leaves (and not Vesna)
 'I say that Petar should leave (and not Vesna)'
- b. Kažem da Petar treba otići.
 I-say that Petar needs leave
 'I say that Petar should leave.'

- c. *Kažem da da Petar ode.
I-say that MM Petar leaves

(30a) seems marginally acceptable, although (30b) where the modality of *da* is expressed by an actual modal verb is preferable. (30c) where the two *da*'s are immediately adjacent is strongly ungrammatical.

3.5 Summary

In this section I have proposed to distinguish between "modal" and "declarative" *da* in categorial terms. The first is the head of the lower MP and the latter is the head of the higher CP in (9). "Modal" *da*-clauses (MPs) alternate with infinitivals which are ungrammatical after verbs selecting "declarative" clauses (CPs). 'Further, "modal" *da*-clauses show "transparency" (domain extension) with regard to certain local dependencies like negative polarity items and marginally, cliticization. In addition, SC long distance *wh*-strategy (*za wh*-phrase-construction) is ungrammatical with "modal" *da*-clauses which is taken to show their transparency. "Modal" *da* is in complementary distribution with the factual complementizer *što* after verbs having no entailments with regard to factuality of their complements. This both proves its complementizer status and sets it apart from the "declarative" *da* which does not participate in this alternation. Finally, some marginal examples of co-occurrence of the "modal" *da* and the "declarative" *da* support further the claim of their different categorial status.

4 Concluding Remarks

While this proposal remains speculative pending further research, an interesting classification of complementizers in Serbo-Croatian might derive from the analysis proposed as shown in (31):

(31) Classification of SC complementizers

CP	MP
[-declarative] <i>da li</i>	[-factual] <i>da</i>
[+declarative] <i>da</i>	
([+factual] <i>što</i>)	

According to (31), Serbo-Croatian has two classes of complementizers. Interrogative *da li*, "declarative" *da* and possibly factual *što* are heads of CP in (9), while "modal" *da* (and maybe other complementizers) is a head of MP in (9). Some of their distinctive properties have been addressed in the paper although further research remains crucial.

Another interesting aspect of the above proposal for the existence of a Modal Projection between CP and IP in Serbo-Croatian is what it might bring to the typology of languages. Positioning and/or existence of an MP in languages can be viewed in terms of a continuum. Serbo-Croatian represents a language where MP is a projection intermediate between CP and IP. Bulgarian and Spanish (Laka 1990) are languages where MP is a projection of INFL. Finally, English is a language which does not have a functional head M at all, rather modal features are incorporated into Tense.

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SpecAspP and Case Assignment

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1 Introduction

In this paper, I examine the role of aspect in accusative Case assignment in Russian. I propose a syntactico-semantic explanation for the distribution of *pro* objects in Russian and thus for asymmetries in the distribution of objects with perfective and imperfective verbs.

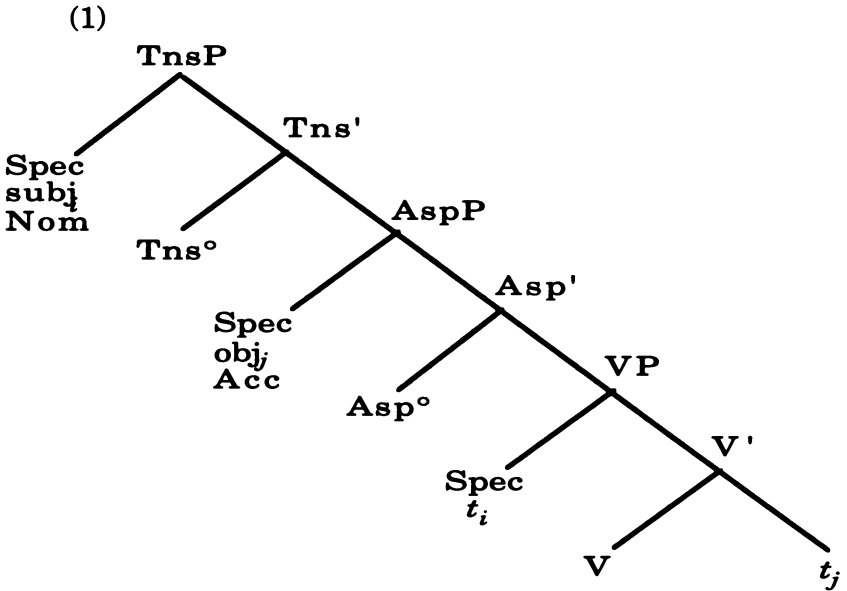
I assume that Russian projects AspP under TnsP and that nominative Case is assigned in SpecTnsP and accusative in SpecAspP. Following Stowell (1993), Tns^o and Asp^o are dyadic predicates. For purposes of semantic interpretation, their argument positions correspond to the Reichenbachian variables S(peech) time, R(eference) time and E(vent) time. S and R are arguments of Tns^o, while R and E are arguments of Asp^o (cf. Giorgi & Pianesi 1991). For Asp^o, when R time and E time coincide, the result is imperfective aspect; when they do not, perfective aspect results (Timberlake 1985). I argue that this (non-)identity of the Reichenbachian variables and hence Asp^o argument slots has syntactic consequences, particularly for the distribution of *pro* objects.

2 Mechanics

2.1. Syntactic Structure

I assume an ordering of functional projections under CP as TnsP--AspP--VP.² In the structure in (1), nominative case is assigned to SpecTnsP, to which the subject moves from its base-generated position in SpecVP. This captures the correlation between the assignment of nominative case and the finiteness of the verb. In a similar fashion, accusative case is assigned to SpecAspP to which the object must move from its base-generated VP-internal position. Although I do not follow

Chomsky (1993) in assigning case in SpecAgr positions, analysis proposed here unifies structural case marking in that both nominative and accusative case are the result of Spec-head relationships among the functional projections.



What evidence is there for postulating another functional projection in the clausal structure? That is, does an independent syntactic category of Asp° exist or is it just an additional feature in the specification of other categories? For example, aspect could be a lexical feature of a verb (i.e., specified in a lexicon) or a feature of the category of Tns° which would imply that the category of Asp° cannot be instantiated independently of Tns°.

The independence of the category Asp° from that of Tns° is widely accepted and as a result has already been proposed in the literature as a separate functional projection (see Tenny 1987, Ouhalla 1991). The separation of tense and aspect can be demonstrated even in English, where Aspect is a morphologically weak category: aspectually different forms

may be used in the same tense, as in (2), or verbs in different tenses can be used with the same aspectual markers, as in (3).

- (2) a. John was reading a book. (Past, ``imperfective")
 b. John (had) read a book. (Past, ``perfective")

- (3) a. John is reading a book. (Present, ``imperfective")
 b. John was reading a book. (Past, ``imperfective")

Another piece of evidence for Asp° separate from Tns° comes from Russian 'adverbial gerunds', i.e., 'deepričastie'. Russian adverbial gerunds have two aspectual forms, perfective and imperfective, but have no tense specification.

- (4) a. Ona vyšla rydaja^I.
 'She went out sobbing.'
 b. Ona vyšla zarydav^P
 'She went out having sobbed'

Perhaps, one can think of verbal aspect as a lexical feature of a verb. However, the existence of biaspectual verbs in Russian, i.e., verbs whose aspect is only determined by the context of a sentence, suggests that the lexical semantics of verbs is independent of the grammatical category of aspect, as shown in (5). The verb in (5a) is interpreted as imperfective, while the same form in (5b) is interpreted as perfective.

- (5) a. Moj drug vseгда šokiroval menja svoej maneroj odevat'sja.
 'My friend always shocked me by his way of dressing.'
 b. Moj drug včera šokiroval menja svoim nekorrektnym otzvyvom.
 'My friend yesterday shocked me by his tactless opinion.'

Moreover, some Russian passive sentences show independence of aspect between the auxiliary and the lexical verb which has its own aspectual form, as in (6), in particular (6b and d). The auxiliary verb only reflects tense and aspect (plus agreement with subject) and has no lexical meaning, i.e., it only realizes grammatical meaning within a sentence.

- (6) a. On byl izbit^P GeBešnikami (ne raz).
 'He was beaten up by GBists.' (agents of the KGB)
- b. On byval^I izbit^P GeBešnikami (ne raz).
 'He was beaten up by GBists.'
- c. On byl bit^I GeBešnikami (ne raz).
 'He was beaten by GBists.'
- d. On byval^I bit^I GeBesnikami (ne raz).
 'He was beaten ny GBists'

Thus, I assume here that the grammatical category of aspect is projected as an independent functional category.

2.2 Indexing

An important aspect of the analysis presented here is the treatment of Tns° and Asp° as predicates with argument structures. The arguments of Tns° correspond to the Reichenbachian variables S (speech time) and R (reference time), while those of Asp° correspond to R (reference time) and E (event time) (section 2.2.1).

As with lexical predicates, e.g., verbs, the arguments of Tns° and Asp° must be satisfied by indexation with maximal projections in their complement and Specifier positions. This process is referred to as Selectional indexing (section 2.2.2). In addition, the arguments of Tns° and Asp° are indexed with respect to one another in accordance to their semantic interpretation. This is referred to as Binding indexing and is

similar to the indexing used in the formation of operator chains (section 2.2.3).³

2.2.1 Reichenbach's Variables. Here, I use Reichenbach's (1947) system of temporal and aspectual relations. In addition to the S(peech) time and the E(vent) time familiar from traditional analyses of tense, Reichenbach adds R(eference) time, a somewhat problematic notion. Reichenbach describes the system as follows:⁴

“The position of R relative to S is indicated by the words ‘past’, ‘present’, and ‘future’. The position of E relative to R is indicated by the words ‘anterior’, ‘simple’, and ‘posterior’, the word ‘simple’ being used for the coincidence of R and E.” (Reichenbach 1947:297)

Thus, in Reichenbach's interpretation, the relations between R and S reflect tense itself, and those between E and R, secondary tense imposed on the primary one. In particular, R being identical to S ($R=S$) indicates present tense; R preceding S ($R>S$) indicates past tense; and R following S ($R<S$) indicates future tense. Although aspect was not explicitly taken into account by Reichenbach in his model, it is possible to interpret E and R as having a different relationship than S and R, namely that of aspect. Aspect as a grammatical category of a verb is distinguished from the compositional aspectuality of a sentence which takes into account not only verbal categories but also definiteness and quantificational properties of DPs and clausal modifiers (e.g., adverbials) (Verkuyl 1993). Further, aspect as a grammatical category of the verb can be distinguished from the aspectual semantics of the verb, i.e., the aspectual classes of Vendler (1967) and Dowty (1979).

Here I am concerned with the morphological category of Aspect, and do not touch on the aspectual semantics, i.e., the event structure of verbal predicates (Pustejovsky 1991).

The relationship of R and E as aspect is interpreted as follows: in the imperfective these intervals not simply coincide, but R is inside E; in the perfective these intervals not only do not coincide, but R is outside E. In essence, this is a traditional view of aspect according to which aspect refers to the point of view the speaker expresses with respect to the event which the VP denotes: the speaker either views the event from outside as a whole or from the inside, ignoring beginning and end points.⁵ Thus, when R coincides with E ($R=E$), imperfective aspect results, while when R and E do not coincide ($R\neq E$), perfective aspect results.

This interpretation allows the three Reichenbachian variables, S, R, and E, to be represented as two predicates which correspond to the relationship between S and R and that between R and E, illustrated by the Russian paradigm in (7).

(7)	<u>Past Imperfective</u> čital 'was reading' $R>S, R=E (R,E>S)$	<u>Past Perfective</u> pročitat 'read' $R>S, R\neq E$
	<u>Future Imperfective</u> budet čitat' 'will read' $R<S, R=E (R,E<S)$	<u>Future Perfective</u> procitaet 'will read(through)' $R<S, R\neq E$
	<u>Present (Imperfective)</u> čitaet 'is reading' $R=S, R=E (R=S=E)$	

2.2.2 Subindexation: Selection. Following current work in the principles and parameters framework (Pollock 1989; Stowell 1993; Higginbotham 1985; Hornstein 1990; Gueron and Hoekstra 1988), I assume that all semantically non-empty heads have argument grids whose positions must be discharged via linking or binding. First consider a standard lexical head. In addition to its theta arguments, the argument grid of a lexical head contains a special non-thematic argument which

serves as the denotational variable of the category. For example, the lexical specification of the verb 'read' contains the structure in (8).

(8) read
 <e, (1,2)>

In this representation, 'e' is a denotational variable (i.e., the event of reading) and (1,2) represent the theta grid. Linking of the elements of the argument structure to maximal projections is represented by subindexation of a (theta-) argument of a predicate and the denotational variable of the complement maximal projections. This is referred to as selectional indexing. Thus, the phrase 'read a book' involves the structure in (9).

(9) read a book
 <e, (1,2_i)> <x_i, (...)>

In (9), x_i is the denotational variable of the head of the DP 'book' with an unspecified argument structure. In the case of lexical categories, selectional indexing represents discharging of the Theta-potential of the lexical category.

Next consider the selectional binding of the arguments of Tns° and Asp°. In the case of functional categories, the subindexation represents a discharging of grammatical potential and is thus analagous, but not identical, to the theta-discharging of lexical items.

Aspect in its most general sense is a structuring of the relationship between a speech time and event time; in Reichenbach's system, this structuring is accomplished by R which mediates the relation of S to E. This is syntactically represented by a mediating projection AspP, situated between TnsP and VP. Asp° is a purely relational predicate with its own argument-grid. Its complement is its internal argument and its Specifier is its external argument. It is important to note that R in Asp° is a dual item: it is the external argument of Asp°

and Asp°'s denotational argument. This dual role allows selection and binding to be kept separate. This structure is represented as in (10a). The same basic structure is assigned to Tns°, as shown in (10b) (cf., Zwarts 1992; Adger 1993).

- (10) a. Asp b. Tns
 <r,(E)> <s,(R)>

AspP is the internal argument of Tns°, and VP, the internal argument of Asp°. Each predicate indexes its internal argument slot with the denotational argument of its complement, as in (11).⁶

- (11) T Asp VP
 < s, (R_i)> < r_i, (E_j)> < e_j, (1,2)>

2.2.3 Superindexation: Binding. Developing Stowell's (1993) ideas, I assume that for semantic interpretation, Tns° is a dyadic predicate of temporal ordering. The temporal semantics is (partially) encoded by superindexation: simultaneity is conveyed by co-superindexation of arguments, non-simultaneity by contra-superindexation.

Now we have a formal representation for temporal chains (Gueron and Hoekstra 1988). With the introduction of AspP, temporal chains consist of two subchains: a tense subchain and an aspectual subchain. That is, the temporal chain is formed by links between Tns° and Asp° and between Asp° and V° (see Adger, 1993).

The chain binding relations are formally represented by superindexation. The simplest case is shown in (12c) where all arguments are co-superindexed, i.e., all three Reichenbachian points coincide (S=R=E). This structure represents, for example, a present progressive tense in English, as in (12a), or a present imperfective in Russian, as in (12b) which is a gloss of (12a).

- (12) a. I am giving a talk to you about AspP.
 b. Ja čitaju^I vam doklad ob AspP.
 c. OP_{tns} T Asp VP
 S^i < s^i (R^i) > < r^i (E^i) > < e^i , (1,2) >

Now consider a Tns-Aspectual chain in a sentence with a past perfective verb, as in (13). In this chain, S and R are contra-superindexed, indicating non-present tense. R and E are also contraindexed, in this case to indicate perfective aspect.

- (13) a. On napisal^P pis'mo.
 'He wrote a letter.'
 b. OP_{tns} T° Asp° VP
 S^j < s^j (R^i) > < r^i (E^k) > < e^k (1,2) >

The superindexation in the pairs < s (R) > and < r (E) > means different things.⁷ For Tns°, co-superindexation is interpreted as present tense and contra-superindexation as non-present; further specification is supplied by the Tns operator in CP (Stowell 1982, 1993). In contrast, for Asp° co-superindexation is interpreted as imperfective aspect, while contra-superindexation yields perfective aspect.

3 Empirical Consequences

3.1 Transitives

Consider the licensing of the arguments of Tns° and Asp°. Exactly like lexical predicates must discharge their Θ -potential, Tns° and Asp° must discharge their grammatical potential, represented here as subindexation. Assigning a subindex to a complement is accomplished trivially. However, the case of the external positions is not as simple. The external position of Tns°, SpecTnsP, is traditionally reserved for Nominative Case assignment. So, assigning the selectional index of the external argument slot to the DP in SpecTnsP correlates with the assignment of nominative case to that DP. Similarly, SpecAspP

is the position in which abstract Accusative Case is assigned to the object.

Consider the contrast in (14). The imperfective verb in (14a) can occur without an accusative direct object. However, a similar perfective verb cannot occur without an object, as seen in (14b).

- (14) a. On pisa^I.
 `He was writing.'
- b. *On napisa^P.
 `*He wrote (down).'

3.1.1 Imperfectives and Weak Discharging. First consider (14a). The internal argument slot of Asp^o is satisfied by the VP complement. However, there is no object to move to SpecAspP and satisfy the external argument of Asp^o. So, why does the absence of an object in (14a) not result in ungrammaticality? I suggest that in the imperfective aspectual chain of (14a), the external argument of Asp^o is discharged indirectly by the verb through coindexation of the external and internal arguments of Asp^o. This structure is shown in (15). I refer to this as 'weak discharging'.

- (15) Asp V
 <r^k, (E^k_i)> <e_i, (...)>

So, in the argument-grid of Asp^o, a link is established between the two arguments via co-superindexation and, thus, one of them may be licensed through the other. For example, assume that the internal argument is licensed overtly, i.e., there is a maximal projection in the complement position. This maximal projection satisfies the subindex of the internal argument slot. The external argument remains to be licensed. Normally, this is accomplished by indexation with a maximal projection in the Specifier position, as in (16).⁸

- (16) Asp V
 < $r_j, (E_i)$ > < $e_i, (...)$ >
 DP_j

However, if the internal and external argument positions are co-superindexed, then the index from the internal argument can discharge the index of the external argument via the superindexed chain, as was seen in (15).⁹

To return to the contrast in (14), as a result of the availability of weak discharging with imperfective verbs, the object of imperfectives is optional and can be arbitrary small *pro*.

Since Rizzi (1986), null objects have been a widely discussed topic. Here I only consider the formal licensing of null objects. I set aside the recoverability conditions for object *pro*; so, the contrast between the imperfective in (17a) and that in (17b) is irrelevant for our present purposes.¹⁰

- (17) a. On čitaet^I.
 `He reads.'
 b. *On uvažает^I.
 `*He respects.'

Rizzi (1986) argues that Italian null objects are represented syntactically since they participate in such syntactic processes as control and binding, as in (18a) and (19a). In contrast, English null objects are semantically implicit objects and are not represented syntactically, so they are not visible in syntax, as in (18c) and (19c).¹¹ As can be seen from (18b) and (19b), Russian patterns with Italian. In Russian, the null object occupies a syntactic position and therefore is visible for control and binding.

- (18) a. Il capo può costringere *pro-arb*; a [PRO_i lavorare di piu].
(Italian)
- b. Šef možet zastavit' *pro-arb*; [PRO_i rabotat' bol'še] (Russ.)
- c. *The boss can force [PRO to work harder]
- (19) a. La buona musica riconcilia *pro-arb*; con se stessi_i.
(Italian)
- b. Xorošaja muzyka primirjaet *pro-arb*; s samim soboj_i.(R.)
- c. *Good music reconciles with oneself.

I propose that the distinctive property of Russian, Italian, and other languages allowing a syntactically active object *pro* (as opposed to English and other languages which do not allow such an object *pro*) is the interaction of AspP with the *pro-arb* object.¹² In particular, in Russian, object *pro-arb* is caseless. As such, it cannot move to SpecAspP for accusative case and remains in the VP, unlike other objects. However, even with transitive verbs with *pro-arb* objects, the external argument of Asp° needs to be discharged. With imperfective verbs, this is accomplished via weak discharging through co-super-indexation of R and E. However, as we will see, this option is not available with perfective verbs: the object must move to SpecAspP where it will be assigned accusative case. Since object *pro-arb* is caseless, it cannot move to this position, and hence perfective verbs cannot occur with *pro-arb* objects.

3.1.2 *Perfectives.* Why does the perfective transitive verb in (14b), in contrast to the imperfective in (14a), not tolerate the absence of an object? The Tense-Aspectual chain for (14b) is shown in (20).

$$(20) \quad * \quad \text{Asp} \quad \text{V} \\ < r^j, E^k_m > < e_m, (...) >$$

While Asp°'s internal argument is discharged by the VP, the external argument of Asp° is not discharged in (20) because there is no object which has raised to SpecAspP to check Case.

In the aspectual chain in (20), the external argument of Asp° cannot be weakly discharged, unlike with the imperfective verbs (section 3.1.1), because there is neither an object in SpecAspP nor coindexation between the two arguments of Asp° in the perfective.

So, why is the sentence in (21b) possible and grammatical if it is used as an answer to the question in (21a)?

- (21) a. On napisal^P pis'mo materi?
 ‘He has written a letter to his mother?’
 b. Da, (on) napisal^P.
 ‘Yes, he has written (it).’

In (21b) the null object is not an arbitrary, but referential small *pro* (ellipsis), i.e., it is a “strong” null pronoun. As such, it needs case and raises to SpecAspP , where it satisfies the selectional requirements of the external argument of Asp° . That is, referential *pro* behaves identically to an overt pronoun, the difference being that the distribution of referential *pro* in Russian is governed by specific discourse factors which will not concern us here.

3.2 Intransitives

Next consider the analysis of intransitive verbs. There are two main issues concerning intransitives. The first is how the external arguments of Asp° and Tns° are licensed. The second is how unergatives and unaccusatives are projected into the phrase structure.

3.2.1 *SpecAspP*. Remember that with transitive verbs, the object moves to SpecAspP where it saturates the external argument, while the subject moves to SpecTnsP . With an intransitive verb, whether unaccusative or unergative, the external argument positions of both Asp° and Tns° must still be

licensed. This is accomplished by having the single argument of an intransitive move first to SpecAspP and then SpecTnsP, as in (22).

$$(22) \left[{}_{TnsP} \text{Subj}_i \left[{}_{Tns'} T^\circ \left[{}_{AspP} t_i \left[{}_{Asp'} Asp^\circ \left[{}_{VP} \dots t_i \dots \right] \right] \right] \right] \right]$$

With intransitives, the DP must receive nominative case from SpecTnsP, not accusative case from SpecAspP. Consider the following possibility. As the verbal head moves through the functional head positions, it specifies what cases will be assigned. So, a transitive verb licenses case assignment in both SpecAspP and SpecTnsP, while an intransitive verb licenses case solely in SpecTnsP. This is similar to the approach taken by Chomsky (1993) in which transitive verbs project two Agr^o positions, while intransitive verbs project only one.

Another issue concerning the intransitive argument saturating the external argument of both Asp^o and Tns^o is the behavior of imperfectives. Remember that imperfectives can weakly license the external argument of Asp^o by co-superindexation of R and E. This suggests that in imperfective intransitives, the single argument can move directly to SpecTnsP, without moving first to SpecAspP, although there is nothing preventing it from moving through both Specifiers. This option is not available in perfective intransitives which require a DP to appear in SpecAspP to saturate the subindex of the external argument. This difference between imperfective and perfective intransitives potentially has syntactic consequences. One possible realm of application is the licensing of "quasi-arguments". There is a difference in the distribution of locatives with imperfective and perfective verbs (Fowler and Yadroff 1993, Adger 1993), as demonstrated in (23) and (24).

- (23) a. On prygal^I včera.
 'He was jumping yesterday.'
 (location may be generic)

- b. *On prygnul^P včera.
 'He jumped yesterday.'
 (locative pro may not be generic, only elliptical)

- (24) a. On plaval^I včera.
 'He was swimming yesterday.'
 (locative pro may be generic)
- b. *On proplaval/splaval/otplaval^P včera.
 'He swam (past/by ...) yesterday.' (only elliptical)

However, this contrast may have a semantic explanation since the affixes have additional meanings. For example, the suffix *-nu-* in (23) has a semelfactive meaning, and some claim that it is this quantificational meaning which results in location and time being specified, and hence not generic. (24) involves a different perfectivizing strategy, although a similar semantic explanation might be explored here as well.

3.2.2 The VP Projection. ¹³ Next consider the projection of the arguments within the VP. The co-superindexation of the internal and external arguments in Tns° and Asp° could weakly license only the external argument positions because the internal argument had to be present for independent reasons. However, consider the internal and external arguments of the verb. Co-superindexation should be allowed to weakly license either the external or internal argument position. When the external argument is weakly licensed, i.e., when no DP appears in SpecVP, the result is an unaccusative verb. When the internal argument position is weakly licensed, i.e., when no DP is sister to V°, the result is an unergative verb. These structures are shown in (25).

- | | |
|---|---|
| (25) a. Unaccusative | b. Unergative |
| <e, (1 ⁱ , 2 ^{i_j)>} | <e, (1 ⁱ , 2 ⁱ)> |
| DP _j | DP _j |

Which option is taken must be a property of individual verbs. For example, an unaccusative verb must not be allowed to project its argument into SpecVP. How this should be accomplished requires further investigation.¹⁴

3.3 Projections without AspP

The assumption that Asp° checks abstract Accusative case explains why nouns and adjectives¹⁵ do not assign Accusative case to their complements: they lack an Asp° projection.¹⁶

If my analysis of gerunds as projecting AspP but not TnsP is on the right track, we predict that in deverbal nominals which possess neither Tns° nor Asp° projections, imperfective gerunds should be possible because they do not need to be part of a temporal chain bound from outside. In contrast, the perfective gerunds with nominals are predicted to be ungrammatical because they must be bound from outside by the matrix Tns° predicate via a temporal chain, but the Tns projection is absent in nominals.

As it turns out, this prediction is borne out, as seen in (26) and (27).¹⁷

- (26) a. čtenie knigi, ne listaja^I stranic
 `reading of the book without turning over the pages of
 b.*čtenie knigi, ne perelistav^P stranic
 `reading of the paper without having turned over
 the pages of

- (27) a. postuplenie v universitet, ne sprašivaja^I soglasija
 roditeljev
 `entering the university without asking for the
 consent of the parents'
 b.*postuplenie v universitet, ne sprosiv^P soglasija
 roditeljev
 `entering the university without having waited for
 the consent of the parents'

The argument goes as follows. Abstracting away from the morphological head, AspP is the highest projection in a gerund,

as was suggested in (4). There is no TnsP. As such, the external argument of Asp° cannot be bound by any higher projection within the gerund clause. But it cannot be left unbound at LF, because it will not be interpreted, violating the principle of Full Interpretation. There are two possible solutions to this. First, binding may occur from outside, i.e., from the matrix clause (but not from NP, as in (26) and (27)). Second, recall the role of co-superindexation with imperfectives and contra-superindexation with perfectives: under coindexation we have a link in Asp°, under contra-indexation, we have no such link. Establishing a link, the co-superindexation of the external and internal arguments of Asp° gives rise to weak binding, an analogue of weak discharging.

Now we can explain why the sentences in (26a) and (27a) are acceptable, but those in (26b) and (27b) are not. Under contra-super-indexation with perfective gerunds, the external argument of the gerund Asp° is left unbound within the gerund clause and therefore must be bound from outside through a temporal chain. But an NP headed by a deverbal nominal does not contain functional projections of Tns° and Asp° and, thus, has no temporal chain. Therefore, the external argument of the gerund Asp° cannot be bound from outside, as it is within NP.

With imperfective gerunds, under co-superindexation, the external argument of the gerund Asp° is weakly bound by the internal argument and therefore doesn't need to be bound from outside. Thus, an imperfective gerund can be left without a temporal chain, but the nominal phrases in (26a) and (27a) remain acceptable.

4 Conclusion

To conclude, I propose that the relationships between the Reichenbachian variables S(peech) time, R(eference) time, and E(vent) time correspond to Tns° and Asp°. In addition to their semantic, interpretive role, these variables act as arguments of the Tns° and Asp° predicates, the external argument of which also serves as that predicates' denotational variable. These

argument slots must be discharged syntactically. The internal argument slot is discharged via indexation with the denotational argument of its complement, while the external argument slot is indexed with material in its Specifier. The coindexation of R and E in the Asp^o predicate of imperfective verbs weakly licenses the external argument so that no material need move to SpecAspP to discharge the external argument slot. This weak discharging via coindexation has syntactic consequences which in Russian are reflected primarily in the distribution of phonologically null objects.

Notes

¹Some parts of this paper have been presented in various forms to audiences at the Workshop on Formal Approaches to Slavic Linguistics (FASL 3) at the University of Maryland, May 1994; the Research Institute for Language and Speech of the University of Utrecht, March 1994; the University of Paris VIII, June 1994. I would like to thank these audiences for their comments. I would also like to thank the following people for their comments and discussion, which have led to significant improvements of the paper: David Adger, Leonard Babby, Wayles Browne, Martin Everaert, Jacqueline Guéron, Teun Hoekstra, Jan Odijk, Henk Verkuyl, Joost Zwarts. I am greatly indebted to George Fowler, who inspired my interest in the problems of Slavic aspect, and with whom mutual work and discussions determined my (but not his) approach to the problems. Last but not least, I am immeasurably grateful to Tracy Holloway King, who contributed much to the final organization of the paper and presented it at FASL 3 in my absence. Of course, all shortcomings are my own.

²In this paper, I am not concerned with Agr projections. In fact, Russian provides little evidence for such projections in that verb agreement only occurs with nominative subjects, i.e., with those arguments in SpecTnsP (section 2.1.1). As such, agreement can simply be a relation between the head of Tns and the material in SpecTnsP.

³The terms 'selectional binding' and 'selectional indexing' were coined by David Adger (see Adger 1993).

⁴In Reichenbach's account it is not clear whether he uses the notion of points or intervals for the three time points. Following Bach (1986), Comrie (1981), Timberlake (1985), and others I assume interval semantics, although this is tangential to the description.

⁵For example, Comrie (1976: 4) writes: "Another way of explaining the difference between perfective and imperfective meaning is to say that the

perfective looks at the situation from outside, without necessarily distinguishing any of the internal structure of the situation, whereas the imperfective looks at the situation from inside, and as such is crucially concerned with the internal structure of the situation." Or, using Reichenbach's points, Timberlake (1985) states that in the imperfective, event time E properly includes the reference time R, while in the perfective the time over which the event occurs is confined to the reference time for that event. But this is a job for semantic interpretation, the details of which will not concern us here. What is important here is the syntactic side of this phenomenon.

⁶The pattern is more complex and not as uniform as it might seem. From the point of view of economy principles for representations (no extra symbols if not required by lexical properties of an item for its projection), I do not want to say that AspP or TnsP are represented in every clause structure. For example, gerunds do not project TnsP.

⁷Given this difference, it is not surprising that there is a difference in behavior between TnsP and AspP. In particular, co-superindexation of the arguments in Asp° results in weak discharging of the external argument. Co-superindexation of S and R in Tns° has no such effect.

⁸DP_α is an abbreviation for < x_α, (...) >.

⁹Technically speaking, this saturation through co-superindexation can affect either the internal argument or the external argument. That is, if the two argument slots are co-superindexed, then the presence of a maximal projection either in the internal argument position or the external argument position is sufficient to satisfy the requirements of the other. However, in the case of TnsP and AspP, only the external argument position can be licensed in this way. For example, consider what would happen if only the external argument of Asp° was satisfied. This would mean that there was a maximal projection in SpecAspP, and no maximal projection as complement to Asp°. Such a situation is impossible, because there would be no VP. Thus, it must be the case that the internal argument is saturated directly, while the external argument is the one whose indexation requirements are satisfied via co-superindexation.

¹⁰Following Rizzi (1986:Section 5), this distinction can be stated in terms of Θ-theory. However, this problem is far from trivial. Rizzi claims that *pro-arb* objects are possible with verbs assigning a Θ-role to an object affected by an event referred to by the verb, as in (i)-(iv) (Russian equivalents):

(i) Experiencer:

Inogda Ivan pugaet/bespokoit/trevožit/vpečatljaet/
poražает/udivljaet *pro-arb*.

Sometimes Ivan frightens/worries/bothers/impresses/
strikes/amazes *pro-arb*.

(ii) Bene(male)factive:

Inogda direktor povyšaet (v dolžnosti)/voznagraždaet/
blagodarit/nakazyvaet *pro-arb* bez vidimoj pričiny.
Sometimes the boss promotes/rewards/
thanks/punishes *pro-arb* without any visible reason.

(iii) Goal (in control structures):

Vrjadli direktor može zastavit'/vynudit'/ubedit'/ ugovorit'
pro-arb rabotat' bol'se.

It's unlikely that the boss can force/induce/persuade/ convince
pro-arb to work harder.

(iv) Source and goal:

Proval može lišit' *pro-arb* very v sebja.

A failure can deprive of the confidence in oneself.

Uspex može pribavit' *pro-arb* entuziazma.

A success can endow with more enthusiasm.

But *pro-arb* objects are barely possible when they are not affected by an event
(process, state) referred to by the verb, as in (v)-(viii).

(v) ?*Ivan ljubit'/nenavidit'/uvažaet *pro-arb*

Ivan loves/hates/respects *pro-arb*

(vi) *Inogda Ivan vidit'/ slyšit'/čuvstvuet *pro-arb*

Sometimes Ivan sees/hears/feels *pro-arb*

(vii)*Inogda Ivan vstrečaet'/poseščaet'/naxodit' *pro-arb*

Sometimes Ivan meets/visits/finds *pro-arb*

(viii) *Inogda Ivan sčitaet *pro-arb* glupym

Sometimes Ivan consider *pro-arb* stupid

However, as any semantic/thematic characterization, Rizzi's "affectedness
constraint" suffers from vagueness and thus cannot be used in some cases, as
seen in (ix) and (x) which are predicted to be grammatical.

(ix) *Ivan stroit *pro-arb*

Ivan builds *pro-arb*

(x) *Ivan pokazyvaet'/demonstriruet *pro-arb*

Ivan shows/demonstrates *pro-arb*

Moreover, being rather descriptive statement, the "affectedness constraint"
correctly describes most part of facts but does not explain them.

¹¹Rizzi proposed that object *pro* is formally licensed through Case
assignment by a designated head, i.e., a head belonging to a language specific
set. For example, the set of designated heads for English is empty, so there is
no object *pro*, but for Italian, the designated set is {V}. What makes some
Italian verbs, but not English ones, designated heads is left unclear in Rizzi's
account.

¹²I assume that AspP is represented in the clause structure of any language,
and that it is the projection that licenses Accusative case on direct objects.
The difference between Russian and, e.g., English lies in the
strength/weakness of aspectual features: Russian has morphologically strong
Asp-features on lexical verbs but a syntactically weak Asp-projection; on the

other hand, English has morphologically weak Asp-features on lexical verbs but a syntactically strong Asp-projection. In this approach, the entire bundle of properties related to direct objects and the differences in their manifestation can be explained in a simple and elegant way. For more detailed discussion of these matters, see Yadroff (1994).

¹³The extension of the co-superindexation mechanics for lexical verbs (intransitives) was proposed to me by Tracy Holloway King (p.c.).

¹⁴Note also that this approach posits an internal and external argument position for all verbs. Such a proposal has been made for unergatives (see Hale and Keyser 1993 and references therein). In addition, it has been proposed that unaccusatives can be treated as reflexive verbs (Reinhart and Reuland, 1993). As such, another issue to explore is whether the external and internal arguments discussed here are identical to the traditional notions of external and internal arguments found in the argument structure or whether these are more a reflection of the properties of the phrase structure.

¹⁵Leonard Babby pointed out (p.c.) that a few adjectives can take accusative complements. These are deverbal predicative adjectives which license the accusative: *vidno* 'visible', *slyšno* 'hearable', *zametno* 'noticable', *bol'no* 'painful'. I have to note that the accusative object is only possible when these adjectives(?) are used in the predicate (and, thus, with an auxiliary) and have a special predicative form (the word *bol'no* is particularly indicative: the corresponding verb, *bolet'* 'to be in pain', — and, of course, the base noun, *bol'* 'pain' — has no "accusative" properties). In the full form these adjectives cannot take an accusative object:

- (i) a. Nam bylo vidno bašnju.
 us_{DAT} was_{SG.NEUT} visible_{SG.NEUT} tower_{ACC}
 'We were able to see a tower.'
- b. Nam bylo slyšno muzyku.
 us_{DAT} was_{SG.NEUT} hearable music_{ACC}
 'We were able to hear music.'
- c. Mne bylo bol'no ruku.
 me_{DAT} was_{SG.NEUT.painful} hand_{ACC}
 'My hand was in pain'
- (ii) a. *vidnaja nam bašnju
 visible_{NOM} us_{DAT} tower_{ACC}
- b. *slyšnaja nam muzyku
 hearable_{NOM} us_{DAT} music_{ACC}
- c. *bol'naja mne ruku
 painful_{NOM} me_{DAT} hand_{ACC}

¹⁶This account provides a clue to another question: why are other "objective" cases, e.g., genitive, dative, and instrumental, preserved in nominalization and adjectivization? Basically, these cases are not licensed by the functional projections outside VP, but by projections inside VP. If we assume this

general pattern, then a new question arises: what makes genitive case regularly appear on nominal complements when AspP is unavailable to check Accusative case? It is unreasonable to think that a new functional category appears inside VP precisely when AspP is not projected outside the VP. However, the fact remains that nominals and adjectives cannot assign Accusative case to their complements because they do not project AspP. Jindřich Toman informed me that in Czech dative objects in aspectual pairs such as *blahopřát/poblahopřát* 'congratulate', *sloužit/posloužit* 'serve', *děkovat/poděkovat* 'thank' behave the same way as accusative objects in (14). This is unexpected if we assume that Dative (and other "inherent" Cases) is assigned/checked VP-internally. In my opinion, another property of Asp° under contra-indexation (the perfective Asp°) comes into play here: specificity. Cf. Diesing's (1992) mapping hypothesis for NP interpretation.

¹⁷The ungrammaticality of (26b) and (27b) is not related to the licensing of the object. This can be seen when intransitive gerunds occur in these constructions, as in (i).

- (i) a. čtenie knigi, zadumyvajas' nad pročítannym
 `reading of a book, being absorbed in what is being read'
 b. *čtenie knigi, zadumavšis' nad pročítannym

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