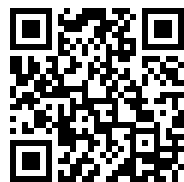

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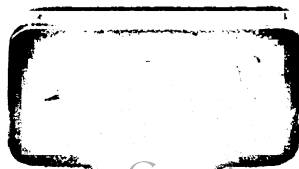
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**[Formal]
Approaches
to [Slavic]
Linguistics**

*The
Ottawa
Meeting
2003*

Michigan Slavic Publications



FASL 12, 2003

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The Case of Q^{*}

John Frederick Bailyn
State University of New York, Stony Brook

1. Introduction

The relationship between morphological form and syntactic structure has been of great interest recently in theoretical linguistics, especially with respect to morphologically-rich languages like the Slavic languages. Some views have argued for an independent morphological module, without which the grammatical description cannot be complete. Others, such as Starke (2001), are embarked on a program of reduction if not elimination of the morphological component. On such a conception, morphology can be entirely done away with, and its apparent effect shown to be part of the Syntax module. The implications are far-reaching, and it is too early to determine the exact consequences, but the project is startling enough to give it serious consideration. And it lies at the core of what I try to do in this article, namely reduce morphological case (at least in non-lexical instances) to syntactic features. In the end, I will *not* pursue the Starke-style approach but rather will adopt a version of the restrictive view of the inventory of functional categories, based on Chomsky (1995, 2000), whereby there is a limited set of functional categories, namely C, T, D, little *v*, Neg, Aspect, and Q, and will also assume the non-universality of projection of these categories argued for in Thráinsson 1996 and Bošković 1997.

* Ideas in this article were originally presented at Moscow State University in 2002, at FASL 12 in Ottawa as well as at the EGG Summer School in Lublin and at FDSL 5 in Leipzig in 2003 and at Harvard University in 2004. Thanks to all for discussion, and especially to Klaus Abels, Boban Arsenijević, Sue Brown, Andrew Nevins, Barbara Partee, Asya Pereltsvaig and Adam Przepiorkowski. All mistakes remain my own.

The core idea is this: (Slavic) morphological case, is nothing more than the uninterpretable spell-out on nominals of the core functional categories. The approach is certainly not new, but the claim will be made in a form stronger than I have seen elsewhere for case in general, although it has important precursors for particular case instances.

The best known example concerns the relationship between Nominative case and Tense. Typically, since early GB days, the account has been that [+T] (INFL) *assigns* Nominative case. Within Minimalism, the framework changed to make it so that T *checks* Nominative case, and more recently, that (non-defective) T is a PROBE that seeks a NOM goal and Agrees with it, sometimes requiring movement. But I want to follow Pesetsky and Torrego (2001) who take it one step further and claim that Nominative case *is* (uninterpretable) Tense as morphologically manifested on Nominals. This is given in (1):

- (1) *The nature of Nominative case (Pesetsky and Torrego 200:361)*
Nominative case is uT on D

(1) accounts directly for the well-known asymmetry of T-->C movement known from English WH-movement, given in (2):

- (2) a. What did Mary buy?
b. * What Mary bought?
c. * Who did buy the book? (without focus on *did*)
d. Who bought the book?

In (2d), the movement of the Nominative WH-phrase to SpecCP, *both* satisfies the WH requirement of C *and* the T requirement of C that (normally) trigger inversion in (non-Nominative) WH questions such as (2a). In Pesetsky and Torrego's account, Nominative case isn't *assigned* by T, Nominative case *is* T and so T-->C is unnecessary in subject questions.

With respect to case on internal arguments, Accusative has been linked to AspectP in various accounts. Thus, Svenonius (2001) says "Pesetsky and Torrego (2001) have proposed that nominative case is uninterpretable tense; I suggest here that accusative (and Dative, in Icelandic) is uninterpretable Inner Aspect, or Aktionsart." Richardson

(2003) makes a similar case for Russian, linking Accusative with telicity through AspP.

My goal here is to try to add something to this discussion by taking seriously the possibility that *all* instances of morphological case in languages like Russian, except perhaps for purely lexical case, are simply the spell-out of features (usually) associated with particular functional categories. Thus I follow the spirit of Svenonius (2001) who claims, quite generally, that “case does not encode features of noun phrase interpretation, *but it is not uninterpretable either.*” (emphasis mine). This central idea is presented in two differing forms in (3):

- (3) a. Each (non-lexical) morphological case is the (uninterpretable) spell-out of a core functional category.
- b. There is a single, unique feature-based source for all (non-lexical) cases

The claim in (3) has an important counterpart — that cases do *not* break down into further features in the sense of Jakobson (1957), Franks (1995), Müller (2003) *in the narrow syntax* any more than the functional (and lexical) categories themselves do. The feature bundles adduced to account for syncretism are part of the morphological component, or are spell-out instructions, and play no role in the derivation from Numeration to Logical Form.

2. Genitive is Q

Following (3), this article investigates the possibility that just as Nominative case *is* T, and Accusative case *is* (inner) Aspect, so Genitive case *is* the uninterpretable spell-out of Q (in the sense of quantification), as shown in (4):¹

¹ Note that I am not claiming this to be an isomorphic relationship, just as not all tensed sentences show Nominative case, so are there QP structures where no overt genitive is found. But I will try to maintain the unidirectional version, namely that all (non-lexical) Genitives are in QPs.

(4) *The nature of Genitive case*Genitive case is uQ on N/D ²

The core instances of genitive case that I want to include under (4) are given in (5-10) below, from Russian. The instances I have in mind I will label as Gen of Negation, Partitive Gen, Intensional Gen, 'do-in-quantity' verbal Gen, Comparative Gen, Adnominal Gen, and Quantificational Gen.

(5) *Genitive of Negation*

Boris ne čitaet knig.
 Boris NEG reads books_{GEN}
 'Boris doesn't read books.'

(6) *Verbal argument genitives*a. *Partitive*

Ja xoču čajju.
 I want tea_{GEN}
 'I want (some) tea.'

b. *Intensional*

My ždem peremen!
 we wait changes_{GEN}
 'We are waiting for changes!'

c. *'do in quantity'*

Narezali xleba /*xleb
 NA+cut bread_{GEN} /* bread_{ACC}
 'We cut lots of bread.'

(7) *Comparative genitive*

umnee Saši
 smarter Sasha_{GEN}
 'smarter than Sasha'

² I take no stand on the functional structure of nominals, as it does not bear on this article. For claims that both NP and DP can be case-marked, see Franks and Pereltsvaig (this volume).

(8) *Adnominal genitive*

- a. kusok xleba
 piece bread_{GEN}
 'a piece of bread'
- b. razrušenie goroda
 destruction city_{GEN}
 'the destruction of the city'

(9) *Quantificational genitive*

- a. mnogo problem
 many problems_{GEN}
 'many problems'
- b. pjat' jazykov
 five languages_{GEN}
 'five languages'

In the next sections, I will address first the Genitive of Negation, then the other verbal genitives, comparatives and adnominals, and finally the quantificational genitive.

3. The Q-account of the Genitive of Negation

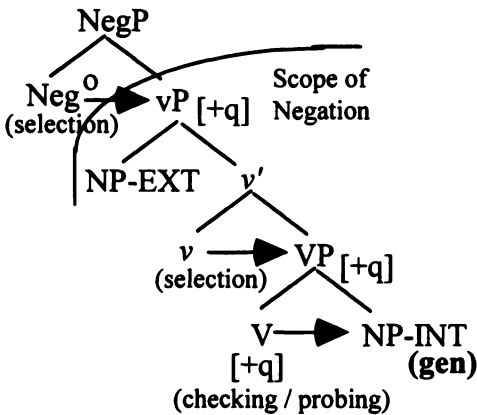
Let us begin with the Genitive of Negation, because there have been important precursors of the Q account for Gen Neg, particularly Pesetsky (1982) and Pereltsvaig (2001). The major issue in the Russian genitive of negation is the distribution of the construction's availability. As is well known, the Russian genitive of negation is possible, though not required, on the direct object of transitive verbs and on the subject of unaccusative verbs, and impossible on the subject of transitive and unergative verbs.

Pesetsky's (1982) idea was that Gen of Neg is assigned not by negation itself but by the (null) head of a QP phrase *licensed* by negation. This article, then, represents a kind of resurrection of the Pesetsky's idea and its extension to a range of other instances of Genitive. First, we must review the important aspects of the Russian genitive of negation for any account (for discussion see Brown 1999), shown in (10):

(10) *What to account for in (Russian) Gen Neg*

- A. Configurational restrictions (underlying objects only)
- B. Apparent optionality
- C. Existential interpretation of Gen Neg

A possible first version of the configuration I have in mind for Gen of Negation is given in (11):

(11) *[q] approach to Gen Neg (version A)*

I am assuming the unaccusativity hypothesis of Gen Neg, whereby the domain of Gen Neg is the underlying object position, which is generally (though not universally) agreed upon (Pesetsky 1982; Bailyn 1995, 1997; Babyonyshev 1996; Brown 1999, Harves 2001, 2002 and elsewhere).

Notice that in (11) I have not (yet) included a QP with a null head, but have simply left the relevant Gen assigning [q] feature in the verbal head position (where it has been selected for by higher negation). However the presence of an actual (null) Q head in the structure will in fact play a role in what follows.

The account, which I will refer to as the [q] approach, works in quite a simple fashion: The high Neg head in the structure has a particular selectional property, namely that it allows the selection of a VP (shell) with a [q] feature associated with it. This feature in turn is responsible

for Gen Neg. In the absence of Negation, the VP (shell) lacks this feature and genitive on the object is impossible (unless the verb itself has a different instance of [q] associated with it, which we will see below is in fact exactly what happens with verbal argument Genitives). This feature is transferred to the verb from Neg by a ‘chain of selection,’ a process familiar from matrix verbs selecting, say, subjunctive CP complements, whose heads in turn select subjunctive TP complements, whose own heads in turn, finally select a certain kind of VP, with the appropriate head. Thus through this kind of selection chain, we move from the presence of the functional category of Negation high to Genitive case marking low.

There are several advantages to the [q] approach to Gen Neg. The first is that it maintains a configurational account of the exclusion of Gen Neg on external arguments because those arguments are simply out of the case-assigning domain of the genitive case, under a strict c-command approach. The older approach, which we can call the direct NegP approach, is found in various forms (Bailyn 1997; Brown 1999 and elsewhere). The difficulty for the direct NegP approach is that because it is committed to a direct relationship between NegP and Genitive case, it is stuck with the paradox that the distribution of the Genitive of Negation is simply not the same as the distribution of negative polarity items in Russian (the former excluding external arguments and the latter not). In Bailyn (1997) the case assigning category was NegP itself, and its proposed low position was the source of considerable criticism, mostly based, as I say, on the possibility of NPIs on external subjects, outside of the scope domain of negation on such accounts.

Brown (1999) solved the NPI problem by placing NegP above the base position of the external argument, allowing NPIs there just as in object position. But the mechanism required in Brown’s account to then exclude Gen Neg from *external* arguments is not much more than a restatement of the facts requiring features such as [V_{max}] and [Pred] to allow Gen of Negation — features that essentially restate the distribution (V_{max} occurs only when an internal argument is involved and therefore ‘excludes’ the external argument). Such NegP accounts fail because you can’t have it both ways, unless the work is divided, and this is exactly what the [q] account achieves: NegP is high in the tree, as most people working on the syntax of negation agree is necessary, but what is

directly responsible for the genitive marking, though related to the NegP, is not NegP itself, but rather [q]. That restricts us to the selection domain, namely internal arguments, which is the result we need. And this is the part of the account that goes back to Pesetsky (1982) and is maintained, in different form, in Pereltsvaig (2001).

A further advantage of the [q] account is the ability to maintain an important aspect of Bailyn (1997) (in addition to configurational exclusion of External Arguments appearing in Gen Neg). I have in mind that these accounts associate Genitive and Accusative case occurrences with *distinct positions*, allowing us to analyze the differences in interpretation in a configurational manner, something any account of Gen Neg should be able to do. If Acc objects raise to a position outside of existential closure, the resulting chain can be interpreted as either existential or not, depending on whether the head or tail of the chain is involved. On the current account, the non-existential interpretation can be achieved by association of the Accusative itself with the higher Acc probing head, which I assume, following Richardson (2003), to be an AspP above the domain of existential closure. (The same will follow for Nominative, which is associated with T, also outside existential closure). Indeed, of the configurational cases, the only instance in which both the probe and the goal associated with the case are fully within the domain of existential closure is Gen Neg, and therefore the prediction would be that such arguments are always interpreted as existential, which is the general consensus for Gen Neg. So, the Bailyn (1997) tree-splitting approach to getting the interpretation right on Gen Neg arguments can be maintained, and a system such as Harves (2002), involving *features* of existential closure, becomes unnecessary.

Third, the [q] account illuminates the comparative and historical situation. Recent linguistic theory has achieved significant results in our understanding of syntactic change and parametric variation, the strongest claim being that historical change does not (directly) involve change in constructions themselves, but rather involves changes in the internalized grammar of speakers, whose possible outputs then lead to apparent changes in individual constructions. The most promising work in this area, going back to Lightfoot (1979), and including Bailyn (1998), Whitman (2001) and others, is that syntactic change derives (only) from change on particular lexical items, and that it is the feature make up of functional categories that are the locus of such changes, which start in

small moments of reanalysis and lead to widespread surface changes in the grammar.

The Russian genitive of negation is characterized by its non-fully grammaticalized status, as opposed to Polish where it is essentially obligatory, regardless of interpretation, or Serbo-Croatian on the other hand, where it is essentially absent, except in the case of the negated form of *imati*.

(12) *Polish (obligatory) genitive of negation*

a. Ewa czyta gazety / *gazet.

Ewa reads papers_{ACC} / *papers_{GEN}

'Ewa reads newspapers.'

(Błaszczak 2001)

b. Ewa nie czyta gazet / *gazety.

Ewa NEG reads papers_{GEN} / *papers_{ACC}

'Ewa doesn't read newspapers.'

(13) *Serbo-Croatian (lack of) genitive of negation:*

a. Nisam čitao ni jedan časopis.

NEG AUX read not even [one journal]_{ACC}

'I didn't read even one journal.'

b. *Nisam čitao ni jednog časopisa

NEG AUX read not even [one journal]_{GEN}

'I didn't read even one journal.'

c. Nemam pojma.

not have idea_{GEN}

'I have no idea.'

d. *Nemam pojma.

not have idea_{ACC}

'I have no idea.'

((a-b) from Franks and Dziwirek 1993)

Clearly, if the Polish/Russian/Serbo-Croatian Gen Neg have a common historical source, and if the recent ideas about syntactic change are on the right track, then we have to look for a *feature* of a functional category as responsible for the case's appearance. One could counter that the direct NegP accounts can achieve this result just as easily. But this would only be true if the cases of full disappearance of Gen Neg (as in S-C) or its full grammaticalization (as in Polish) had different

properties. The trouble with a direct NegP account of the historical situation is that Polish has Long-Distance Gen Neg (as discussed extensively in Blaszcak 2000), as exemplified in (14):

- (14) a. Polak nie ma obowiązku Polish
 Pole NEG have obligation
 znać języka francuskiego.
 know language French_{GEN}
 ‘A Pole has no duty to know the French language.’
 (Blaszcak 2000)

- b. ??Poljak ne objazan Russian
 Pole NEG obliged
 znać francuzskogo języka
 to know French language_{GEN}
 ‘A Pole is not obliged to know the French language.’

(14) shows that in Polish Gen Neg is possible in an embedded clause in the presence of higher negation in the matrix clause. (The equivalent Russian sentences are not grammatical, as shown in (14b)). Blaszcak maintains that this is a problem within a Probe/Goal system for the cycle, or the Phase Impenetrability Condition (PIC), which says that elements inside a phase are not accessible to the outside. Here, the higher Neg head can reach down, as it were, into the embedded clause, which should not be possible. The [q] account resolves this issue by maintaining that the relationship between the [q] and the genitive marked Nominal is always local, in fact, it is the most local relationship available, namely that between a head and its complement. It is the *selection chain* that has to differ between Russian and Polish. The solution then is akin to claiming that Polish has ‘negative CPs’ selected by the appropriate higher V, within which the [q] feature is transmitted down to the embedded verb by a selection chain, whereas Russian does not. There is no cycle or Phase problem here, and standard parameterization of selectional relationships will suffice to account for why a QP

can be licensed in a Polish embedded clause by a matrix NegP whereas in Russian it cannot.³

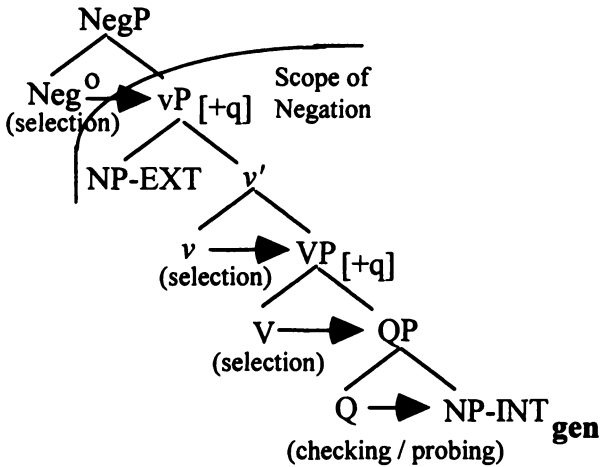
The advantages of the Q account over a NegP account are summarized in (15):

- (15) a. No additional features necessary to exclude Gen Neg on external arguments.
- b. Existential closure accounts of interpretation of Gen Neg can be maintained.
- c. Distinct position account of (non)optionality can be maintained.
- d. Historical change and micro-parametric variation can be accounted for.

Notice that the picture given in (11) shows a [q] verbal complex *probing* for a genitive NP. There is, however, another way of looking at it, namely that the V complex with inherited [q] feature *selects* a QP object rather than an NP object, and it is the head of that QP that provides for genitive case on its NP complement, as is shown in (16):

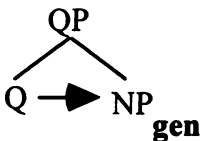
³ With respect to SC *nemam pojma* GEN ('I have no idea') (see ex. (13c)) it would appear that the restricted distribution of Gen Neg in SC can also be handled better by the [q] system than by the direct NegP system in that the necessary [q] feature can simply be associated lexically with the negated form of *imati*, (which is conveniently written as a single word as opposed to other instances of negation). So, NegP heads in this language simply do not have the same selectional properties as they do in Russian or Polish and only a lexical item with [q] in its feature bundle can probe for a genitive argument. So, this is advantage 3 of the [q] account over the NegP account.

(16) [q] approach to Gen Neg (version B)



The difference between Version A (in (11)) and Version B (in (16)) is perhaps not crucial to the Genitive of Negation per se, but is crucial to the attempt to unite this genitive with the other kinds of genitives, especially the quantificational genitive, where all of the case assigning ‘action’ occurs within a QP structure. In Version A, it is still the verb, with the [q] feature, that ‘assigns’ or probes for Genitive. In Version B, it is the (null) head of QP that assigns or probes for genitive, which can then be extended to the other cases far more easily. In what follows, I will assume a form of Version B. The basic unified structure of Genitive case, then, is shown in (17):

(17) Unified configuration for genitives (first version)



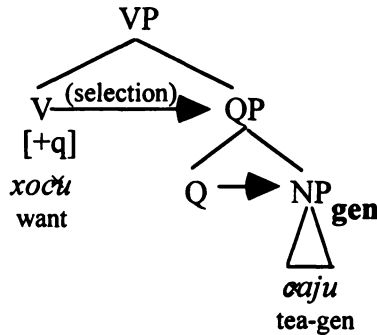
I next turn to the final major advantage of the [q] account over the direct NegP account, namely the possibility of extending it to the other cases of

genitive given in (5-9) above, and perhaps others as well, and the subsequent possibility of universally relating (all) case occurrences to particular features.

4. Q-account of other genitives

Suppose then that the [q] feature correlates with certain sub-aspects of the semantic make up of a verbal predicate. Let us simply assume that this unified set of features, however they are to be formalized, include a [q] feature. This will lead to the possibility of these verbs selecting a QP object, which is what is needed for Genitive. It is well known, for example, that verbs allowing Partitive genitive have certain semantic unity, and it has been shown that the complement of such verbs is a structural QP (Stojanović 1995). Thus (18) is the structure of partitives:⁴

(18) [q] approach to Partitive Gen



Relevant verbs, on the required meaning, select a QP complement, whose head does all the work. It now becomes the task of lexical

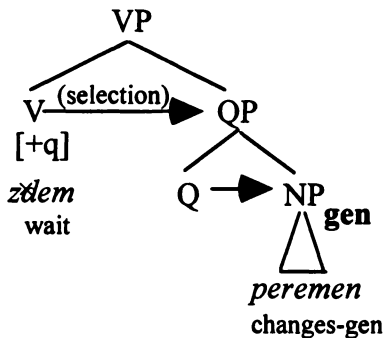
⁴ The question arises how the 2 sub-instances of Genitive (*čaja* vs. partitive *čajju*) will be represented distinctly. I assume here that this is a morphological distinction reflecting more fine-grained feature structure of verbs and their QP complements, which is reflected during spell-out only.

semantics to determine which verbs allow the QP selectional property and which do not — exactly the result we want.

Notice that the distribution of Partitive Genitive as being restricted to internal arguments (like Gen Neg and Intensional Genitive) is captured in the same fashion as it is for Gen Neg — the relevant feature is part of the verbal feature bundle and affects only the complement domain.

The same approach applies to Intensional verbs and ‘do-in-quantity’ verbs. (19) is the proposed structure for intensionals:

(19) *[q] approach to Intensional Gen*



The similarities between (19) and (18) should be obvious and are deliberate, since the resulting restrictions and semantic correlation are so similar. Recall that these same verbs also appear with Accusative objects, as shown in (20b):

- (20) a. (intensional) My ždem peremen.
 we wait changes_{GEN}
 ‘We are waiting for changes’
- b. (non-intensional) Ja ždu podругu.
 I wait girlfriend_{ACC}
 ‘I am waiting for (my) girlfriend’

On the current account, the two sentences differ in the selectional properties of the verb, one takes a QP complement, leading to genitive case and the other of which takes an NP complement, leading to

Accusative case. Genitive is still a spellout of [q], and the two sentences differ only in the internal structure of VP.⁵

‘Do in quantity’ verbs, shown in (6c), use the super-lexical prefix *na*, which changes the selectional properties of the head verb exactly as predicted: *na*-prefixed verbs take QP complements, which produce genitive case internally. Pereltsvaig (2004) provides independent evidence that *the prefix changes only the selectional properties of the verb*, and does not, as others have maintained, change the case-selection properties from structural Accusative to lexical Genitive. This can be seen by the fact that overt quantors such as *mnogo* (‘many’) do not themselves appear in the Genitive case (which they do in lexical genitive instances), but rather in the non-declined form found in structural case situations. This is shown in (21):

- (21) Vanya nakupil (mnogo / *mnogix) knig.
 Vanya NA+bought (many_{ACC} / *many_{GEN}) books_{GEN}
 ‘Vanya bought (up) many books.’

Thus all that *na*-prefixation has done is changes the verb's selectional requirements to taking QP instead of an NP/DP.

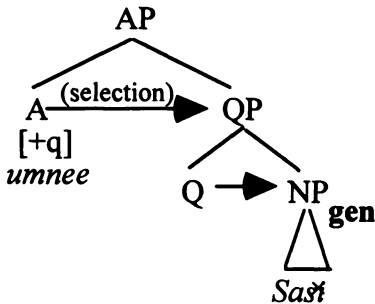
Thus far we have seen four instances of V selecting QP under various circumstances. The remaining cases involve QP interacting with different categories. First, the Comparative Genitive, repeated in (22):

⁵ This jibes with recent literature on the structure of intensional verbs — in particular with the account in Larson, Ludlow and den Dikken (1999) in which (all) intensional verbs have hidden sentential complement clauses. The account here does not rely on there being an entire (null) CP and TP structure in such cases, but still does have more structure in the complement domain than meets the eye. If it should turn out to be correct, in fact, that all intensional verbs have sentential internal structure, as Larson, Ludlow and den Dikken argue, the QP account would remain intact — there could be a TP complement of Q, and the genitive case would be assigned to the Spec of its complement rather than to the complement itself, something that requires no additional machinery in a probe/goal system.

- (22) a. umnee Saši
 smarter Sasha_{GEN}
 'smarter than Sasha'
- b. umnee čem Saša
 smarter than Sasha_{NOM}
 'smarter than Sasha'

In (22a), the comparative adjectival suffix endows the adjective with the [q] feature, allowing it to select a QP complement. The head of the selected QP is responsible for the genitive case in the usual way. The structure of (22a) is given in (23):

(23) [q] approach to Comparative Genitive



On the other hand, (23) appears not to capture the parallel with (22b). Why should a structure such as (23) alternate with a Nominative case construction, and only when the element *čem* is present? My claim is that they are not as parallel as they seem. I assume that *čem* is a complementizer selecting an embedded TP, whose other content is elided as proposed for German and English by Lechner (2001). One fact in favor of this approach is that a verbal continuation is possible in the nominative variant (24), but not in the genitive variant (25), suggesting that the former but not the latter is a reduced sentential complement:

- (24) a. Maša – umnee čem Saša byl / budet.
 Masha smarter than Sasha_{NOM} was /will be
 'Masha is smarter than Sasha was/will be.'

b. Maša igraet na flejte lučše čem
 Masha plays on flute better than

Saša igral / igraet
 Sasha_{NOM} played / plays

‘Masha plays the flute better than Sasha did/does.’

(25) a. *Maša – umnee Saši byl / budet.
 Masha smarter Sasha_{GEN} was/ will be
 ‘Masha is smarter than Sasha was/will be’

b. *Maša igraet na flejte lučše
 Masha plays on flute better
 Saši igral / igraet.
 Sasha_{GEN} played / plays

‘Masha plays the flute better than Sasha did/does.’

Furthermore, in cases such as (26), the understood continuation of the elided phrase can always be related to the lower clause, as in the first reading, and to a certain degree to the higher clause (compare the English equivalent with *do*).

(26) Saša kričal, čto Tanya pela gromče čem Maša.
 Sasha yelled that Tanya sang louder than Masha_{NOM}
 ‘Sasha yelled that Tanya sang more loudly than Masha did (sang).’
 ?‘Sasha yelled that Tanya sang more loudly than Masha did (yelled).’

On the other hand, when the genitive is used, the second reading is unavailable, as shown in (27).

(27) Saša kričal, čto Tanya pela gromče Maši.
 Sasha yelled that Tanya sang louder Masha_{GEN}
 ‘Sasha yelled that Tanya sang more loudly than Masha did (sang).’
 *‘Sasha yelled that Tanya sang more loudly than Masha did (yelled).’

This again implicates a full, reduced clausal structure for the *čem*+Nom cases and a very different structure for the genitive constructions. The idea is that the difference reduces to selection — comparative adjectives can select either a QP or a CP.

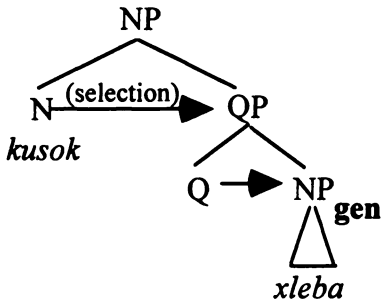
Next there is the question of the adnominal genitive. This is the most widespread of genitives, and an entire syntactic problem in its own right, aspects of which are discussed in detail in Rappaport (2000). I will discuss the direction a Q account of adnominal genitives would have to go to work in our terms, and leave more detailed discussion to further research, since semantic unification with the other cases is far from obvious. But our method leads us to make the attempt, and time will tell whether it is the right direction to go in.

First, it is well known that adnominal genitives can express a variety of semantic relations. (28) are from Rappaport (1992):

- (28) a. *konec fil'ma o vojne*
 end film_{GEN} about war
 'the end of the film about the war'
- b. *kusok xleba*
 piece bread_{GEN}
 'a piece of bread'
- c. *krasota devuški*
 beauty girl_{GEN}
 'the girl's beauty'
- d. *sosed kuzneca*
 neighbor blacksmith_{GEN}
 'the blacksmith's neighbor'

In all cases, this genitive serves to delimit the interpretation of the head noun, turning a common noun into a relational noun, in the sense of Partee and Borschev (2003). The strongest version will claim that the complement of an N head, in cases other than Nominalization of certain verbs that have a particular kind of specification of complement type, is always a QP. That is, N selects QP as its complement as the only (non-lexical) option. The structure of a basic adnominal genitive then fits nicely into our general pattern, as shown in (29):

(29) [q] approach to Adnominal Genitive



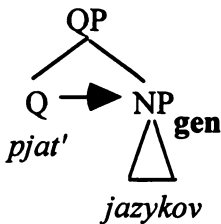
Finally, we turn to the Quantificational genitive itself. At first glance, these might appear to be the simplest cases, since they are the only ones in which the head of the proposed QP phrase appears to be overt. Thus (30) repeats the examples from (9):

(30) Quantificational Genitive

- a. mnogo problem
 many problems_{GEN}
 'many problems'
- b. pjat' jazykov
 five languages_{GEN}
 'five languages'

The first version of how to handle this type of genitive in the framework under consideration would be something like (31):

(31) [q] approach to Quantificational Genitive (first version)



However (31) does not help us with the well-known dichotomy between homogenous and heterogeneous patterns shown in (32):

- (32) a. Dijana znaet pjat' jazykov.
 Dijana knows five_{NOM/ACC} languages_{GEN}
 'Dijana knows five languages.'
- b. Dijana vladeet pjat'ju jazykami.
 Dijana controls five_{INSTR} languages_{INSTR}
 'Dijana knows five languages.'

The generalization is that in so-called direct (or structural) case positions, the numeral is in its uninflected basic form, said to be Nominative or Accusative, and the QP complement is genitive, as in (32a). However when the entire phrase is the complement of a lexical case assigning verb or preposition, as in (32b), *both* the numeral itself and its apparent complement appear in the lexical case, here the Instrumental.

The problem of how to account for this paradigm has been discussed extensively in the literature, for example in Babby (1987), Franks (1995, 1998, 2001), with case conflicts and hierarchies or difference in level of application determining that in lexical case position, lexical case somehow overrides (structural) genitive on the complement.

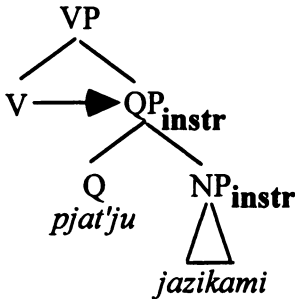
In my system, genitive should *always* be possible on an NP if it is combined with a Q. And the phrases in (32) are usually analyzed as QP. So there is no principled reason why something like (33a) should be impossible, in which the gen NP is merged with the head of Q, which itself satisfies the lexical requirements of the verb (since we know from (32b) that the numeral can inflect for case). However, (33a) is impossible in Russian:

- (33) a. * vladeet pjat'ju jazykov
 controls five_{INSTR} languages_{GEN}
 'knows five languages'
- b. vladeet tysjačej jazykov
 controls thousand_{INSTR} languages_{GEN}
 'knows thousand languages'

The solution for these examples stems from an analogy with predicate instrumental case where it is clear that only when the relevant functional category is *empty* can it check the relevant case (see Bailyn 2001). When a lexical item fills the head position, the case feature is absorbed, and

case cannot be directly assigned and instead has to come from outside the local domain. So we then expect the numeral to be the head of the phrase only when genitive does *not* appear on the complement. If this is on the right track, then the relevant structure for (32b) is as in (34):

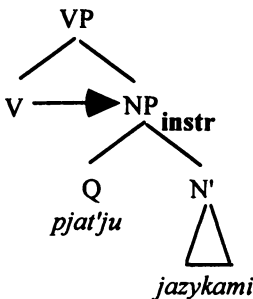
(34) [q] approach to Quantificational Genitive (homogenous pattern)



We can imagine a scenario on which the homogeneous pattern emerges if we simply assume that any QP with a filled head has its case features absorbed by the overt element.⁶ Thus the Q head no longer constitutes a minimality domain, and both it and its complement are within the domain of the higher head.

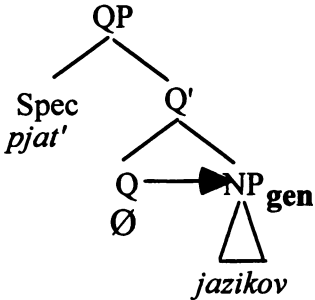
⁶ It is also possible that we are dealing with some kind of ‘reprojection’ in the sense of Hornstein and Uriagereka 2002. If so, then the appropriate labeling for the resulting structure might look something more like (i):

(i) Reprojection version of (34):



In the case of (32a), where the numeral stands in a direct case and the complement is genitive, the head of the phrase must be null, and the numeral sits in a Q-operator position, in effect licensing the presence of the QP, which is here not selected for by the verb. The proposed structure is given in (35):

(35) [*q*] approach to *Quantificational Genitive (heterogeneous pattern)*



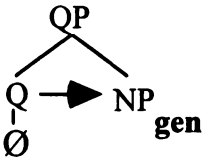
There is additional evidence that the quantificational elements in Q-Genitive constructions are, in fact, specifiers. Consider (36):

- (36) a. *Dijana znaet do xrena jazykov.*
 Dijana knows to horseradish languages_{GEN}
 'Dijana knows a lot of languages.'
- b. * *Dijana vladeet do xrena jazykami.*
 Dijana controlsto horseradish languages_{INSTR}
 'Dijana knows a lot of languages.'

In (36) we see that an idiomatic PP can serve the role of licensing the Q head. This is consistent with (35).

Several advantages of this account emerge. First, we can now maintain the even stronger version of (17) given in (37):

(37) *Unified configuration for genitives (second version)*



Second, we can now explain why it is that QPs that contain quantificational elements like *pjat'* ('five') can appear in any position and need not be selected for — the Operator in the SpecQ position licenses the appearance of QP internally, and selection is not required. This is formally identical then to the structure proposed by Franks and Dziwerek (1993) in discussing genitive negated time expressions, which must appear with the element *ni* (or other such element) as shown in (38):

- (38) On ne spal *(ni) odnoj minuty.
 he NEG slept NI [one minute]_{GEN}
 'He didn't sleep for a minute.'

Because the phrase is an adjunct, the QP itself can only be licensed by the presence of the operator in the Spec position (which being an NPI, also derives the requirement that such expressions be under the scope of negation as well).

Third, if (35) is the correct structure for the heterogeneous pattern, we can explain why this pattern is unavailable with lexical case assigners, as seen in (33a) above — as is well known, lexical case is directly associated with theta-role assignment. (33a) is impossible because there is no local head to which the theta-role of *vladeet* can be assigned.

Thus the Russian hybrid behavior reduces to the possibility that numerals like *pjat'* ('five') can behave as heads, absorbing the genitive case and leaving themselves and their complement in the (lexical) case domain of a higher head.

Imagine now that there were a language where this absorption could not take place (or where the numeral simply cannot fill the head of QP position). We would then expect only structures like Russian (35) and would expect only genitive complements of 'five', regardless of the external position of the phrase. And this is exactly what we find in Serbo-Croatian, as documented in Franks (1995, 2001).

(39) Serbo-Croatian:

- a. Kupio sam pet knjiga.
 bought AUX five books_{GEN}
 'I bought five books'
- b. sa pet knjiga /*knjigama.
 with five books_{GEN} /*books_{INSTR}
 'with five books'

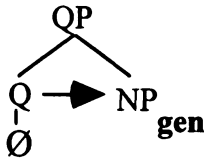
(39) shows that in Serbo-Croatian only the heterogeneous pattern can be found. Therefore we can say that elements like ‘five’ *only* serve as operators in SC and therefore genitive is always assigned by the null head of the QP, always producing structures like Russian (34).

In Serbo-Croatian, on the other hand, the numerals are never Q heads, and the homogeneous pattern does not occur. (40) presents the relevant parameter settings:

- (40) a. Serbo-Croatian: *pet* (‘five’) is a maximal projection only (specifier, operator only)
 b. Russian: *pjat’* (‘five’) is a head and can fill the Q position

To summarize, we are left with the following highly simple generalization:

- (41) a. Genitive case is μ Q on N
 b. *Structure of non-lexical genitive case*



If we assume a bottom-up derivational system as in Epstein et al (1998), and assume that distinct morphological case forms have distinct

⁷ This proposal appears more minimalist in spirit than Franks 1995, 2001, since it involves only a lexical property, rather than Franks’ (2001) attempt to capture the same distinction with the parameter in (i):

- (i) a. Q assigns [-oblique] genitive in Russian
 b. Q assigns [+oblique] genitive in SC (from Franks 2001)

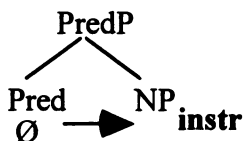
(40) seems preferable in that it allows us to exclude morphological features like [\pm oblique], which have no status in Minimalism, and reduces the difference to lexical properties of items like ‘five’.

features that must be satisfied either directly upon Merge by a head specifying that exact set of features (lexical case) or by merger with the appropriate functional category, we limit genitives to configurations conforming to (40).

4. Extensions

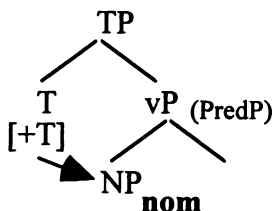
The null head relation is parallel with Instrumental case marking as well, on the general approach taken by Bailyn and Rubin (1991) and developed in subsequent work by Bailyn (2001) and also maintained, in slightly different form, in Richardson (2003). The details of this analysis have been debated elsewhere, but the general picture is clear — Russian (predicate) Instrumental case results from the merger of a (null) functional category Pred with a case-bearing complement. The schema is given in general form in (42):

- (42) *General schema of predicate Instrumental case in Russian*
(Bailyn 2001)



Of course, a feature-based theory of case, in the Minimalist sense, is not a new idea. As we saw at the outset, the tight connection between Nominative case and Tense is well-known and on most recent theories, also involves a configuration where c-command is the most relevant factor. Thus, we can maintain something like (43) for Nominative:

- (43) *General schema of Nominative case* (Pesetsky and Torrego 2001, Richardson 2003)



Notice that the fact that the case is checked on the specifier of the complement and not on the complement itself is not important so long as there is no intervening case-checking head, and in fact such examples exactly serve to differentiate selection from case-checking (which look so similar in traditional accounts of genitive) and perhaps to differentiate fully structural case (Nominative and Accusative) from other instances as being related to configurational status: 'structural' cases are assigned to elements in Spec positions, those in complement positions are either configurational (here Genitive, Instrumental) or 'lexical'.

As mentioned at the outset, I follow Richardson (2003) in assuming that (structural) Accusative case (on arguments) is related to (inner) Aspect. There is only one significant difference between my assumptions about Nominative and Accusative case and those of Richardson (2003) and this involves not Nominative and Accusative but rather Dative case instances. I do not assume that Nominative and Dative have the same source (T), which has been the usual assumption since at least Franks (1990) and is maintained in Lavine (2000), Richardson (2003) and other places.

For one thing, there is a clear meaning distinction beyond the lack of overt tense in Franks (1990) examples in (44):

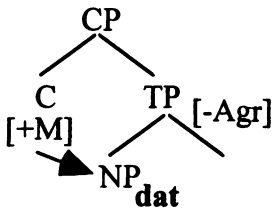
- (44) a. Gruzovik ne proexal.
 truck_{NOM} NEG went through_{+PAST, +AGR}
 'The truck did not go through.'
- b. Gruzoviku ne proexat'.
 truck_{IDAT} NEG go through_{-TENSE, -AGR}
 'The truck cannot go through.'

I have always been surprised that the difference in *modality* rather than agreement is often ignored in discussion of such examples. It is certainly the case that the Dative marked infinitive constructions contain modality in their meaning (reflected in the English translation of such phrases) which is not represented in a structure that only has + or – agreement features of T. For one thing, we know that Dat and Nom arguments can co-occur, throwing doubt on the idea that they are associated with the same position. This is shown in (45):

- (45) Ètomu mal'čiku nraǰatsja gruzoviki.
 this boy_{DAT} likes_{PRES. PL} trucks_{NOM PL}
 'This boy likes trucks.'

In (45) there is clearly agreement and tense present and yet we have a Dative argument (alongside a Nominative) one, so the idea that these two case instances are assigned to the same position appears suspect. And if we want to maintain a strictly feature-based source for all non-lexical cases I assume, then, that the Dative is associated with the SpecT position and its source is a higher C head, which is also the source of the modality in Dative infinitival constructions. In the absence of a higher C phrase, SpecT is open for EPP-movement of phrases from lower in the structure, producing a kind of ‘Inversion’ structure which I have motivated elsewhere (Bailyn 2004). Thus the structure of Dative case might look something like (46):

(46) *General schema of (configurational) Dative case*



And of course there is evidence that the presence of C leads to the possibility of secondary datives on the famous semi-predicative elements *odin* and *sam*, which occur in an agreeing form otherwise. This is shown in (47):

- (47) a. Ivan xočet tancevat' odin /*odnomu.
 Ivan wants to dance alone_{NOM} /*alone_{DAT}
 'Ivan wants to dance alone.'
- b. Ivan prišel, čtoby tancevat' odnomu /*odin.
 Ivan arrived COMP to dance alone_{DAT} /*alone_{NOM}
 'Ivan arrived in order to dance alone.'

One other aspect of the Dative case situation should be noted — the one that led others to claim that defectiveness of T or lack of agreement — the TPs in such construction are typically [-Agr] as shown in (46), but not always as we have seen in (45). So it is not [-Agr] that is

directly responsible for the case assignment of Dative in these constructions, and yet there is often a correlation between Dative (esp. in modal usages) and an infinitival [-Agr] TP. Once again we see a correlation between selection and case which is accounted for by the selectional properties of the case probing head. Empirical data tell us the two are not the same, but their source is the same, and thus it is a lexical property of the head that accounts for the correlation.⁸

The overall (canonical) non-lexical case appearance situation can thus be summarized as in (48):

(48) *Functional category relation of Russian non-lexical morphological case occurrence*

Case	Functional category manifested
Nom	T
Acc	Asp
Dat	C
Instr.....	Pred
Gen.....	Q

We can thus imagine the lexical entry of Nominals to include the usual formal feature matrix (FF) as envisioned in Chomsky (1995, 2000 and elsewhere), and for each Nominal also to include an uninterpretable functional category feature, which gets spelled out as the familiar morphological cases (T is spelled out as Nom, Asp as Acc etc). This is then a direct extension of the Pesetsky/Torrego idea that Nominative case *is* uninterpretable tense on nominals, to all the other cases. In the

⁸ I do not discuss indirect object Dative here, although I have argued elsewhere that it results from a particular configuration as well, namely that of verbal complement in a system whereby Theme objects are generated in SpecVP. This is discussed in Bailyn (1995a, b). For now, I exclude these Datives, since they share the configuration of lexical case-marked arguments, although ultimately we'd like to include them in our system, and should be able to do so without added stipulation. However, in the chart that follows they are not included.

formal syntax, morphological case can be eliminated, and the traditional labels need be maintained only in the morphological component, although they could just as easily be renamed (Tense Case, Aspect Case, Comp Case, Predicate Case and Quantifier Case respectively). Thus the feature make up of a noun like *kniga* ('book') might look like (49):

(49) *Lexical entry for 'kniga'*

Inherent features

[PHON features] (phonological make up of root)

[SEM features] (what *kniga* means includes argument structure)

[FORMAL features] (+N, +FEM)

Variant features

[PHI features]

(# and ASSOCIATED FUNCTIONAL CATEGORY)

So in the case of *knig* (the traditional genitive plural), the variant features would be a plural feature and a Q feature, requiring that the configuration (projection of) the nominal be compatible with plural (verbal agreement say) and that the nominal be in a position where it can Agree (in the probe/goal sense) with a Q head (or feature of a head) of a minimally c-commanding category. Whether or not this is always reducible to selection constitutes the main topic for further research in this direction. But certainly we can see how a purely derivational system, in the sense of Epstein et al (1998) might work with such lexical entries: derivations are built up from the bottom, and the system of concatenation works as described in Epstein et al (1998) and Epstein and Seely (2002).

Some final observations are in order. First, the system in (48) is clearly too strong, for we know that the interpretable Tense corresponding to Nominative must have a positive value, the Aspect node must be [+telic], the C in question must be [+modal], the Pred must be phonologically null, and so on. It should now be obvious that the value of the features themselves does not necessarily match the traditional functional category label: the [+modal] feature of Dative is housed in C

in the discussion above and the [+telic] feature housed in (inner) Asp. The [+T] feature must indeed be *plus* T and the [+Pred] category must be morphologically null.

(48) might thus be better reduced to something like (50) whereby no particular *category* is implicated, simply a feature, and features can be associated with various categories.

(50) *Feature relation of Russian non-lexical morphological case*

Case	Feature manifested
Nom	[+T]
Acc	[+Telic]
Dat	[+Modal]
Instr.....	[+Ø Pred]
Gen	[+Ø Q]

(50) leads us to the final important consequence, the feature-based system allows us to take seriously the label-less system of Collins (2002), whereby there are *heads*, as determined by their feature make-up, but no *category labels*. In fact the only basic syntactic relations, all represented as relations among heads, are given in (51):

(51) *Basic syntactic relations* (Collins 2002: 22)

- a. Theta (X, Y) X assigns a theta-role to Y
- b. EPP (X, Y) Y satisfies the EPP feature of X
- c. Agree (X, Y) X matches Y, and Y values X
- d. Subcat (X, Y) X subcategorizes for a feature

(51a) reflects argument structure. (51b) results in displacement (movement). (51c-d) should then cover all case and agreement phenomena. However, without an approach to case such as (50), we would not be able to maintain a minimal system of this sort and still

account for the full range of productive morphological occurrences we see.

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Some Notes on Aspect, (Un)ergativity, and 'X was not at Y'-Constructions in Polish*

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1. The issue

Polish is one of the languages which show an alternation in the case marking of the internal argument of a verb: while the object in an affirmative clause is marked for ACC(usative) (1a), its case marking obligatorily changes to GEN(itive) when the verb is negated (1b).

- (1) a. Jan lubi Ewę.
John likes Eve_{ACC}
'John likes Eve.'
- b. Jan nie lubi Ewy.
John NEG likes Eve_{GEN}
'John doesn't like Eve.'

This phenomenon, called 'Genitive of Negation' (Gen Neg), is not restricted to Polish; it is also found, e.g., in Russian. However, unlike in Russian, in Polish the rule of Gen Neg applies only to internal arguments

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of transitive verbs, and not to internal arguments of unaccusative verbs;
cf. (2a) vs. (2b/b').^{1 2}

- (2) a. Odpowiedź/ *odpowiedzi nie przyszła Polish
 answer NOM. FEM./answer GEN.FEM NEG came 3SG. FEM
 '(The) answer didn't come.'
- b. Otveta ne prišlo. Russian
 answer GEN. MASC NEG come 3SG.NEUT. PAST
 'No answer came.'
- b.' Otvet ne prišel.
 answer NOM. MASC NEG came 3SG. MASC
 'The answer didn't come.'

Gen Neg in Polish differs from that in Russian in yet another important respect. Unlike in Russian, in Polish the aspect marking of the verbal predicate does not have any influence on the case marking of the direct object. Irrespective of the aspectual properties of the predicate, the direct object in negated sentences is always marked with GEN; cf. (3). In Russian, in contrast, GEN correlates with generic (habitual) aspect (4a); on the episodic reading (of both imperfective and perfective verbs), the direct object is marked for ACC (4b, c) (see Pereltsvaig 1999).

- (3) a. Nie czytałam tej gazety.
 NEG read 1SG. FEM. PAST. IMPERF [this newspaper]GEN
 'I didn't read this newspaper.'

¹ Notice also that even the default non-agreeing form of the verb does not improve the acceptability of the GEN in such examples; cf. (i):

(i) *Odpowiedzi nie przyszło.
 answer GEN. FEM NEG came 3SG. NEU

² In the glosses, NEUT stands for neuter, MASC for masculine, and FEM for feminine.

- b. Nie przeczytałam tej gazety.
 NEG read 1SG. FEM. PAST. PERF [this newspaper] GEN
 'I didn't read (completely) this newspaper.'
- c. W młodości nie czytywałam gazet.
 in youth NEG read 1SG. FEM. PAST. HABIT newspapers GEN
 'In my youth, I didn't use to read newspapers.'
- (4) a. Ona nam obeda ne gotowała.
 she for-us dinner GEN NEG prepared IMPERF
 'She *used not to prepare* dinner for us.'
- b. Kogda ona zašla v komnatu,
 when she entered into room

 on ne *kuril* sigaretu/*sigarety.
 he NEG smoked IMPERF cigarette ACC*GEN
 'When she entered the room, he *was not smoking* a cigarette.'
- c. Ona nam obed ne prigotowała.
 she for-us dinner ACC NEG prepared PERF
 'She *didn't prepare* dinner for us.'

In light of these facts it is surprising to find a case in Polish where the aspectual marking of a predicate does in fact seem to matter for the question of the case marking of its nominal argument. The case to be discussed is negated existential-locative constructions. Whereas the subject³ of a negated existential-locative sentence is normally marked for GEN in Polish, on the habitual reading the subject is marked for NOM(inative); cf. (5a) vs. (5b).

³ The term 'subject' is used here in a pre-theoretical sense.

- (5) a. Jana nie było na przyjęciu.
 John GEN NEG BE 3SG. NEUT. PAST at party
 'John was not at the party.'
- b. Jan nie bywał na przyjęciach.
 John NOM NEG BE 3SG. MASC. PAST. HABIT at parties
 'John didn't use to come to parties.'
 (Lit.: 'John was not at parties.')

The GEN marking of the subject in (5a) cannot be an instance of regular Gen Neg in Polish since Polish Gen Neg is restricted to direct objects of transitive verbs and is independent of the aspectual properties of the predicate. Nor can it be an instance of a Gen Neg of the Russian sort since this type of Gen Neg has a broader distribution, i.e., any internal argument (transitive objects and unaccusative subjects) can in principle be marked for GEN, and, in addition, the aspectual dependency of the Russian Gen Neg differs from that observed in (5). In Russian, it is actually the generic/habitual aspect that triggers the GEN case marking, unlike what we observe in (5). If the GEN in (5a) were an instance of the Russian Gen Neg, we would actually expect the habitual aspect in (5b) to trigger the GEN marking of the subject, contrary to fact.

Since the GEN in (5) cannot be taken to be an instance of a regular Gen Neg, one possible alternative would be to attribute the GEN in (5a) to some special properties of BE-constructions. However, this cannot be true either: the subject in regular copular constructions, both in affirmative and negative variants, is marked for NOM and the copula always agrees with the NOM subject; cf. (6).

- (6) a. Jan był /nie był nauczycielem.
 John NOM was_{3SG. MASC} /NEG was_{3SG. MASC} teacher INSTR
 'John was a teacher.' / 'John wasn't a teacher.'
- b. *Jana nie było nauczycielem.
 John GEN NEG was_{3SG. NEUT} teacher INSTR

Since the copula always takes a NOM subject irrespective of negation, the GEN in (5a) cannot be some general property of BE-constructions; at most it could be a property of negated existential-locative constructions. But notice that even this cannot be true since no other verb which can be used in existential-locative constructions besides *być* takes a GEN subject when it is negated; cf. (7).^{4 5}

- (7) a. Na stole ✓była /✓leżała książka.
 on table ✓was_{3SG. FEM.} /✓lay_{3SG. FEM.} book NOM. SG. FEM
 'There was a book on the table.'
- b. Na stole *nie* ✓było/*leżało książki.
 on table NEG ✓was_{3SG. NEUT}/*lay_{3SG. NEUT} book GEN. SG. FEM
 'There was no book on the table.'
- c. Na stole *nie* *była /✓leżała książka.⁶
 on table NEG *was_{3SG. FEM.} /✓lay_{3SG. FEM.} book NOM.SG. FEM.

To sum up, the GEN in (5a) can be neither (i) an instance of a regular Gen Neg in Polish, nor (ii) an instance of a Russian-like Gen Neg, nor (iii) a general property of negated *być*-constructions, nor (iv) a general property of negated existential-locative constructions.

If none of the alternatives (i)-(iv) is correct, how else can the puzzle posed by the examples in (5) be solved? It seems that the only remaining solution to the problem at hand is to consider the GEN marking of the subject in (5a) as a genuine feature of the construction in question, i.e., a special property of negated existential-locative constructions with the verb *być* (as opposed to similar constructions with the verb *bywać*). But

⁴ Which verb is chosen depends on the properties of the referent of the subject. Sometimes a given verb occurs because it forms a fixed collocation with the subject nominal; cf., *stół stoi* 'pillar stands', *książka leży* 'book lies' (see Grzegorek 1984:107 ff.).

⁵ Moreover, no other lexical verb takes a different form in the present tense when it is negated; cf. (i): the negated present form is actually *nie ma* 'not has'.

⁶ It should be noted that (7c) is actually grammatical on a contrastive/narrow scope reading of negation; cf. (i):

- (i) Na stole *nie* była książka, ale gazeta.
 On table NEG was_{3SG. NEUT} book NOM. SG. FEM. but newspaper NOM. SG. FEM
 'There was not a book but a newspaper on the table.'

why should this be the case? And especially, why doesn't the habitual *bywać* allow for the GEN marking, requiring a NOM subject instead?

Before answering these questions, let us observe that from a crosslinguistic point of view, a dependency between case marking and aspect is not an uncommon phenomenon. In fact, the Polish facts presented in (5) bear some resemblance to the situation found in split-ergative languages like Hindi, where the special case marking (here: the ERG (ative)) is triggered by the perfective aspect (tense) as opposed to the unmarked (NOM) marking in other tenses (imperfective aspect); cf. (8) (Mahajan 1994:318, 323).

- (8) a. raam vah kitaabē parhṭaa
 Ram _{NOM. MASC} those books _{PL. FEM.} read _{SG. MASC. IMPERF}
 thaa.
 BE _{SG. MASC. PAST}
 ‘Ram used to read those books.’
- b. raam-ne vah kitaabē parhī
 Ram _{ERG. MASC} those books _{PL. FEM.} read _{PL. FEM. PERF}
 thī.
 BE _{PL. FEM. PAST}
 ‘Ram had read those books.’

Thus, both in Polish and Hindi the special case marking (GEN and ERG, respectively) is conditioned by some special (aspectual and, as will be shown, also some other) properties of the predicate. In the absence of such conditions, the unmarked case (NOM) is used.

The goal of this paper is to investigate in more detail the conditions responsible for the GEN vs. NOM split in (5). Two main factors will emerge as the result of this investigation, namely (i) aspectual properties of the respective predicate (headword: ‘(im)perfectivity’), and (ii) structural properties of the respective construction (headwords: ‘(un)ergativity’ and ‘(im)personality’).

⁷ This is a very simplified description. For a detailed discussion of the conditions on ERG marking, see, e.g., Mohanan (1994).

2. Pieces of a mosaic

Let us start by further inquiring into what exactly the aspectual difference underlying the NOM vs. GEN split observed in (5) is. As has been pointed out in the previous section, in split-ergative languages the special ERG case marking of the subject is triggered by the perfective aspect (or ‘perfective tenses’). It would thus be interesting to see whether the special GEN marking in the Polish example (5a) could also be taken to be conditioned by some ‘perfective’ properties of the predicate (for whatever reason may eventually be deemed responsible for such a correlation; but see Błaszczak to appear for some discussion of this issue).

2.1 Aspectual properties of ‘być’ vs ‘bywać’

Usually native speakers of a Slavic language do not have any problems establishing the aspectual value of any given verbal form. Given this, it is even more surprising that determining the aspectual value of the verb BE in Slavic turns out to be nontrivial. In fact, there is no agreement in the literature on this point: while some authors, as, e.g., Schoorlemmer (1995), take *byt’* ‘to be’ in Russian to be clearly imperfective, other researchers, as, e.g., Franks (1995), Junghanns (1997)⁸ or Eriksen (2000), take just the opposite view and claim *byt’* to be perfective. There is also a middle position: *byt’* is taken to be either aspectually unspecified or compatible with both the perfective and imperfective viewpoints; cf., among others, Matushansky (2001), Borik (2002).

Why is it so difficult to establish the aspectual value of BE in Russian or Polish? The reason for this could be, as Borik (2002:153) points out, that “there seems to be a conflict between its interpretational properties and its use.” On the one hand, BE is a stative verb and as such it has the typical semantics of an imperfective. Like imperfective verbs, it is compatible with durative adverbials like *for an hour*,⁹ or *always*,¹⁰

⁸ Actually, Junghanns (1997) speaks only about the future auxiliary *budet* in Russian as a perfective verb. He does not, however, refer to *byt’* as being perfective in general.

⁹ Actually, the ‘adverbial modification’ test is the most extensively used diagnostic for distinguishing telic vs. atelic predicates. In the existing literature on aspect, one often

and can appear in the complement position of a phase verb like *begin* or *cease*, which otherwise only precede imperfective infinitives; cf. (9) (Borik 2002:153).¹¹

- (9) a. Prodolžaj byt' poslušnym!
Continue IMPER be INF obedient INSTR
'Continue to be obedient.'
- b. Prodolžaj čitat'/*pročitat' knigu.
Continue IMPER read INF IMPERF /*read INF PERF book ACC
'Continue to read a book.'

However, there is also evidence pointing to just the opposite conclusion, i.e., that BE in Polish or Russian is perfective.

It has been noted in the literature that the suffixes employed by what are traditionally called future tense forms of *byt'* ('to be') in Russian (i.e., the *budet*-forms) are actually ordinary present tense suffixes of Russian verbs.¹² Nevertheless, the *budet*-forms, despite being,

encounters the view that the *perfectivity/imperfectivity* distinction can more or less be equated with that of *telicity/atelicity*. But see Borik (2002) for criticism.

¹⁰ But see Junghanns (1997, fn. 2). According to him, "perfective verbs are good in sentences that contain iterative or durative adverbials or in contexts that give rise to a corresponding interpretation;" cf. (i):

- (i) Takuju zadaču vsegda rešiš'.
such ACC task ACC always solve 2SG. PRES. PERF
'Such a task is no problem.'

¹¹ Franks (1995:283, fn. 24) points out that "these [imperfective] properties can be resolved with a proper understanding of the relationship between grammatical aspect and extensional aspect. Roughly speaking, the imperfective extensional properties of *byt'* derive from its intensional stativity, despite the fact that it is grammatically perfective."

¹² The same holds for the Polish 'future forms' of *być*, the *będzie*-forms; cf. (i). Although the discussion in the main text is based on Russian, the same observations can be made with respect to Polish as well.

- | | | |
|-----|--------------------|--------------------------|
| (i) | będę (1SG) | pisz-ę (write-1SG. PRES) |
| | będzi-esz (2SG) | pisz-esz |
| | będzi-e (3SG) | pisz-e |
| | będzi-emy (1. PL) | pisz-emy |
| | będzi-ecie (2. PL) | pisz-ecie |
| | będą (3. PL) | pisz-ą |

morphologically speaking, present tense forms,¹³ have future time reference exclusively; cf. (10b). This is characteristic of perfective verbs in Slavic; cf. (10a).¹⁴ Moreover, as pointed out by Franks (1995:233), this view of BE as formally perfective also explains the structure of the periphrastic future in Russian (Polish); cf. (10c): “The future meaning is derived from the perfective character of the auxiliary, while the verb itself remains imperfective in aspect” (*ibid.*). Another piece of evidence for the perfective status of BE, mentioned by Franks (1995:233), is the impossibility of the periphrastic future form in the case of BE, cf. (10d), the reason being that *byt'* is a perfective infinitive (cf. (10e)) (and, as already mentioned above, in the periphrastic future forms the auxiliary is followed exclusively by imperfective verbs).

- (10) a. Ona budet vračom.
 she_{NOM} be_{3SG. PRES} doctor_{INSTR}
 ‘She *will be* a doctor.’
- b. Ona pišet / napišet pis'mo.
 she_{NOM} write_{3SG. PRES. IMPERF/write} SG. PRES. PERF letter_{ACC}
 ‘She is writing/*will write* a letter.’
- c. Ona budet pisat'/*napisat' pis'mo.
 she_{NOM} be_{3SG. PRES} write_{3SG. PRES IMPERF/*PERF} letter_{ACC}
 ‘She *will write* a letter.’
- d. * Ona budet byt' vračom.
 she_{NOM} be_{3SG. PRES} BE_{INF} doctor_{INSTR}
- e. budet + INFINITIVE_{IMPERF}
- * budet + INFINITIVE_{PERF}

¹³ An anonymous reviewer has recommended using the term ‘non-past tense morphology’ instead of ‘present tense morphology.’

¹⁴ In fact, there is diachronic evidence that the forms *budet* used to be perfective. In Old Church Slavonic, the verb *byti* used to have two separate present tense paradigms: an imperfective paradigm (→ *est'*-forms) and a perfective one (→ *budet*-forms) (see Junghanns 1997).

In sum, this short discussion confirms the point made above, namely that BE seems to have both imperfective and perfective features and therefore it is difficult to establish its aspectual value.

BE is unusual in yet another respect: unlike most other verbs, BE in Polish (also in Russian) has a separate iterative/habitual paradigm; see Table 1.¹⁵

Table 1: *Aspectual forms of BE*

	ASPECT	
	ITERATIVE <i>bywać</i>	IMPERF/PERF ? <i>być</i>
FUTURE	będzie bywać	będzie
PRESENT	bywa	jest
PAST	bywał/-a/-o	był/-a/-o

The iterative *bywać* is clearly imperfective, judging from the diagnostics mentioned above: (i) Like imperfective verbs, it is compatible with durative adverbials (cf. (11a)) (but see the footnotes 10 and 11), (ii) it can appear in the complement position of a phase verb like *begin* or *cease* (cf. (11b)), (iii) the present tense form of *bywać*, unlike perfective verbs, does not have future time interpretation (cf. (11c)), and (iv) it can follow the auxiliary in the periphrastic future forms (cf. (11d)).

- (11) a. ? Jan bywał na przyjęciach
 John_{NOM} BE_{3SG.MASC.PAST.HABIT} at parties
 przez całe dni.
 for [whole days]_{PL.ACC}
 ‘John didn’t use to stay at parties for days.’

- b. Jan przestał bywać na przyjęciach.
 John_{NOM} stopped BE_{INF.HABIT} at parties
 ‘John stopped coming to parties.’

¹⁵ Normally, it is just an imperfective form that is used to express an iterative meaning of a given verb; cf. (i):

- (i) Jan często chodził na przyjęcia.
 John often GO_{3SG.MASC.PAST.IMPERF} to parties
 ‘John often went to parties.’

- c. Jan bywa na przyjęciach.
 John NOM BE 3SG. MASC. PRES. HABIT at parties
 ‘John goes (from time to time) to parties.’
 (*‘John will go (from time to time) to parties.’)
- d. Jan będzie bywać na przyjęciach.
 John NOM be 3SG. PRES BE INF. HABIT at parties
 ‘John will go (from time to time) to parties.’

In what follows, I will discuss some (im)perfectivity diagnostics in more detail and show that whereas *bywać* is clearly imperfective, there is in fact a split within *być*-constructions: while some *być*-constructions pattern along with *bywać*, there are also *być*-constructions that behave differently in that they actually pattern with perfective verbs.

2.1.1 Imperfectivity diagnostics

Two important diagnostics to differentiate between perfective and imperfective verbs (see Borik 2002:39 ff., Piñón 1994:349 ff.) are: (i) participle formation and (ii) complement clauses of ‘phase’ verbs.

Regarding the first diagnostic, it should be noted that Polish has two types of adverbial participles: the ‘present participle’ (*imiestów przysłówkowy współczesny*) and the ‘perfect participle’ (*imiestów przysłówkowy uprzedni*). Of these two participles, imperfective verbs have only present participles (-*ąc* forms) (cf. (12a)), while perfective verbs have only perfect participles (-(*w/l*)*szy* forms) (cf. (12b)) (Piñón 1994:350f.). Applying this test to *być* and *bywać*, one arrives at the following result: only present participles (cf. (13a)), but no perfect participles (cf. (13b)) can be formed from these verbs; in short, the verbs in question are imperfective according to this diagnostic.

- (12) a. ^{OK} czytając IMPERF * przeczytając PERF ‘reading’
 b. ^{OK} przeczytawszy PERF * czytawszy IMPERF ‘having read’
- (13) a. ^{OK} będąc ‘being’ ^{OK} bywając ‘being from time to time’
 b. * bywszy * bywawszy (Intended: ‘having been’)

A closer look at the data, however, reveals that this conclusion is not entirely true. It turns out, in fact, that the existential-locative *być* and the predicative *być* behave differently, and that the latter patterns with *bywać* in this respect. Compare (14). Note that while (14a) and (14b) are perfectly well formed, (14c) seems odd.

- (14) a. ^{OK} Bywając na przyjęciach,
 being HABIT at parties
 Jan spotykał wielu ludzi.
 John meet_{3SG. MASC. PAST. IMPERF} many people
 (Lit.: 'Being from time to time at parties, John used to meet many people.')
- b. ^{OK} Będąc nauczycielem, Jan dużo czytał.
 being teacher INSTR John much read_{3SG. MASC. PAST. IMPERF}
 'Being a teacher, John used to read a lot.'
- c. # Będąc często w domu, Jan dużo czytał.¹⁶
 being often at home John much read_{3SG. MASC. PAST. IMPERF}
 (Intended: 'Being at home, John used to read a lot.')

In fact, a similar pattern can be observed with regard to the second diagnostic, namely compatibility with 'phase' verbs like *begin*, *continue*, *finish* or *stop*. As already mentioned in the previous section, only imperfective verbs can be used as infinitival complements of such verbs (recall (9)). Borik (2002:153) uses this test to show that *byt'* in Russian must be imperfective. But notice that what Borik tests is the predicative *byt'*. Applying this test to the existential-locative BE leads to just the opposite conclusion. Once again, the predicative *być* (15a)

¹⁶ The correct sentence would be something like (i):

- (i) Przebywając często w domu, Jan dużo czytał.
 spending often at home John much read_{3SG. MASC. PAST. IMPERF}
 'Spending much time at home, John used to read a lot.'

patterns with *bywać* (15b) to the exclusion of the existential-locative *być* (15c).¹⁷

- (15) a. ^{OK} Jan przestał bywać na przyjęciach.
 John stopped BE_{INF. HABIT} at parties
 'John stopped coming to parties.'
- b. ^{OK} Jan przestał być nauczycielem.
 John stopped BE_{INF} teacher_{INSTR}
 'John stopped being a teacher.'
- c. # Jan przestał być w domu.
 John stopped BE_{INF} at home
 (Intended: 'John stopped being at home.')

To sum up, the diagnostics show that *bywać* and the predicative *być* are imperfective, while the existential-locative *być* is not. In the next section we will see that the existential-locative *być*, in fact, patterns with perfective verbs in still other respects.

2.1.2 Perfectivity diagnostics

Just as there are contexts which are compatible only with imperfective verbs (like, e.g., the future auxiliary (recall (10c)) or 'phase' verbs (recall (9b))), there are environments which are compatible only with perfective verbs, e.g., the complex conjunction *zanim nie* (or *poka ne* in Russian; cf. Eriksen 2000:29) (cf. (16a)). Note that the existential-locative *być* patterns with perfective verbs in this respect; cf. (16b). Interestingly, the predicative *być* (16c) seems odd in this context, indicating once more that the two types of *być* show different aspectual properties.

¹⁷ The same observation also holds for Russian. Thanks to Ljudmila Geist (p.c.) for discussing the data with me.

¹⁸ The correct version would be:

(i) Jan przestał bywać w domu.
 John stopped BE_{INF. HABIT} at home
 'John stopped being at home.'

- (16) a. Nigdzie nie wyjdę, zanim nie
 nowhere NEG go 1SG. PRES. PERF before NEG
*napiszę/*piszę* [tego listu].
 write 1SG. PRES. PERF/*IMPERF [this letter]GEN
 ‘I won’t go out before I have written this letter.’
- b. Nie zadzwonię do nikogo
 NEG phone 1SG. PRES. PERF to no one
 zanim nie *będę* w domu.
 before NEG be 1SG. PRES at home
 ‘I won’t call anyone before I get home.’
- c. # Nie przyjmę [tej pracy]
 NEG accept 1SG. PRES. PERF [this job]GEN
 zanim nie *będę* dyrektorem.
 before NEG be 1SG. PRES director INSTR
 (Intended: ‘I won’t accept this job before I become/have
 become a director.’)¹⁹

In addition to the context of *zanim nie*, there is also a series of verbs which take only perfective complements: *zdażyć* ‘to manage’, *zdołać* ‘to manage, to succeed’, *udać się* ‘to succeed’; cf. (17a).²⁰ (17b) shows that the existential-locative *być* patterns with perfective verbs. *Bywać* is clearly incompatible with such verbs, confirming once again its imperfective nature; cf. (17c). However, strangely enough, the example with the predicative *być* in (17d) is quite fine.

- (17) a. Jan *zdażył* przeczytać /*czytać książkę.
 John managed read PERF/ *read IMPERF book ACC
 ‘John managed to read the book.’

¹⁹ The correct version must be:

- (i) Nie przyjmę [tej pracy] zanim nie *zostanę* dyrektorem.
 NEG accept 1SG. PRES PERF [this job] GEN before NEG become 1SG. PRES director INSTR
 ‘I won’t accept this job before I become/have become a director.’

²⁰ Thanks to an anonymous reviewer for pointing out these contexts to me.

- b. Jan zdążył być w domu na czas.
 John managed be at home on time
 'John managed to be at home on time.'
- c. # Jan zdążył bywać na przyjęciach.
 John managed BE_{INF. HABIT} at parties
 (Intended: 'John managed to be at parties from time to time.')

- d. ? Zanim został prezydentem,
 before become_{3SG. MASC. PAST. PERF} president_{INSTR}
 Jan zdążył być [ambasadorem, ministrem i
 John managed BE_{INF} [ambassador, minister and
 premierem].
 prime minister]_{INSTR}
 'Before he became the president, John managed to be an
 ambassador, a minister and the prime minister.'²¹

Let us summarize the discussion so far: (i) there is a clear difference between *być* and *bywać* as far as their aspectual properties are concerned; (ii) *bywać* is clearly imperfective; (iii) in addition, there is a contrast between predicative *być* and existential-locative *być*; (iv) the existential-locative *być* shows 'perfective' properties, while the predicative *być* rather patterns with imperfective verbs (and therefore with *bywać*), or — given the unclear situation in (17d) — is aspectually unmarked (and thus compatible with both perfective and imperfective viewpoints,²² as has recently been claimed by, e.g., Matushansky 2001:298).

²¹ This example is due to an anonymous reviewer.

²² It should be noticed that the claim about the 'perfective' status of the existential-locative *być* is to be understood in a rather narrow sense. While we have indeed seen some evidence for the 'perfectivity' of the infinitival existential-locative *być*, the past forms *był-* and the nonpast (traditional 'future') forms *bed(z)-*, no such claim can be made with respect to the 'actual present' forms *jest-*. These forms derive from the Old Church Slavonic imperfective sub-paradigm of the present tense paradigm of the verb *byti* (see footnote 14). Clearly enough, *jest-* forms are not perfective in any obvious sense. It is

2.2 Structural differences between 'być' and 'bywać'

In the previous section it was noted that *bywać* and the predicative *być* seem to pattern together as far as their aspectual properties are concerned to the exclusion of the existential-locative *być*. But why should this be the case? On a closer inspection, we notice that the similarities between *bywać* and predicative *być* go even further, and that the existential-locative *być* has indeed a special status.

2.2.1 The interpretation of the subject

Unlike the subject of existential-locative clauses, the subjects of *bywać* and predicative *być* clauses are always marked for NOM regardless of the presence of negation in the clause (cf. (5b), (6), and (11)). Moreover, word order in clauses with *bywać* and predicative *być* is normally S-V-PP/AP/NP. In other words, the subject tends to be preverbal in both affirmative and negative variants. In contrast, the subject in an affirmative existential-locative clause tends to occupy a postverbal position (cf. (7a)), whereas the subject in a negated existential-locative clause usually shows more freedom of word order (i.e., it does not necessarily need to occupy a postverbal position) (cf. (5a) vs. (7b)) (see Borschev and Partee 2001, Harves 2002, among others, for a similar observation regarding the Russian facts).

Not only the position of the subject differs, but there is also a clear difference in the interpretation of NOM vs. GEN subjects: whereas a NOM subject can be understood as an Agent, having control over a given situation (cf. (18a, b)), a GEN subject can be characterized by the absence of agentivity or volition/controlability (cf. (18c)) (see Borschev and Partee 2001 and Harves 2002, referring to Padučeva 1992, for a suggestion along similar lines).²³ It is interesting to note that the interpretation of a NOM-marked subject in an affirmative existential-locative sentence depends on its position in the clause: in postverbal position, the subject is interpreted 'nonagentively'; in preverbal position,

interesting to observe that it is exactly the present tense context in which a special idiosyncratic form *nie ma* is used in negated existential-locative sentences (see fn. 5).

²³ It should be noticed that while the GEN marking of the subject correlates with the absence of agentivity/volitionality/controlability, the ERG marking of the subject in Hindi correlates with agentivity/volitionality or 'conscious choice': ERG subjects carry the meaning of deliberate action in contrast to NOM subjects; cf. Mohanan (1994:72ff.).

on the other hand, the subject might require properties of a prototypical subject (agentivity, volition, controlability); cf. (19a, b).²⁴

(18) *subject oriented intentional adverbs*

a. Jan *chętnie* bywał na przyjęciach.
 John_{NOM} willingly was_{HABIT} at parties
 Lit.: 'John was willingly at parties.' ('John willingly went from time to time to parties.')

b. ? Jan *chętnie* był nauczycielem.²⁵
 John_{NOM} willingly was teacher_{INSTR}
 Lit.: 'John was willingly a teacher.' ('John willingly worked as a teacher.')

c. * Jana nie było chętnie w pracy.
 John_{GEN} NEG was willingly at work

(19) a. Jan *chętnie* był w domu.
 John_{NOM} willingly was at home
 'John was willingly at home.'

b. * W domu był *chętnie* Jan.
 at home was willingly John_{NOM}

2.2.2 *Impersonality/(Un)ergativity*

Given the facts presented above, it seems that the aspectual differences detected above between locative-existential *być*, on the one hand, and

²⁴ It should be stressed that in negated existential-locative sentences, the interpretation of the GEN subject does not depend on its position in the clause. In other words, both in preverbal and postverbal position, the interpretation of the subject is the same (in terms of nonagentivity, nonvolitionality, noncontrolability); what, however, presumably changes (in relation to word order) is the interpretation of the subject in terms of definiteness or discourse (information structural) related properties; see Borschev and Partee (2001) for a recent discussion of these issues.

²⁵ This sentence is admittedly not perfect, but is still grammatical. Its somewhat degraded status is due to the forced 'agentive' interpretation of the subject, which otherwise does not have such an interpretation in usual predicative copular sentences.

predicative *być* and *bywać*, on the other hand, should correlate with different syntactic structures of the respective predicates. To be more precise, the two ‘aspectual’ groups identified above could be taken to differ in terms of their base-generated subject position. As for the group including predicative *być* and *bywać*, the subject would be generated in some ‘predicate-external’ position (to explain why the subject displays — or at least is capable of displaying — prototypical properties of an external argument: agentivity, volitionality, controlability, etc.). In contrast, in the case of locative-existential *być*, the subject would be generated ‘predicate-internally’, thus displaying prototypical properties of an internal argument (lack of agentivity, volitionality, controlability, etc.). In negated existential-locative clauses, the surface subject position, the Spec,TP (Spec,IP), would be filled by a dummy (cf. Dziwirek 1994) (or in Witkoś’ (2000) terms by an expletive *pro* of the *it*-type that is equipped with the categorial [+D] feature, 3rd person singular neuter agreement feature and the [+NOM] case feature, thus checking the relevant features of T and yielding the default agreement).²⁶ In other words, the GEN NP never has the chance to become the subject of the clause: the construction has an ‘impersonal’ flavor. Even in cases in which the GEN NP occupies some preverbal position, this happens not due to a ‘raising-to-subject’ operation but rather due to some discourse-related movement operation (A-bar movement), presumably to some TP (IP)-adjoined position.^{27 28}

²⁶ Another possibility would be to assume, following Harves (2002), that the default agreement is not due to the presence of an expletive *pro*-subject in the structure, but rather to T being a defective probe in the cases at hand.

²⁷ That the GEN NP is not the syntactic subject in the construction in question can be shown by using different ‘subjecthood tests’ as, e.g., anaphor binding or control of the fixed expression *po pijanemu* ‘while drunk’; see Dziwirek (1994) for a detailed discussion; see also Witkoś (2000); cf. (i) (from Dziwirek 1994:154):

- (i) a. Jan_i był w swoim_i / *jego_i pokoju.
 John_{NOM} was_{3SG. MASC} in REFL / * his room
 ‘John was in his room.’
- b. Janka_i nie było w jego_i / *swoim_i pokoju.
 John_{GEN} NEG was_{3.NEUT} in his / * REFL room
 ‘John wasn’t in his room.’

If our assumptions regarding the differences between the two found groups of predicates with respect to their subject position are correct, then existential-locative constructions would display an ergative/unaccusative syntax, while predicative constructions and constructions with *bywać*, on the other hand, would have an unergative syntax. This conclusion would, in fact, correspond exactly to Harves' (2002) findings regarding Russian copular constructions, though reached partly on other grounds.

3. Concluding remarks

Returning to the questions posed in section 1, three main factors might be identified that are responsible for the NOM vs. GEN split in (5). The GEN marking of the subject in (5a) seems to be conditioned by 'perfective' properties of the predicate. The GEN marks in some sense the absence of the 'syntactic' subject (or looking from another perspective: the presence of a dummy subject in the construction at hand); the whole construction is, then, *impersonal*. Moreover, the GEN correlates with a non-agentive interpretation of the subject, which (translated into structural terms) corresponds to *unaccusative/ergative* syntax.

The NOM marking of the subject in (5b), in contrast, correlates with an agentive interpretation of the subject, which (translated into structural terms) corresponds to *unergative* syntax. The NOM subject is also the syntactic subject of the construction in question: no dummy subject is present, hence the whole construction is *personal*. Moreover, the predicate in (5a) is clearly *nonperfective*.

There are many questions which remain unanswered in the present paper: (i) What are the exact syntactic structures of (5a) and (5b)? (ii) Why should there be a correlation between the aspectual properties of a

⁵ As for affirmative locative-existential *być*, the most plausible assumption would be that the subject is also generated 'predicate-internally,' undergoing a covert movement to T (or undergoing a long distance agreement with T). While remaining in the predicate-internal position, it behaves like a prototypical Theme argument (cf. (19b)). It can, however, undergo an overt movement to the surface subject position, Spec,TP; once having reached this position, it might acquire an interpretation associated with a prototypical subject argument or a prototypical topic (agentivity, controlability, volitionality, etc.) (cf. (19a)).

given predicate and the syntactic structure? (In other words, how does aspect correlate with ergativity/impersonality?);²⁹ (iii) Is there any deeper correlation between the Polish facts in (5) and the facts found in split-ergative languages (recall (8))? I leave these (and many other related questions) for future work (but see Błaszczak, to appear for the first suggestions).

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²⁹ That there is indeed some deeper connection between aspect and ergativity/impersonality can be seen in the English example (i) (thanks to an anonymous reviewer for pointing out these facts to me):

- (i) a. There arrived a ship.
b. *There is arriving a ship.

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On the Periphery: Comparative Correlatives in Polish and English*

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1. Introduction

A notable feature of recent work in syntactic theory is a new interest in the periphery of language. Particularly important here is the detailed discussion in Culicover (1999). Culicover emphasizes the size of the periphery and argues that there is “a continuum along which a full spectrum of possibilities can be found, from very idiosyncratic to very general” (1999: vi). If this is right, it is not possible for theories of syntax to ignore peripheral constructions. Rather they must find ways of accommodating them, and how well a framework can accommodate such constructions is potentially important.

A good example of a peripheral construction is the comparative correlative (CC) construction (also known as the comparative conditional construction), apparently first discussed within generative syntax in Ross (1967:6.1.2.6) and subsequently discussed *inter alia* by McCawley (1988) and Culicover and Jackendoff (1999). (1) is a typical example.

(1) The more books I read, the more I understand.

* Some of the ideas presented here were originally presented in Borsley (2003). In developing these ideas I have benefited from comments from and/or discussion with a number of people, especially Gereon Müller, Adam Przepiórkowski, Andrew Radford, Ivan Sag and Peter Sells. I have also benefited from the comments of an anonymous referee. I am grateful also to Ewa Jaworska and Adam Przepiórkowski for help with the Polish data. Any bad bits are my responsibility.

In the course of their discussion, Culicover and Jackendoff (1999: 569) remark that '[m]ore cross-linguistic work is called for on this and other idiosyncratic constructions'. The present paper is a contribution to this work, considering both the English construction and its Polish counterpart.

Although Culicover and Jackendoff (1999) discuss the English construction at some length, they do not develop a formal analysis, and they do not consider whether some theoretical framework might be more able than some other to accommodate the data. The same limitation is found in Culicover (1999), as Fodor (2001) points out. This is unfortunate since, as Fodor emphasizes, it is reasonable to suppose that peripheral constructions may help to choose between theories of syntax. As she puts it:

The descriptive apparatus of one linguistic theory might well be more adaptable than that of a competitor for the purposes of explaining why learners encode peripheral constructions as they do. And if other things were equal, that would be the better theory; explanatory success in this sense could give one linguistic theory an edge over another. (Fodor 2001:376)

Thus, it is important to consider what various theoretical frameworks can say about peripheral constructions in various languages. This is what I want to do in the present paper.

The paper is organized as follows. In Section 2, I outline the main data and draw some preliminary conclusions. Then, in Section 3, I consider how one might try to accommodate the data within the assumptions of the Minimalist Programme. In Section 4, I outline a fairly detailed Head-driven Phrase Structure Grammar (HPSG) analysis of the data. Finally, in Section 5, I conclude the paper.

2. The data

In this Section I will look first at the English CC construction and then turn to its Polish counterpart.

2.1 English

The English CC construction apparently contains two clausal constituents, each with an initial constituent containing *the* and a comparative word of some kind. I will call the clauses *the*-clauses and the initial constituents *the*-phrases. *The*-phrases can be a number of categories. In the first clause in (1), the *the*-phrase is an NP or a DP depending on one's theoretical assumptions. It can also be an AP, as in (2), or an AdvP, as in (3).

- (2) The more careful we are, the more we will find.
 (3) The more carefully we look, the more we will find.

In (1), (2) and (3), it is plausible to suppose that either *the* or the comparative word is the head of the *the*-phrase. It seems, however, that this is not necessarily the case. Consider the following:

- (4) The more hostages' stories I hear, the more confused I am.
 Here, on one interpretation, *the more hostages'* is a possessive modifier of *stories*, and hence neither *the* nor *more* is the head of the whole initial constituent.

Culicover and Jackendoff (1999: 559) note that *the* cannot be preceded by a pied piped preposition. Thus, while (5a) is fine, (5b) is ungrammatical.

- (5) a. The more people Kim talks to, ...
 b. *To the more people Kim talks, ...

This contrasts with the situation in *wh*-questions, as the following illustrate:

- (6) a. How many people did Kim talk to?
 b. To how many people did Kim talk?

The ungrammaticality of (5b) might lead one to think a *the*-phrase cannot be a PP. However, as Andrew Radford has pointed out to me, this is precisely what we seem to have in the following examples:

- (7) a. The more out of breath I am, ...
 b. The more under the weather he is, ...

It seems that the real restriction is that *the* must appear in first position within the *the*-phrase.¹

Both Ross (1967) and Culicover and Jackendoff (1999) show that the relation between the *the*-phrase and the associated gap obeys island constraints. It seems, then, that the two clauses are A'-movement or filler-gap constructions broadly similar to *wh*-interrogatives, exclamatives and *wh*-relatives. However, they are different in a number of respects.

The main difference, noted by Culicover and Jackendoff (1999: 546), is the possibility of *that* after the *the*-phrase, as in (8).

- (8) The more books that I read, the more that I understand.

This is unlike the situation in *wh*-interrogatives, exclamatives and relative clauses, as the following show:

- (9) a. I wonder how much (*that) he read.
 b. I am surprised how smart (*that) he is.
 c. the books which (*that) he read

This is one reason for seeing the construction as part of the periphery.

Culicover and Jackendoff (1999: 549-550) present evidence from tag questions and subjunctive morphology that the second clause in the CC construction is a main clause. The examples in (10) show that it is possible to have a tag question reflecting the second clause, but not one reflecting the first clause.

- (10) a. The more we eat, the angrier you get, don't you?
 b. * The more we eat, the angrier you get, don't we?

¹ This idea was originally suggested to me by Peter Sells.

Similarly, the examples in (11) show that the second clause may have subjunctive morphology in an appropriate context but that this is not possible in the first clause.

- (11) $\left\{ \begin{array}{l} \text{It is imperative that} \\ \text{I demand that} \end{array} \right\}$
 $\left\{ \begin{array}{l} \text{the more John eats, the more he pay(s).} \\ \text{* the more John eat, the more he pay(s).} \end{array} \right\}$

Culicover and Jackendoff (1999:561-564) also present evidence from anaphora that the first clause is a subordinate clause and the second clause a main clause.

It seems, then, that the English CC construction is a subordinate + main clause construction. However, it is an unusual one. The subordinate clause is obligatory although it is not a complement of some lexical head. Hence, (12) is not possible.

- (12) *The more I understand.

On the other hand, it cannot appear with an 'ordinary' main clause, as the following show:

- (13) a. * The more books I read, I understand philosophy.
 b. * The more books I read, I go to sleep.
 c. * The more books I read, it's a nice day.

This is a further reason for seeing the construction as peripheral.

There are at least two constructions which are similar in interesting ways to the standard CC construction. The first is what McCawley (1988) calls the reversed CC construction, which is exemplified by (14).

- (14) I understand more, the more books I read.

Here the second clause looks just like the first clause in the standard construction and the first clause contains a bare in-situ comparative

element. The first clause, which I will refer to as a null-clause, can vary in form in ways that show clearly that it is a main clause.

- (15) I expect him to understand more, the more books he reads.
 (16) I am impressed by his understanding more, the more books he reads.
 (17) Does he understand more, the more books he reads?
 (18) How much more does he understand, the more books he reads?

The second construction which is similar in certain ways to the standard CC construction is the conditional construction, exemplified by (19).

- (19) If I read more, (then) I understand more.

A satisfactory analysis of the standard CC construction should be able to say something about these other constructions.

2.2 Polish

Like the English construction, the Polish CC construction apparently contains two clausal constituents, each with an initial constituent of a special kind. The following is a typical example:

- (20) *Im więcej książek czytam, tym więcej rozumiem.*
 IM more books I-read TYM more I-understand
 'The more books I read, the more I understand.'

The initial constituent in the first clause contains the element *im* and a comparative word. I will refer to such clauses as *im*-clauses and to their initial constituents as *im*-phrases. The initial constituent in the second clause contains the element *tym* and a comparative word. I will refer to such clauses as *tym*-clauses and to their initial constituents as *tym*-phrases. The *im*-phrase in (20) is an NP or a DP. It can also be an AP, as in (21), or an AdvP, as in (22).

- (21) *Im bardziej będziemy ostrożni, tym więcej znajdziemy.*
 IM more we-will-be careful TYM more we-will-find
 'The more careful we are, the more we will find.'

- (22) Im bardziej uważnie będziemy szukać, tym więcej
 IM more carefully we-will-be look-for TYM more
 najdziemy.
 we-will-find

‘The more carefully we look, the more we will find.’

Unlike English *the, im* can be preceded by a pied piped preposition, as the following naturally occurring examples from a corpus of Polish (available at <http://www.ipipan.waw.pl/~corpus/searchpage.html>) illustrate:

- (23) Z im dawniejszych epok pochodzi próbka
 from IM earlier epochs comes sample
 badana tą metodą, tym błąd jest większy.
 Investigated this_{INS} method_{INS} TYM error is greater

‘The earlier the origin of the sample examined by this method, the greater is the error.’

- (24) Z im większym dystansem będziemy do niego
 with IM greater distance_{INST} we-will to him
 podchodzić, tym bardziej Polska będzie traktowana
 approach TYM more Poland will-be treated
 jako kraj, który...
 as/like country which

‘The greater the reserve we approach him with the more Poland will be treated as a country which...’

It seems, however, that only a preposition can precede *im*. Thus, we have the following contrast:

- (25) a. O im ważniejszych politykach czytam artykuły, ...
 about IM more-important politicians I-read articles
 b.* Artykuły o im ważniejszych politykach czytam,
 articles about IM more-important politicians I-read

Examples with a pied piped preposition provide evidence that neither *im* nor the comparative word need be head of the *im*-phrase.

The two clauses seem to be fairly ordinary A'-movement/filler-gap constructions rather like *wh*-interrogatives and *wh*-relatives. *Im* and *tym* are invariant.² However, the elements associated with them may have various cases, as the following illustrate:

- (26) *Im* ciekawsze programy są w telewizji,
 IM more-interesting programmes_{NOM} are in television,
tym mniej chce mi się wieczorami chodzić do pubu.
 TYM less want mi_{DAT} REFL evenings go to pub
 'The more interesting programmes that are on TV, the less inclined I am go out to the pub in the evening.'
- (27) *Im* nudniejszych programów unikam, *tym* więcej czytam.
 IM more-boring programmes_{GEN} I-avoid TYM more I-read
 'The more boring programmes I avoid, the more I read.'
- (28) *Im* ciekawszym programom poświęcam swoją
 IM more-interesting programmes_{DAT} I-devote my
 uwagę, *tym* mniej chce mi się wieczorami
 attention, TYM less want me_{DAT} REFL evenings
 chodzić do pubu.
 go to pub

² *Im* looks like a third person plural dative pronoun, as in (i), while *tym* looks like a masculine instrumental determiner, as in (ii), or a neuter instrumental pronoun, as in (iii).

- (i) Mama zrobiła im pyszne naleśniki.
 mother made them_{DAT} yummy pancakes
 'Mummy made yummy pancakes for them.'
- (ii) Cieszę się tym prezentem.
 I-enjoy REFL this_{MASC.INS} present
 'I'm pleased with this present.'
- (iii) Jan pracuje nad tym od miesiąca.
 Jan works over this_{NEUT.INS} from month
 'Jan's been working on this for a month.'

It seems clear, however, that we have quite different elements in the CC construction.

‘The more interesting programmes I devote my attention to, the less inclined I am to go out to the pub.’

- (29) Im ciekawsze programy oglądam
 IM more-interesting programmes.ACC I-watch
 w telewizji, tym mniej chce mi się wieczorami
 in television, TYM less want me.DAT REFL evenings
 chodzić do pubu.
 go to pub

‘The more interesting programmes I watch on TV, the less inclined I am to go out to the pub in the evening.’

This is as we expect. Note that on most views of attributive adjectives, these examples provide further evidence that neither *im* nor the comparative need be head of the *im*-phrase.³

The elements which are associated with *im* and *tym* can be separated from them. Thus we have not only (20) but also (30a) and (30b).

- (30) a. Im więcej czytam książek, tym więcej rozumiem.
 IM more I-read books TYM more I-understand
 b. Im czytam więcej książek, tym więcej rozumiem.
 IM I-read more books TYM more I-understand
 ‘The more books I read, the better I understand.’

Again this is expected given that the Left Branch Condition does not apply in Polish, as the following *wh*-questions illustrate:

³ Surprisingly, the comparative in the English CC construction cannot be an attributive adjective. Thus, (i) is ungrammatical:

- (i) * The better books I read, the more I understand.

The following is possible:

- (ii) The better the books I read, the more I understand.

This, however, contains a predicative adjective. It is essentially a reduced version of the following:

- (iii) The better the books I read are, the more I understand

- (31) a. [Jak wiele książek] czytasz?
 how many books you-read
 ‘How many books did you read?’
- b. [Jak wiele] czytasz [książek]
 how many you-read books
- c. ? [Jak] czytasz [wiele książek]
 how you-read many books

(31c) is less acceptable than (31b), probably because it has an alternative interpretation, namely ‘How do you read many books?’

Unlike an English *the*-phrase, neither an *im*-phrase nor *tym*-phrase can be followed by a complementizer.

- (32) Im więcej książek (*że) czytam, tym więcej (*że) rozumiem.
 IM more books that I-read TYM more that I-understand
 ‘The more books I read, the more I understand.’

This is just like a *wh*-phrase in an interrogative or relative clause.

- (33) Zastanawiam się, jak wiele książek (*że) czytasz?
 I-wonder REFL how many books that you-read
 ‘I wonder how many books you read.’
- (34) książki, które (*że) czytam
 books which that I-read
 ‘the books which I read’

It seems, then, that *im*- and *tym*-clauses are fairly normal A'-movement/filler-gap clauses.

An important difference between the two clauses is that while the fronting of *im* is obligatory, the fronting of *tym* is optional. Thus, we have the following contrast:

- (35) ? Im więcej książek czytam, rozumiem tym więcej.
 IM more books I-read I-understand TYM more
- (36) *Czytam im więcej książek, tym więcej rozumiem.
 I-read IM more books TYM more I-understand

We might say that the *tym*-clause corresponds to both a main *the*-clause and a null-clause in English.

We can turn now to the relation between the two clauses. There is evidence that the *tym*-clause is a main clause. Like an English null-clause, this can take various forms, as the following illustrate:

- (37) Spodziewam się pracować tym gorzej, im bardziej
I-expect REFL work TYM worse IM more

jestem zmęczony.

I-am tired

'I expect to work worse the more tired I am?'

- (38) Namawiałem go do ćwiczenia tym więcej, im bardziej
I-urged him to practicing TYM more IM more

go zniechęcali.

him they-discouraged

'I urged him to practice more, the more they discourage him.'

- (39) Dokonałem tego, pracując tym więcej, im bardziej byłem
I-achieved that working TYM more IM more I-was

zmęczony.

tired

'I achieved that, working more, the more tired I was.'

- (40) O ile więcej rozumiesz, im więcej czytasz?
PRT how-much more you-understand IM more you-read

'How much more do you understand, the more you read?'

A further point to note is that the two clauses can appear in either order.

- (41) a. Tym więcej rozumiem, im więcej książek czytam.
TYM more I-understand IM more books I-read

b. Rozumiem tym więcej, im więcej książek czytam.
I-understand TYM more IM more books I-read

Finally, the *im*-clause is obligatory and cannot appear with an ‘ordinary’ main clause, as the following illustrate:

(42) *Tym więcej rozumiem.
TYM more I-understand

(43) *Im więcej książek czytam, znam odpowiedź.
IM more books I-read I-know answer

Thus, neither clause can appear without the other.

Whereas English has two distinct but related CC constructions, Polish has a single construction, which can take a number of different forms. However, like the English construction, the Polish construction appears to be similar to the conditional construction, exemplified by the following:

(44) Jeżeli czytam więcej książek, (to) więcej rozumiem.
if I-read more books it more I-understand
‘If I read more books, I understand more.’

Hence, a satisfactory analysis should be able to say something about this construction.

3. A minimalist approach

I want now to consider how both the Polish and English constructions might be accommodated within the Minimalist framework of Chomsky (1995) and much other work. I will argue that there are a number of problems here.

We have seen that *im*-clauses and *the*-clauses are quite like *wh*-interrogatives. Hence, within Minimalism, it is natural to suggest that they have essentially the same analysis, i.e., that they are CPs with a filled specifier position. Thus, the *im*-clause in (20) might have the following structure, where the position from which movement has occurred is indicated by ‘___’ although Minimalism in fact assumes that movement leaves a copy of the moved constituent:

(45) [[Im więcej książek] [e [czytam ___]]]

A *the*-clause might have a similar analysis. Here, however, *that* is possible. Hence, whatever constraint excludes an overt complementizer following a *wh*-phrase must not operate here.

Turning to *tym*-clauses and null-clauses, one might suggest that they have a similar analysis but that movement is optional in the former and does not occur in the latter. However, both *tym*-clauses and null-clauses can be gerunds and it is usually assumed that gerunds are not CPs. On the face of it, then, there is a problem here.

Turning now to the constructions as a whole, one might propose that examples like (20) have the *im*-clause as the specifier of an empty C-like element, which takes the *tym*-clause as its complement. This would give structures like the following:

(46) [[Im więcej książek czytam ____] [e [tym więcej rozumiem ____]]

One might propose a similar analysis for English examples like (1). One point to note about this approach is that the empty element is rather unusual. In combining with a type of CP, it is a bit like *that* in (47).

(47) It seems that only in Essex could such a thing happen.

However, this complementizer does not have a filled specifier. One might suggest that a similar element with a CP complement and a filled specifier is involved in conditional sentences. However, that would have to be worked out.⁴

A different analysis will be necessary for *im*-clauses which come second such as those in (35) and (37)-(40) and for subordinate *the*-clauses in the English reversed construction. As far as I can see, this means that it is essentially an accident that we have the same type of subordinate clause in all forms of the Polish construction and in both versions of the English construction.

⁴ Gereon Müller has suggested an alternative analysis to me involving double specifiers. Applied to the English example in (1), this gives the following structure:

(i) [[[The more] [e₁ [I read ____]]] [the more] [e₂ [I understand ____]]]

It seems to me that there is an important objection to this analysis. Notice that e_1 and e_2 must be different elements given that e_1 takes just one specifier while e_2 takes two. Given this, it is very surprising that both may be overtly realized as *that*.

A further problem is that it seems impossible within standard Minimalist assumptions to ensure that *im-*, *tym-* and *the-*phrases have an appropriate distinguishing feature. Chomsky (1995: 244) proposes that the label of a phrase is identical to that of its head daughter. Hence, a phrase cannot share features with a non-head. However, as we noted earlier, neither *im/the* nor the comparative word need be the head of the *im/the*-phrase. Thus, there is no obvious way to ensure that these phrases have a distinguishing feature.⁵

It seems, then, that both the Polish and the English constructions pose a number of problems for Minimalism.

4. An HPSG analysis

I will now show that it is not too difficult to provide an analysis of both the English and the Polish constructions within the version of HPSG developed in Ginzburg and Sag (2000), in which grammars include hierarchies of phrase types. I will look first at the component clauses. Then I will consider the constructions as a whole.

4.1 *The component clauses*

A satisfactory analysis of the component clauses requires an analysis of *im-*, *tym-* and *the-*phrases. I will assume that the lexical items *im*, *tym* and *the* and constituents that are required to contain them are marked [CORREL *im*], [CORREL *tym*] and [CORREL *the*], respectively, and that other constituents are [CORREL *none*]. To implement this idea we simply need to assume that CORREL is a NONLOCAL feature, a type of feature which normally appears on a phrase when it appears on a non-head daughter (see Pollard and Sag 1994: 162-69, Ginzburg and Sag 2000: 5.2.2 for somewhat different implementations). Evidence that it is a NONLOCAL feature comes from the following contrast:

⁵ Interestingly, much the same problem arises in *wh*-questions. It is natural to assume that *wh*-phrases have some distinguishing feature. However, the *wh*-word need not be the head. It follows that there is no obvious way to ensure that *wh*-phrases have a distinguishing feature. Given the centrality of *wh*-questions to minimalist discussion, it is rather surprising that this issue seems not to have been addressed. See Koster (2000) for some discussion.

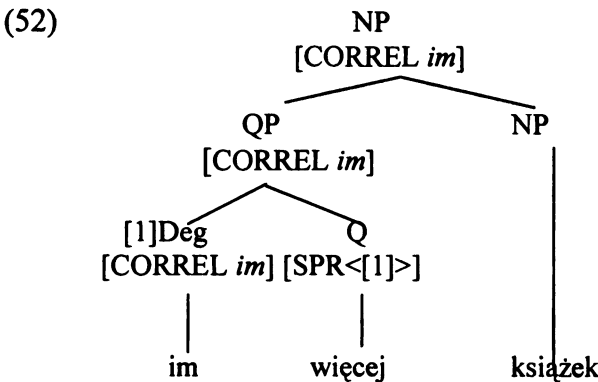
- (48) Im więcej książek i im więcej artykułów czytam, ...
 IM more books and IM more articles I-read
 ‘The more books and the more papers I read, ...’
- (49) * Im więcej książek i wiele artykułów czytam, ...
 IM more books and many articles I-read
 *‘The more books and many papers I read, ...’

Here we see that if one conjunct contains *im* or *the*, the other must too. It is a characteristic of NONLOCAL features that if they appear on a conjunct they must appear on all other conjuncts. For HPSG, the contrast between (50) and (51) follows from the fact that the NONLOCAL feature SLASH must have the same value on all conjuncts.

- (50) Who do you think [Kim likes ___ and Lee hates ___]
 (51) *Who do you think [Kim likes ___ and Lee hates Sandy]

Given the CORREL feature, we can ensure that *im*-, *tym*- and *the*-phrases contain *im*, *tym* and *the*. We can ensure that they also contain a comparative word of some kind by assuming that *im*, *tym* and *the* only appear as a specifier of a comparative word.

Given these assumptions, the *im*-phrase in (20) will have something like the following structure:⁷



⁷ It may be that *więcej* should be analyzed as the head of the whole filler phrase and hence that this phrase should be a QP.

The bracketed integers or 'tags' indicate that the same object appears in more than one position in the representation. The *the*-phrase in (1) will have essentially the same structure. To allow such phrases, we will need lexical descriptions like those in (53) for *im*, *tym* and *the*, and lexical descriptions of the form in (54) for a comparative word which combines with *im*, *tym* or *the*.

(53)

$$\left[\begin{array}{l} \text{PHON } im/tym/the \\ \text{HEAD } deg \\ \text{NONLOCAL | CORREL } im/tym/the \end{array} \right]$$

(54)

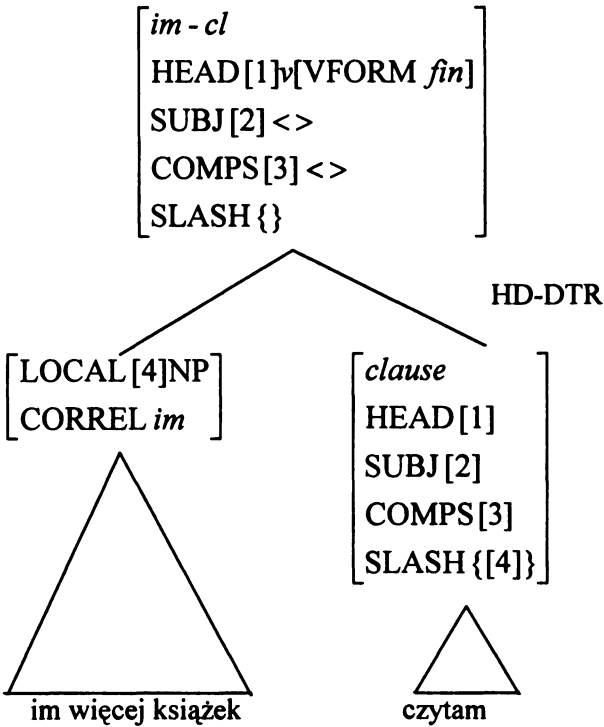
$$\left[\begin{array}{l} \textit{correlative - comparative} \\ \text{HEAD [AFORM } \textit{comparative}] \\ \text{SPR } < [\text{NONLOCAL | CORREL } im/tym/the] > \end{array} \right]$$

An ordinary comparative word will have a rather different lexical description, not allowing a specifier but allowing a constituent expressing the standard of comparison.⁷ The two descriptions can be analyzed as alternative ways of fleshing out a basic, partially specified lexical description, and only the latter need appear in the lexicon. One point to note about the analysis is that analyzing *im* and *tym* as specifiers means that what is fronted in Polish is always a dependent and not sometimes a dependent and sometimes a head.

I will assume that *im*-clauses are instances of a type *im-cl(ause)* and that the *im*-clause in (20) has the following structure:

⁷ For detailed discussion of 'ordinary' comparatives in Polish see Bondaruk (1998).

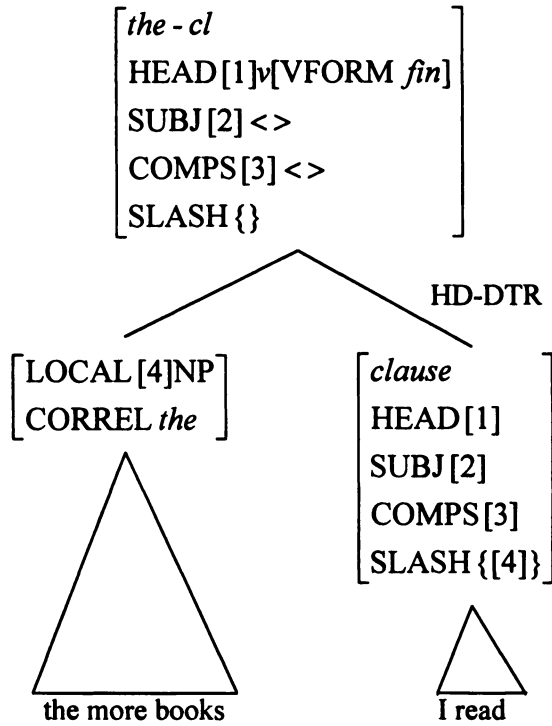
(55)



This structure assumes the standard SLASH-based approach to unbounded dependencies, and following standard HPSG practice, the head daughter is explicitly identified as such.⁸ Here and subsequently, I ignore the fact that CORREL and SLASH are part of the value of NONLOCAL. I will assume that *the*-clauses are instances of a type *the-cl(ause)* and that the subordinate *the*-clause in (1) has the structure in (56).

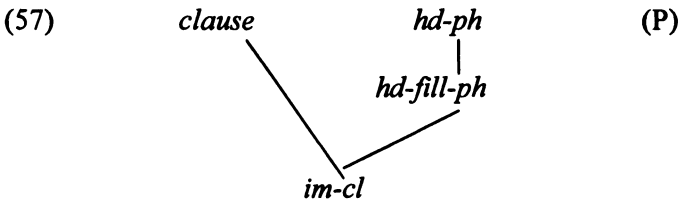
⁸ Much work in HPSG assigns non-head daughters to various types like subject and complement. However, in Ginzburg and Sag (2000) they are just daughters which are not heads.

(56)

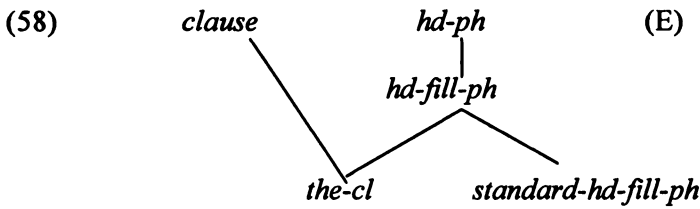


The main clause in (1) will have essentially the same structure. The subordinate *the*-clause in (8) will have a similar structure but with *c* as the value of HEAD and hence with a complementizer as its head. These are complex structures, but their various properties can be attributed to a small number of constraints.

Before we can present the necessary constraints, we must introduce some further types. For Polish, I will assume the following:

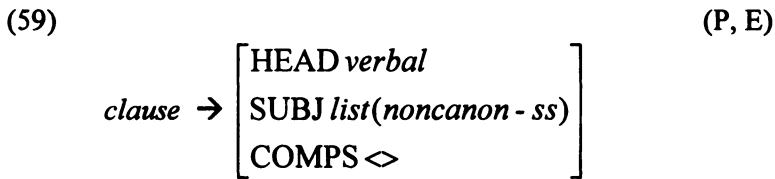


(Here and subsequently I indicate with ‘P’ or ‘E’ which language a piece of formalism is relevant to.) (57) indicates that an *im*-clause is both a clause and a head-filler-phrase, the latter being one type of headed phrase. For English, I will assume the following slightly more complex set of types:

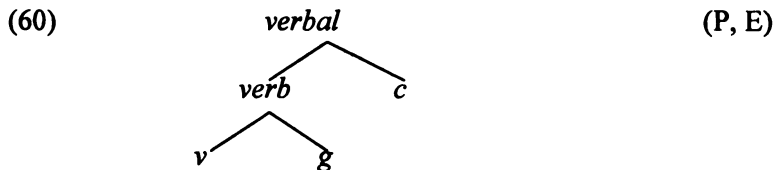


This is like (57) apart from the additional type *standard-head-filler-phrase*. We will consider the reasons for this later.

The first constraint that we need is the following:



This ensures that a clause is a verbal constituent which is either ‘saturated’, i.e., contains a full set of dependents, or takes an unexpressed subject. Following Ginzburg and Sag (2000: 24), *verbal* is a type with the subtypes *verb* and *c* (complementizer). *Verb* in turn has the subtypes *v* (pure verb) and *g* (gerund). Thus we have the following situation:



Given this, it follows from (59) that a clause may be headed by a pure verb, a gerund or a complementizer. Only pure verbs and gerunds are relevant to the Polish construction, but all three possibilities are relevant to the English constructions.

(59) accounts for some basic properties of (55) and (56). Some others are accounted for by the Generalized Head Feature Principle of Ginzburg and Sag (2000: 33), which we can formulate as follows:

$$(61) \quad \text{hd-ph} \rightarrow \left[\begin{array}{l} \text{SYNSEM} / [1] \\ \text{HD - DTR} [\text{SYNSEM} / [1]] \end{array} \right] \quad (\text{P, E})$$

This is a default statement, as indicated by the slash notation. It requires a headed phrase and its head daughter to have the same syntactic and semantic properties unless some other constraint requires a difference.

The differences between the phrase and its head daughter in (55) are a consequence of the following constraint:

$$(62) \quad \text{head-filler-ph} \rightarrow \left[\begin{array}{l} \text{SLASH} \{ \} \\ \text{DTRS} < [\text{LOC} [1]], [2] \left[\begin{array}{l} \text{phrase} \\ \text{HEAD } \nu \\ \text{SLASH} \{ [1] \} \end{array} \right] > \\ \text{HD - DTR} [2] \end{array} \right] \quad (\text{P})$$

This ensures that a head-filler phrase is SLASH {}, and has a head daughter which is ν -headed phrase and a non-head daughter whose LOCAL value is the local feature structure within the value of SLASH on the head daughter. It accounts for some of the main properties of (55). The requirement that the head daughter be ν -headed ensures that it cannot be headed by a complementizer or a gerund. Among other things, this accounts for the impossibility of a complementizer after an *im*-phrase.

The following, slightly simpler constraint accounts for the differences between the phrase and its head daughter in (56):

$$(63) \quad \textit{head-filler-ph} \rightarrow \quad (E)$$

$$\left[\begin{array}{l} \text{SLASH } \{ \} \\ \text{DTRS} < [\text{LOC } [1]], [2] \left[\begin{array}{l} \textit{phrase} \\ \text{SLASH } \{ [1] \} \end{array} \right] > \\ \text{HD - DTR } [2] \end{array} \right]$$

This is like (62) except that it does not require the head daughter to be *v*-headed. Hence it may be a complementizer-headed head-filler phrase as in (8). Obviously most English head-filler constructions cannot be headed by a complementizer. I propose that this is because they are instances of the type *standard head-filler-phrase*, which is subject to the following constraint:

$$(64) \quad \textit{standard-head-filler-ph} \rightarrow [\text{HD-DTR } [\text{HEAD } v]] \quad (E)$$

This requires a standard-head-filler-phrase to have a head daughter which is [HEAD *v*]) and thus ensures that it is not complementizer-headed, ruling out the examples in (9).

The main distinctive properties of Polish *im*-clauses can be accounted for by the following constraint:

$$(65) \quad \textit{im-cl} \rightarrow [\text{DTRS} < [\text{CORREL } \textit{im}], [] >] \quad (P)$$

This ensures that an *im*-clause has a non-head daughter which is [CORREL *im*]. The main distinctive properties of English *the*-clauses can be accounted for by the constraint in (66):

$$(66) \quad \textit{the-cl} \rightarrow \left[\begin{array}{l} \text{HEAD} [\text{VFORM } \textit{fin}] \\ \text{DTRS} < [\text{CORREL } \textit{the}], [] > \end{array} \right] \quad (E)$$

This ensures that a *the*-clause is finite and has a non-head daughter which is [CORREL *the*]. It is more complex than (65) because of the [VFORM *fin*] requirement. There is no need for (65) to specify that an *im*-clause must be finite since they are restricted to a position which only allows finite clauses.

We need further constraints to ensure that *im* comes first in an *im*-phrase except possibly for a preposition and that *the* comes first in a *the*-phrase. We can propose the following informal linear precedence constraints here:

(67)

$$[\text{CORREL } im] < \left[\begin{array}{l} \text{HEAD } \neg \text{ prep} \\ \text{CORREL } none \end{array} \right] \quad (\text{P})$$

(68) [CORREL *the*] < [CORREL *none*] (E)

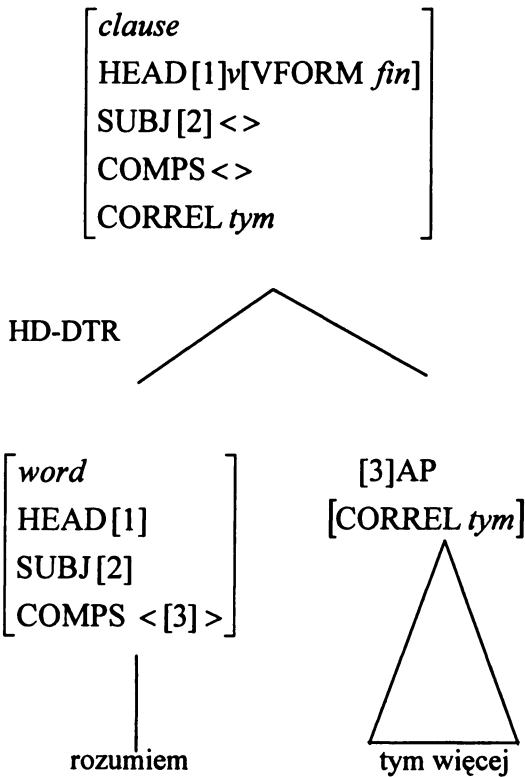
I have not included [CORREL *none*] in any of the trees that I have presented above, but we assume that constituents which are not [CORREL *im*] or [CORREL *tym*] in Polish or [CORREL *the*] in English are [CORREL *none*]. The ungrammatical example in (25b) contains a [CORREL *none*] constituent before a constituent which is [CORREL *im*] and not a preposition. Hence, it violates (67). The ungrammatical example in (5b) contains a [CORREL *none*] constituent before a constituent which is [CORREL *the*] and violates (68). Given (67) and (68), it is essential that *im*-clauses and *the*-clauses should not have the feature specifications [CORREL *im*] and [CORREL *the*]. This is because they may follow their sister, as in (41) and (14).

We have now accounted for the properties of *im*- and *the*-clauses. They have some properties because they are clauses, some because they are headed phrases, some because they are head-filler phrases, some because they are *im*- or *the*-clauses, and some because they contain a [CORREL *im*] or [CORREL *the*] constituent. Most of their properties are shared with other constructions of one kind or another. Only those

embodied in (65) and (67) are specific to *im*-clauses, and only those embodied in (66) and (68) are specific to *the*-clauses.

We can turn now to *tym*- and *null*-clauses. I will assume that these are not instances of some special type but just clauses (of some kind) with the feature specifications [CORREL *tym*] and [CORREL *null*], respectively. For the *tym*-clause in (35) we can propose the following structure:

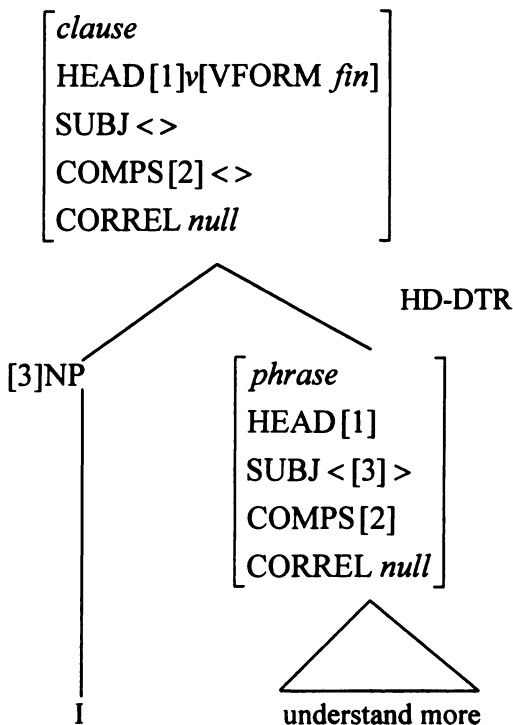
(69)



I am assuming here, as in much work in HPSG (e.g., Manning and Sag 1999), that a null-subject sentence does not have a phonologically empty

subject and hence is a bare verb-phrase. For the null-clause in (14) we can propose the following:

(70)



As well as being a clause, (69) is a head-complement phrase. Some of its properties follow from (59), the constraint on clauses, some from (61), the Generalized Head Feature Principle, and some from constraints on head-complement phrases. The fact that CORREL is a NONLOCAL feature ensures that a daughter is [CORREL *tym*]. This may be either a head daughter, as it is when the *tym*-phrase is in-situ, or a non-head daughter, as it is when the *tym*-phrase is fronted. As well as being a null-clause, (70) is a head-subject phrase. Some of its properties follow from (59) and (61), and some from constraints on head-subject phrases. The fact that CORREL is a NONLOCAL feature ensures that a daughter is

[CORREL *null*]. This may be a head daughter, as in (14), or a non-head daughter, as in (71).

(71) More is understood, the more books we read.

To complete the analysis of null-clauses we need lexical descriptions for the comparative words in such clauses. We need descriptions of the following form:

(72)

$$\left[\begin{array}{l} \textit{correlative - comparative} \\ \text{HEAD [AFORM } \textit{comparative}] \\ \text{SPR } \diamond \\ \text{NONLOCAL [CORREL } \textit{null}] \end{array} \right]$$

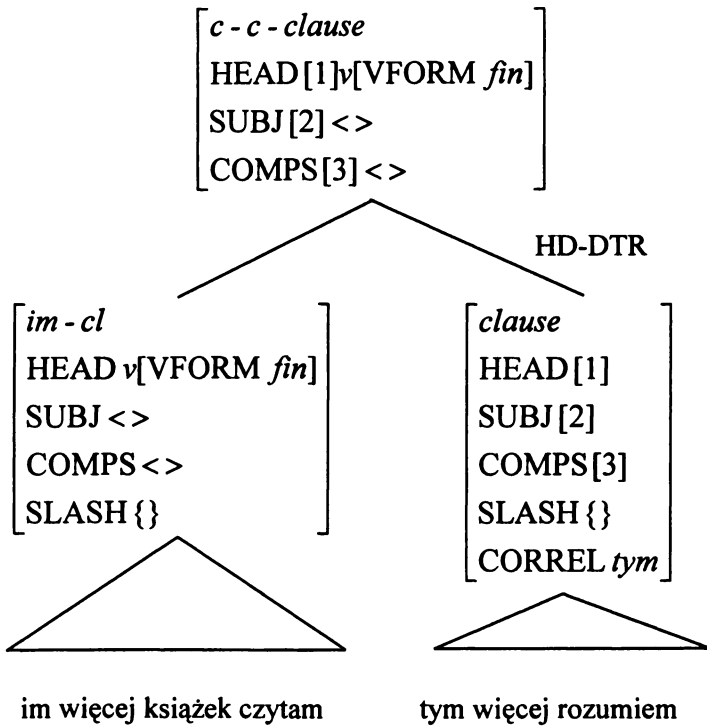
Here the [SPR \diamond] specification ensures that the comparative does not combine with *the* or any other specifier.

We have now accounted for the main properties of *tym*-clauses and null-clauses. They have some properties because they are clauses, some because they are headed phrases and some because they are specific subtypes of headed phrase. Their distinctive properties follow from the fact that they involve the CORREL feature.

4.2 *The constructions*

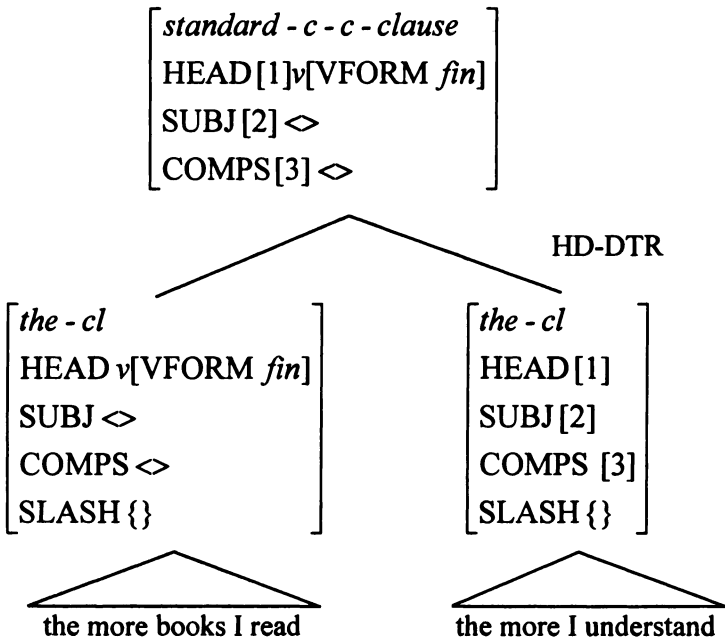
We can now consider the CC construction as a whole. For the Polish example in (20), we can propose the structure in (73):

(73)



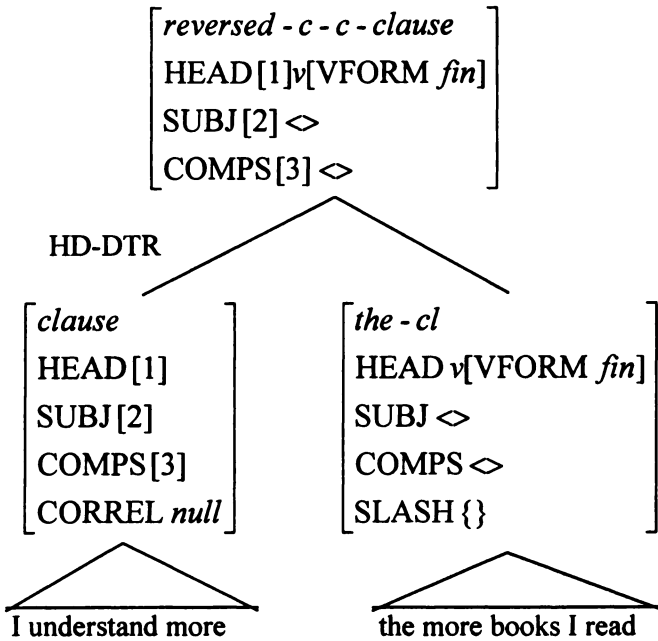
For the English example in (1), we can propose the following structure:

(74)



For the English example in (14), we can propose the structure in (75).

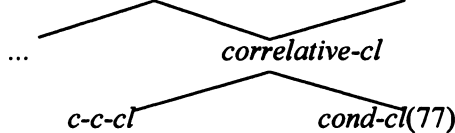
(75)



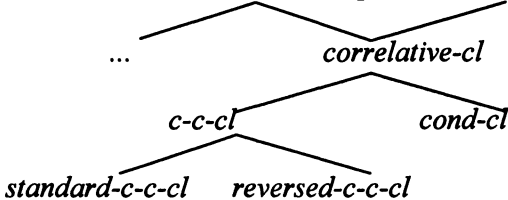
I will not attempt to provide an analysis of conditional clauses.

To provide an account of the constructions, we need the following partial classifications of clauses:

(76) *clause* *headed-phrase* (P)



(77) *clause* *headed-phrase* (E)



We have a more complex classification for English, reflecting the fact that English has two distinct CC constructions whereas Polish has just one. For Polish, we simply group together CC clauses and conditional clauses as two types of correlative clause. For English, we group together standard CC clauses and reversed CC clauses as two types of CC clause, and we group together CC clauses and conditional clauses as two types of correlative clause. For both languages, correlative clauses are classified as both clauses and headed-phrases.

Again various properties of the constructions follow from (59) and (61). Other properties follow from the following constraint on correlative clauses:

(78) (P, E)
correlative-cl →

$$\left[\begin{array}{l} \text{DTRS} < \left[\begin{array}{l} \textit{clause} \\ \text{HEAD} [\textit{VFORM} \textit{fin}] \end{array} \right], [1] [\textit{clause}] > \\ \text{HD - DTR} [1] \end{array} \right]$$

This ensures that a correlative clause has a non-head daughter which is a finite clause and a head daughter which is a clause. For Polish CC clauses we can propose the following constraint:

(79) (P)
c-c-cl → [DTRS < [*im-cl*], $\left[\begin{array}{l} \text{HEAD} \textit{verb} \\ \text{CORREL} \textit{tym} \end{array} \right] >$]

This ensures that a CC clause has a non-head daughter which is an *im*-clause and a head daughter which is a *tym*-clause. The [HEAD *verb*] requirement excludes a complementizer-headed clause but allows a gerund, as in (38). If we assume that *im*- and *tym*-clauses are only licensed by (79), we will exclude the examples in (42) and (43). For English CC clauses we can propose the following:

(80) (E)
c-c-cl → [DTRS < [*the-cl*], [] >]

This ensures that a CC clause has a non-head daughter which is a *the*-clause. It says nothing about the head daughter. For the standard construction we need the constraint in (81).

$$(81) \textit{standard-c-c-cl} \rightarrow [\text{DTRS} \langle [], [\textit{the-cl}] \rangle] \quad (\text{E})$$

This ensures that a standard CC clause has a head daughter which is a *the*-clause. If we assume that *the*-clauses are only licensed by (80) and (81), the examples in (12) and (13) will be ruled out. For the reversed construction we need the constraint in (82).

$$(82) \textit{reversed-c-c-cl} \rightarrow [\text{DTRS} \langle [], \left[\begin{array}{l} \text{HEAD } \textit{verb} \\ \text{CORREL } \textit{null} \end{array} \right] \rangle] \quad (\text{E})$$

This ensures that a reversed CC clause has a head daughter which is a null-clause. The [HEAD *verb*] requirement excludes a null-clause headed by a complementizer, as in (83).

(83) * That I understand more, the more books I read.

However, it allows a null-clause headed by a gerund, as in (16).

We need to ensure finally that the main clause comes second in the standard English construction and that the main clause comes first in the reversed English construction. We can do this with the following, informal linear precedence rules:

$$(84) [\text{DTRS} \langle [1][\textit{the-cl}], [2][\textit{the-cl}] \rangle] \rightarrow [1] < [2] \quad (\text{E})$$

$$(85) [\text{DTRS} \langle [1][\textit{the-cl}], [2][\text{CORREL } \textit{null}] \rangle] \rightarrow [2] < [1] \quad (\text{E})$$

No such constraints are needed for Polish given that the two clauses can appear in either order.

With these constraints we have a fairly full account of the Polish and English CC constructions. They have some properties because they are clauses and headed phrases, some because they are correlative clauses, and some because they are CC clauses, and in the case of English some

because they are one of the subtypes of a CC clause, and some because of the daughters they contain.

The analyses that I have developed here do not have any of the problems that we found in a Minimalist approach. They make no use of empty heads of uncertain status, they license subordinate clauses in a single way (as the non-head daughter of a *c-c-clause*), and have no problem about assigning a distinguishing feature to *im-*, *tym-* and *the-* phrases given the notion of a NONLOCAL feature. Moreover, they capture both the distinctive properties of the constructions and the properties they share with other constructions. It seems, then, that HPSG is considerably more successful than Minimalism here.

5. Conclusions

Accepting Culicover and Jackendoff's (1999) view that more cross-linguistic work is necessary on peripheral constructions, I have been concerned in this paper with both the English and the Polish comparative correlative constructions. I have also accepted Fodor's (2001) argument that it is important to consider what various theoretical frameworks can say about peripheral constructions. I have identified the main properties of the constructions and considered how they might be accommodated within both Minimalism and HPSG. I have argued that the constructions pose problems for the Minimalist framework, but that HPSG and especially the version of HPSG developed in Ginzburg and Sag (2000) can provide a straightforward account. It seems, then, that HPSG is considerably more satisfactory than Minimalism in this area. It would be interesting to see how they fare with other peripheral constructions in these languages and with the same constructions in other languages.

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Agreement Asymmetries in Coordinate Structures*

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1. The puzzle

This paper, drawing on data primarily from Polish, provides a new account of a familiar phenomenon, referred to in the literature as first conjunct agreement. An example of first conjunct agreement is given in (1), in which the verb agrees in number, gender and person only with the first conjunct of the coordinate subject.¹

- (1) Do pokoju weszła młoda kobieta i chłopiec.
to room entered_{FEM.SG} young woman and boy
'Into the room walked a young woman and boy.'

'Standard' plural agreement is also possible; agreement with the second conjunct, however, results in ungrammaticality:

- (2) a. Do pokoju weszli kobieta i chłopiec.
to room entered_{PL} woman and boy
b. * Do pokoju wszedł kobieta i chłopiec.
to room entered_{SG.MASC} woman and boy

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¹ The Polish examples in this section are modeled on Babyonyshev's (1996) Russian examples. First conjunct agreement is not limited to Slavic languages. It has also been noted in Arabic (Aoun, Benmamoun, Sportiche 1994, 1999, Munn 1999), Irish (McCloskey 1986).

Furthermore, first conjunct agreement is possible only with postverbal subjects. Preverbal subjects allow only plural agreement:

- (3) Młoda kobieta i mały chłopiec weszli/*weszła do pokoju.
 young woman and small boy entered_{PL/*SG} to room
 ‘A young woman and a small boy entered the room.’

Existing analyses of first conjunct agreement focus on what makes it possible. From the perspective of the minimalist program, which strives to eliminate optionality from the grammar (optional movement/scrambling (Miyagawa 1997, Bailyn 2001), optional Quantifier Raising (Fox 1999), optional Left Branch Extraction and Quantifier Float (Bošković 2002a and 2002b)), a more important question is what makes both patterns of agreement possible. Another important question is why first conjunct agreement is sensitive to word order.²

2. Previous accounts

2.1 Conjunction reduction

Aoun, Benmamoun, and Sportiche (1994) and (1999) develop a conjunction reduction (CR) analysis of first conjunct agreement in Arabic. On their view, it underlyingly involves two clauses with singular

² The generalization that first conjunct agreement is only possible with postverbal has exceptions. In Frisian, for example, complementizers can agree with the first conjunct of a preverbal subject:

- (i) Dats do en Marie it fan elkoar te witten yn Rome west ha.
 that_{2SG} you_{SG} and Marie without it from each other to know in Rome been have
 ‘That you and Marie have been in Rome without knowing it from each other.’

The Frisian data fit the Slavic pattern on the assumption that the agreeing conjunct simply has to follow the element it agrees with. Furthermore, cases of first conjunct agreement with preverbal subjects exist even in Slavic. They are very rare, however. Kallas (1974) in a corpus study of Polish found only 8 instances of singular agreement out of 73 instances of Subject Verb word order. They typically involved a situation in which the two conjoined nouns referred to the same individual:

- (ii) Kierownik zaś i inicjator tej imprezy został doradcą Białego Domu.
 director and initiator this event became_{SG} advisor White House
 ‘The director and initiator of this event became a White House advisor.’

subjects and singular verb agreement. The appearance of subject coordination is the result of deletion under identity inside one of the clauses, as shown in (4).

- (4) a. [TP ... V_{sg} DP_{sg}] and [TP ... V_{sg} DP_{sg}]
 b. [TP V_{sg} DP_{sg}] and [TP ~~V_{sg}~~ DP_{sg}]

One of the strongest arguments in favor of the CR analysis comes from the distribution of the elements such as *together* or *each other*, which can only appear in plural environments. I will refer to such elements as Number Sensitive Items (NSI). NSIs are incompatible with first conjunct agreement. For example, *razem* ‘together’ is only possible with plural agreement:

- (5) a. *Do pokoju razem weszła Maria i Jan.
 to room together entered_{SG} Maria and Jan
 ‘Mary and John entered the room together.’
 b. Do pokoju razem weszli Maria i Jan.
 to room together entered_{PL} Maria and Jan
 ‘Mary and John entered the room together.’

On the CR analysis presented in (4) above, the ungrammaticality of (5a) reduces to the ungrammaticality of (6a, b).

- (6) a. *Do pokoju razem weszła Maria.
 into room together entered_{SG} Maria
 ‘Maria walked into the room together.’
 b. *Do pokoju razem wszedł Jan.
 into room together entered_{SG} Jan
 ‘Jan walked into the room together.’

Similarly, the incompatibility of plural reflexives and reciprocals with first conjunct agreement follows from their incompatibility with singular subjects, as shown in (7a, b).

- (7) a. * *Bardzo lubi się nawzajem Maria i Zosia.*
 very much like_{SG} REFL Maria and Zosia
 'Maria and Zosia like each other.'
- b. * *bardzo lubi się nawzajem Maria.*
 very much like_{SG} REFL Maria
 'Maria likes each other.'

Even though the CR analysis is intuitively very plausible, it faces some problems. First, it has to allow deletion without total identity between the two conjuncts. In (8a), for example, which is the source of (8b), the verbs in the two conjuncts are not identical.

- (8) a. *Do pokoju weszła Maria i do pokoju wszedł Jan.*
 to room entered_{FEM} Maria. and to room entered_{MASC} Jan.
- b. *Do pokoju weszła Maria i Jan*
 to room entered_{FEM} Maria and Jan
 'Into the room walked Maria and Jan.'

Another argument against CR, due to Munn (1999), comes from its failure to distinguish between syntactic and semantic plurality. This distinction is shown by the existence of semantically plural, syntactically singular elements such as *grupa* 'group', *rodzina* 'family', *tłum* 'crowd' on the one hand, and syntactically plural, semantically singular elements such as *nożyczki* 'scissors' or *spodnie* 'pants', on the other.³

- (9) a. *Nasza grupa wyjeżdża jutro.*
 our group leave_{SG} tomorrow
 'Our group is leaving tomorrow.'
- b. * *Nożyczki spotkają się jutro.*
 scissors meet_{PL} REFL tomorrow
 'The scissors are meeting tomorrow.'

³ Some Number Sensitive Items, such plural reflexives and reciprocals, require both syntactic and semantic plurality. This is shown by their incompatibility with syntactically singular but semantically plural nouns such as *group*:

- (i) * The group likes each other.
 (ii) * The group is keeping themselves in shape.

The CR analysis predicts that elements requiring only semantic plurality should be impossible with first conjunct agreement. The distribution of distributive *po*-phrases shows that this prediction is not met. First, *po*-phrases can be licensed by conjoined noun phrases.⁴

- (10) Po jabłku zjedli Janek i Tomek.
 PO apple ate_{PL} Janek and Tomek
 ‘Janek and Tomek ate an apple each.’

Po-phrases can also be licensed by semantically singular, syntactically plural elements such as *rodzina* ‘family.’

- (11) Po jabłku zjadła cała rodzina.
 PO apple ate_{SG} whole family
 ‘The family ate an apple each.’

The grammaticality of (12a) provides a crucial argument against the CR analysis, which predicts that (12a) should be just as ungrammatical as (12b).

- (12) a. Po jabłku zjadł Janek i Tomek.
 PO apple ate_{SG} Jan and Tomek
 ‘Jan and Tomek ate an apple each.’
 b. *Po jabłku zjadł Janek.
 PO apple ate_{SG} Janek
 ‘Janek ate an apple each.’

The distribution and interpretation of the lexical item *różny* ‘different’ provides yet another argument against the CR analysis. I will be concerned here with only one of its readings, the so-called NP-

⁴ For the purposes of this paper, other factors that can license *po*-phrases are irrelevant.

dependent reading. It is illustrated in (13), which means that the book Mary read is different from the book John read.⁵

- (13) Jan i Maria przeczytali różne książki.
 Jan and Maria read different books
 ‘John and Mary read different books.’

The NP-dependent reading is possible with singular agreement. (14), for example, can mean that each member of the group wears a hat that is different from the hat worn by every other member of the group.

- (14) Nasza grupa nosiła różne kapelusze.
 Our group wore different hats
 ‘Our group wore different hats.’

The NP-dependent reading is impossible with singular subjects; (15) only allows the so-called reciprocal reading, in which the articles that Tom read were different from each other.⁶

- (15) Tomek przeczytał różne artykuły.
 Tom read_{SG} different articles
 ‘Tom read different articles.’

Crucially, the NP-dependent reading is available with first conjunct agreement:

- (16) Różne artykuły przeczytał Tomek i Piotrek.
 different articles read_{SG} Tom and Peter
 ‘Tom and Peter read different articles.’

⁵ *Different* has two other readings that are irrelevant for our purposes: a discourse anaphoric reading (different from some other discourse salient element), and a reciprocal reading (different from each other). For a semantic analysis of *different*, see Beck (2000).

⁶ Polish is like German and unlike English in that it uses a different lexical item to represent a discourse anaphoric reading of *different*, in which the articles Tom read are different from some other set of contextually salient articles.

- (i) Tomek przeczytał inne artykuły.
 Tom read_{SG} different articles
 ‘Tom read different articles.’

The availability of this reading is a puzzle for the CR analysis, which predicts that (16) should parallel (15).

The CR analysis also incorrectly predicts that (17a) should be ungrammatical, since it is derived from the ungrammatical (17b).⁷

(17) a. Razem wyszliście wy i ja
 together left-2_{PL} you_{PL} and I
 ‘You and I left together.’

b. * Razem wyszliście wy i razem wyszłam ja.
 together left_{2PL} you and together left_{1SG} I
 ‘You left together and I left together.’

Variable binding, on the other hand, seems to provide an argument in favor of the CR analysis. Since variable binding across clausal conjuncts is impossible, as shown in (18a), the CR account predicts that it should also be impossible with first conjunct agreement. This prediction is confirmed, as shown in (18b).⁸

⁷ The ‘standard’ agreement for the coordination of a second person plural pronoun and a first person singular pronoun is first person singular, as shown in (i), which shows that (17a) is indeed a case of first conjunct agreement.

(i) Wy i ja wyszliśmy razem.
 you_{PL} and I left_{1PL} together
 ‘You and I left together.’

⁸ The ungrammaticality of (19) can be linked to the availability of a bound reflexive pronoun, illustrated in (i):

(i) Każdy_i student ze swoim_i promotorem był na zebraniu.
 Every student with self’s advisor was at meeting
 ‘Every student with his advisor was at the meeting.’

In languages in which there is no such interfering factors, such as Arabic, variable binding across the two conjuncts with singular agreement is possible, which is problem for the CR account (Aoun, Benmamoun, and Sportiche 1999):

(ii) Dəhku kull ražəl w wəld-u
 laughed_{SG} each man and child-his
 ‘Each man and his child laughed.’

- (18) a. * *Każdy_i student był na zebraniu i jego_i promotor*
 every student was at meeting and his advisor
był na zebraniu.
 was at meeting
 ‘Every student and his advisor was at the meeting.’
- b. * *Na zebraniu był każdy_i student i jego_i promotor.*
 at meeting was every student and his advisor
 ‘Every student and his advisor was at the meeting.’

This argument in favor of the CR account is only apparent, since variable binding across DP conjuncts in Polish is also ungrammatical:⁹

- (19) * *Każdy_i student i jego_i promotor byli na zebraniu.*
 every student and his advisor were at meeting
 ‘Every student and his advisor were at the meeting.’

To sum up the discussion so far, we have seen that the distribution of *po*-phrases, the interpretation of the lexical item *różny* ‘different’, and the agreement with conjoined pronominal subjects are a problem for the CR analysis. The alternative I will develop in Section 2.3. avoids these problems. It will preserve one insight of the CR analysis; the idea that first conjunct agreement and plural agreement involve distinct structures.

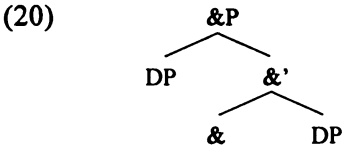
2.2 Phrasal coordination accounts

If first conjunct agreement does not involve clausal coordination, it must involve DP coordination. This is indeed the way Babyonyshev (1996) and Johannessen (1996) analyze first conjunct agreement. They assume a standard asymmetric structure for coordination, given in (20), in which

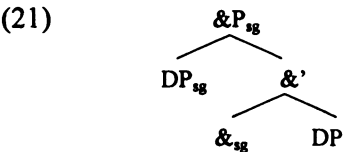
⁹ The ‘standard’ agreement for the coordination of a second person plural pronoun and a first person singular pronoun is first person singular, as shown in (i), which shows that (17a) is indeed a case of first conjunct agreement.

- (i) *Wy i ja wyszliśmy razem.*
 You_{PL} and I left_{1PL} together
 ‘You and I left together.’

the conjunction phrase is headed by the conjunction and the first conjunct c-commands the second one.¹⁰



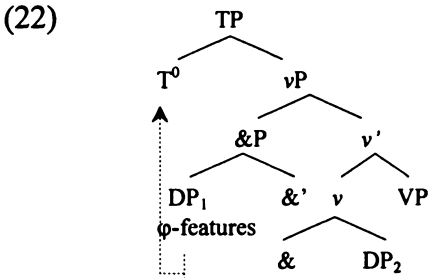
Johannessen (1996) analyzes first conjunct agreement as a straightforward consequence of specifier-head agreement. The first conjunct in (21) agrees with the conjunction head, and the agreement features of the conjunction head percolate up to the phrasal level. As a result of this feature percolation, the conjunction phrase shares its features with the first conjunct, and the verb gets singular agreement.



There are two problems with Johannessen’s (1996) analysis. First, it does not account for the plural agreement pattern, which is much more common from a crosslinguistic perspective. Johannessen notes this problem, and suggests that plural agreement is simply a reflex of semantic agreement. Second, it does not capture the correlation between word order and first conjunct agreement. It is not clear why the same specifier-head agreement mechanism should be unavailable with preverbal subjects.

Babyonyshev’s (1996) account captures the correlation between first conjunct agreement and word order. Babyonyshev analyzes first conjunct agreement as arising through covert movement of the phi-features of the first conjunct to T.

¹⁰ For the purposes of this paper, other asymmetric approaches to coordination would also work.



Babyonyshev (1996) derives the correlation between first conjunct agreement and word order from the Coordinate Structure Constraint (CSC). In (22) above, overt movement of the first conjunct would violate the CSC. Thus, only the entire coordinate subject can move, triggering 'standard' plural agreement. Since covert movement from the post-verbal position is feature movement, it can affect only features of the first conjunct.

There two questions that covert feature movement analysis raises. First, it relies crucially on the assumption that feature movement, more generally covert movement, is not subject to the CSC. This assumption is empirically problematic, since other well-studied instances of covert movement do not allow violations of the CSC. The ungrammaticality of (23), for example, shows that covert wh-movement is subject to the CSC.

(23) *I wonder who [took what from Mary] and [gave a book to Jeremy].

Quantifier raising is also subject to the CSC, which is shown by the lack of a wide scope reading for the universal quantifier in (24). (Fox 1999, Lin 2002).¹¹ The example given in (24) can only mean that a single student likes all the professors and hates the dean.

¹¹ This argument holds irrespective of whether the CSC is viewed as a constraint on representations or derivations. The grammaticality of the following points towards the latter conclusion:

- (i) I wonder who took what from Mary and gave it to Jeremy.
- (ii) A publisher will publish every book and write its author a check.

(24) A student [likes *every professor*] and [hates the dean].

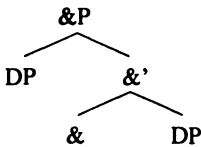
In Babyonyshev’s account, the availability of both singular and plural agreement follows from equidistance. She assumes that in (22) above, &P and DP¹ are equidistant from T, since neither c-commands the other (Babyonyshev 1996:83). Therefore, T can agree either with the entire conjunction phrase or with the first conjunct. This, however, is a not a standard view of equidistance, since it requires the equidistant elements not to c-command each other rather than to be in the same minimal domain. On the standard approach to equidistance, since both conjuncts are within the same minimal domain, they should be equidistant from T. This incorrectly predicts that agreement with the second conjunct should also be possible.

The CSC, equidistance, the ungrammaticality of second conjunct agreement, and the availability of plural agreement are a problem for the phrasal analyses of first conjunct agreement outlined in this section. The alternative analysis I develop in the next section does not face these problems, since it derives the availability of both first conjunct agreement and plural agreement from the structural ambiguity of coordinate DPs.

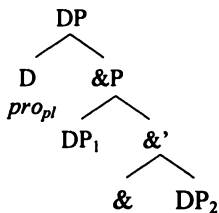
3. Proposal: structural ambiguity

I propose that coordinate DPs are ambiguous between the following two structures: the Bare &P structure and the Plural Pronoun &P structure. The two are given in (25a) and (25b), respectively.

(25) a.



b.



Both structures have been argued for independently; (25a) is a familiar kind of asymmetric structure for coordination. (25b), which involves the empty plural pronoun taking the conjunction phrase as its complement, is similar in spirit to the structure proposed by Progovac (1998). Some empirical support in its favor comes from the fact that the empty plural pronoun can be overtly realized, as shown in (26).

- (26) oni, Jan i Maria, ...
 they, John and Mary, ...

Further support comes from the so-called plural pronoun comitatives, illustrated in (27a), which can be thought of as involving the structure in (27b).

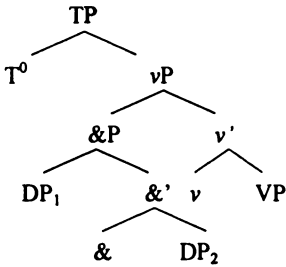
- (27) a. My s Jankiem tańczyliśmy
 we with Jan-Instr danced_{PL}
 'We (=I and Jan) danced.'

- b. [DP *we* [&P *pro*_{1SG} *and/with John*]]

The novelty of the present proposal lies in the claim that both the Bare &P structure and the Plural Pronoun &P structure are in principle available, and as we will see shortly, that they correlate with different agreement patterns.

Following Chomsky (2000, 2001), I assume that covert movement (either phrasal or featural) does not exist. It is replaced by an *Agree* operation that establishes a feature matching and feature valuation relationship between two elements: a Probe and a Goal. Chomsky (2001) also eliminates equidistance from the grammar on the grounds that it is not conceptually necessary. With no equidistance, the Probe always has to agree with the closest Goal. Eliminating equidistance adds another problem for the phrasal accounts of first conjunct agreement. Consider the structure given in (28).

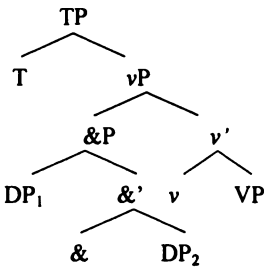
(28)



Agreement with the closest DP, DP₁ in this case, yields first conjunct agreement. A natural way to get plural agreement is to assume that the conjunction head itself is plural. If agreement with &P is possible, however, agreement with only one conjunct should never be an option, since &P is always going to be closer to T than the first conjunct. Without equidistance, there does not seem to be any way to account for both plural and first conjunct agreement with a single structure.

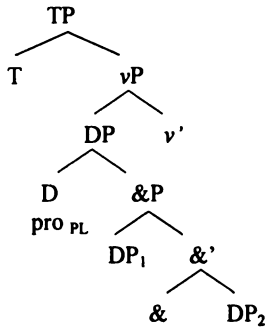
The problem does not arise on the assumption that the two different agreement patterns correspond to two different structures. First conjunct agreement involves the Bare &P structure given in (29). There is no feature percolation, the T head simply agrees with the phi-features of the closest nominal element, the first conjunct.

(29)



Plural agreement, on the other hand, involves the Plural Pronoun &P structure, repeated below.

(30)



Again, the T head agrees with the closest nominal element. In this case, however, it is the null plural pronoun rather than the first conjunct.

The idea that null pronouns play a role in agreement is also neither new nor unique to the present proposal. Den Dikken (2001) pursues a very similar idea in order to explain why singular collective nouns can trigger plural agreement. An example of such a noun from British English, which den Dikken refers to as a pluringular, is given in (31).

(31) The committee have decided to do it.

On den Dikken's analysis, (31) involves the structure in (32), in which the nominal *the committee* is the complement of the plural *pro*:

(32) [DP pro PL [DP *the committee*]]

This account predicts that plural agreement should be impossible if the Plural Pronoun structure is unavailable. The ungrammaticality of (33), in which the null pronoun of the Plural Pronoun &P structure is overtly realized, suggests that such a structure is impossible with quantified noun phrases:

(33) * Oni, każdy lekarz i każdy farmaceuta wyszli.
 they every doctor and every pharmacist left
 'Every doctor and every pharmacist left.'

The ungrammatical status of (33) makes a prediction that plural agreement should be impossible with quantified coordinate subjects.

This prediction is indeed confirmed; only singular agreement is possible in (34).

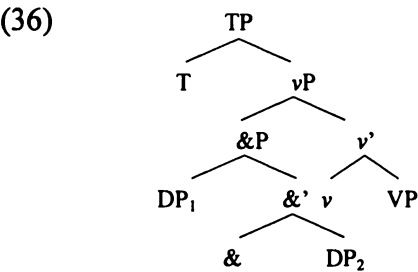
- (34) *Każdy lekarz i każdy farmaceuta wie/*wiedzą o tym.*
 every doctor and every pharmacist know_{SG}/*know_{PL} about it
 ‘Every doctor and every pharmacist knows about it.’

4. Conclusions and consequences

To conclude briefly, I have argued in this paper for a new analysis of first conjunct agreement. The analysis, which derives the availability of two patterns of agreement with postverbal coordinate subjects from the availability of two distinct structures, repeated in (35), avoids the problems faced by the alternative accounts.

- (35) a. [_{andP} DP₁ [_{and'} and DP₂]]
 b. [_{DP} they [_{andP} DP₁ [_{and'} and DP₂]]]

There is one question that the current analysis raises that I can consider only briefly here. It concerns the correlation between word order and first conjunct agreement. We have seen above that with the exception of quantified noun phrases, first conjunct agreement is impossible with preverbal subjects. On the current analysis, this has to follow from the unavailability of the Bare &P structure with preverbal subjects. In other words, it has to follow from the unavailability of the derivation schematized in (36), in which T first agrees with the first conjunct and then the entire &P raises to [Spec,TP].



Such a derivation can be ruled out on a natural assumption that movement is contingent on the *Agree* operation. Only elements first

targeted by *Agree* can subsequently undergo movement. In an intuitive sense, the movement of the entire &P to [Spec,TP] in (36) violates economy, since it involves superfluous pied-piping.^{12 13}

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¹² The unwanted derivation is similar to a derivation of a simple transitive sentence, in which T agrees with the subject in [Spec,vP] and then the entire vP, rather than just the subject moves to [Spec,TP].

¹³ Alternatively, we may ask what rules out the Plural Pronoun &P structure with first conjunct agreement. The answer is simple; in such a structure the plural pronoun would always intervene between the Goal and the Probe.

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Functional Categories in the Nominal Domain

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1. Proposal

A central debate in the study of phrase structure concerns the nature of functional projections which dominate lexical ones. At one extreme is the position, advocated by Cinque (1999, 2002), that grammars employ a universal set of functional categories and that their number and relative order is the same across languages, regardless of properties of the lexical head. At the other extreme is the weaker position, adopted among others by Grimshaw (1994) and Bošković (1997), that only independently motivated phrase structure is projected, with considerable disagreement about what constitutes appropriate ‘motivation’. While the literature is overwhelmingly concerned with resolving this issue with respect to clausal structure (i.e., the extended projection of the verb), here we consider nominal structure and argue for the weaker position. We conclude that *not* all potential functional categories of the extended projection of the noun are realized in all structures.

2. Conceptual motivation

We assume that the features of a lexical head determine the functional projections which must dominate it. Hence, the *raison d'être* of the particular functional categories in the extended projection of any given lexical head is simply to satisfy requirements imposed by the formal properties of that head. One implementation of this idea, following Bošković (1997), is for the numeration to consist of lexical but not

functional categories. Since these lexical categories bear grammatical features corresponding to features of functional categories, in the course of the derivation appropriate functional heads are introduced to check the formal features of the corresponding lexical items. We adopt this general scheme, but reject feature checking *per se* and recast it in terms of evaluation of unvalued features, following the system developed in Franks (1995) and elsewhere. So far as case is concerned, this means that a noun will be drawn from the lexicon with alpha values for its case features, which must be specified (or ‘valued’) in the course of the derivation. The need to specify the open feature values on lexical heads, which is partly an accident of a language’s morphology, in fact determines exactly what functional projections dominate any given lexical head. This is an empirical matter.

The evidence seems to us compelling that argument VPs exist of various sizes, ranging from ‘small’ clauses through full CPs, as roughly catalogued in (1); cf. Wurmbrand (2001).

- (1) a. The movie made [_{VP} John cry].
 b. We expected [_{TP} Mary to leave].
 c. Everyone thinks [_{AgP} the dance should be held outdoors].
 d. I cannot understand [_{CP} why they brought their dog].

For Russian as well, the need for clauses of various sizes has been demonstrated. Babby and Franks (1998), for example, argue that subject control infinitives are bare VPs, whereas object control are full sentences. This difference in structure is revealed through the case form of the semi-predicative *sam* ‘alone, of his own volition’: in (2a) the null case PRO is Nominative by virtue of control by *on* ‘he’, whereas in (2b) it is dative under Spec-head agreement with infinitival T⁰.

- (2) a. On [_{VP} poet [_{VP} PRO_{NOM} ujti sam]].
 he wants to-leave himself_{NOM}
 ‘He wants to leave of his own volition.’
 b. Ja [_{VP} ugovoril ego [_{TP} PRO_{DAT} T⁰ [_{VP} ujti samomu]]].
 I convinced him to-leave himself_{DAT}
 ‘I convinced him to leave of his own volition.’

In this paper, we apply similar reasoning and criteria within the nominal domain. So far as are aware, the issue of the extent of the extended projection of N in Russian has not been investigated. In what follows, we examine a number of constructions in Russian and conclude that only motivated functional categories are projected above NP.

3. Case on DPs and NPs

As a point of departure, it seems to us that the necessity for morphological case, not only in Russian in particular, but in grammar in general, needs to be divorced from considerations of thematic roles or argumenthood. Factors such as these presumably motivate the existence of case in general as a nominal category, but they are both too broad and too narrow. In Russian, for example, nouns are paradigmatic; some form must be chosen, so all nouns (and adjectives that modify them, including numerals, when oblique) must have some case. It is a matter of form. On the other hand, clauses that are arguments are not marked with case, although when they do find themselves in positions where an oblique case is called for, that oblique case must somehow be instantiated. Compare (3a), where *dumat* 'to think' assigns no case, to (3b), where the preposition *o* 'about' requires locative:

- (3) a. Ja dumaju, čto nel'zja uexat'.
 I think that not-possible to-leave
- b. Ja dumaju o *(tom), čto nel'zja uexat'.
 I think about that_{LOC} that not-possible to-leave
- both: 'I think that it is impossible to leave.'

Here, the CP headed by *čto* 'that' in (3a) has no case. The same CP in (3b) similarly cannot bear locative, but here it must be embedded in a DP that realizes this case.

In contrast, in languages like Japanese or Korean, where case particles attach to nominals (or even clauses) and there is one such marker per phrase, the relationship between grammatical role and morphology is more transparent. In these languages predicate nominals, since they lack thematic roles, are not case-marked:

- (4) John-ga gakusei desu. Japanese
 John_{NOM} student COP
 'John is a student.'

Similarly, so-called 'light' verbs in these languages, since they do not assign thematic roles, also do not assign case to their 'incorporated' object nominals, as shown for Japanese in (5):

- (5) John-ga Mary-ni denwa-suru.
 John_{NOM} Mary_{DAT} telephone-does
 'John phones Mary.'

In Russian, in contrast, nouns can be morphologically instantiated only in fully inflected forms. It is precisely for this reason that it is not so easy to differentiate a bare NP from a nominal that projects all the way up to a DP, in that both are equally inflected for case. We can thus contrast (4) with Russian (6), where case is simply a morphological fact of life. Indeed, there are, as is well-known, two distinct options: Nominative or Instrumental:¹

- (6) a. Ivan byl student.
 Ivan was student_{NOM}
 b. Ivan byl studentom.
 Ivan was student_{INSTR}
 both: 'John was a student.'

As discussed in more detail in Section 3.3 below, we follow the extensive argumentation in Pereltsvaig (2001) and claim that the predicate Nominative marks a DP, whereas the predicate instrumental marks an NP. But first we examine two Genitive case constructions in Russian.

¹ In some contexts, such as in the present tense, only the nominative is possible, while in others, such as with an infinitive *byt* 'to be', only the instrumental is possible. We do not discuss this issue here. Also, the nominative-instrumental case alternation correlates with subtle differences in meaning, not easily expressible in English translation. For an overview and discussion of traditional and generative accounts and a new proposal, the reader is referred to Pereltsvaig (2001:191-197).

4. Empirical support

In this Section, we offer some diagnostics for distinguishing different degrees of nominal projection.

4.1 *The Genitive-of-Quantification construction*

First, allowing only motivated projection of functional categories provides us with a principled account of the two classes of Genitive-of-quantification (GEN-Q) in Russian, as in (7):

- (7) a. V ètom restorane obedali desjat' čelovek.
 in this restaurant ate-lunch_{PL} ten people_{GEN-Q}
- b. V ètom restorane obedalo desjat' čelovek.
 in this restaurant ate-lunch_{NEUT} ten people_{GEN-Q}

The original analysis dates back to Pesetsky (1982); updating his account to incorporate X-bar syntax and functional categories, Franks (1995) proposed that the subject of (7a) is a DP as in (8a), whereas the subject of (7b) is a bare QP as in (8b):²

- (8) a. [_{DP} [_D∅] [_{QP} desjat' [_{NP} čelovek]]]
 b. [_{QP} desjat' [_{NP} čelovek]]

This analysis in terms of the syntactic category of the nominal is further supported by the fact that an insertion of DP-related material (such as a demonstrative) makes the non-agreeing pattern in (7b) ungrammatical:

- (9) * V ètom restorane obedalo [_{DP} èti desjat' čelovek].
 in this restaurant ate-lunch_{NEUT} these ten people_{GEN-Q}

An alternative analysis of these facts, proposed by Bošković (2003), relies on the association between agreement and Nominative case. According to him, the subjects in (7a) and (7b) differ not in syntactic

²These structures are revised slightly below.

category but in their case marking: the subject in (7a) is Nominative, whereas the one in (7b) is caseless. Thus, the apparent optionality of agreement in (7) is due to the syncretism between Nominative and caseless forms of the numeral *desjat* 'ten'. He further argues that the ungrammaticality of (9) is due to the insertion of a clearly Nominative-marked demonstrative *èti* 'these'. However, his analysis fails to extend to data involving Qs with a clear Nominative form, such as *bol'sinstvo* 'majority', as in (10) from Graudina et al. (1976:27):³

- (10) *Bol'sinstvo kipsrskix grekov bylo vozmuščeno...*
 majority_{NOM} Cypriot Greeks_{GEN} was_{NEUT} resentful_{NEUT}
 'The majority of Cypriot Greeks was resentful...'

Here, we propose further that only the subject in (7a) is referential, hence has an individuated reading, has ϕ -features needed for agreement, and participates in processes such as control (11a) and binding (11b), which are indicated using co-indexing:

- (11) a. [_{DP} *Pjat' ženščin*]_i *staralis'/*staralos'* [_{PRO}_i *sest'*].
 five women_{GEN-Q} tried_{PL/*NEUT} to-sit
 'Five women tried to sit.'
- b. [_{DP} *Pjat' ženščin*]_i *uvažali /*uvažalo* *sebjai*.
 five women_{GEN-Q} respected_{PL/*NEUT} themselves
 'Five women respected themselves.'

Since these are referential relations, they require that the numeral phrase be a DP, which is why only the plural is acceptable on the verb.⁴ Pereltsvaig (2001), following Longobardi (1994), formalizes this idea by demonstrating that "referentiality (and therefore, the possibility of argumenthood) is to be associated with D⁰ and not N⁰" (p. 50). Thus, bare QPs cannot in principle be referential. Whenever forced to be

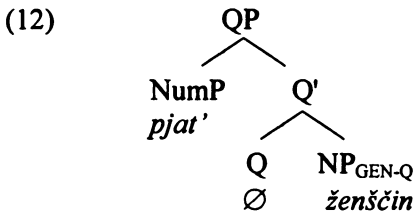
³ Graudina et al. (1976:27) note that although *bol'sinstvo* 'majority' can also appear with a plural agreement on the predicate, about 67% of tokens from their corpus exhibit the neuter form, in (10).

⁴ See Pereltsvaig (to appear) for an analysis of control and binding in terms of matching of fully valued ϕ -features.

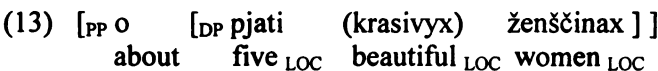
referential, they must project up to a DP, in order that the relevant features be expressed.

Note, however, that even though bare QPs are not referential, they can be arguments, as in (7b). Thus, we depart from the standard assumption that only referential expressions can be arguments and from Longobardi's (1994) claim that only DPs can be arguments (although we agree with him that only DPs are referential). Space limitations do not allow us to go deeper into this matter here, but the reader is referred to Pereltsvaig (to appear) for a detailed discussion of this issue.

Furthermore, we depart from standard views on case assignment in claiming that not only full DPs but also QPs and NPs can receive structural case. Such a departure is independently necessary in order to accommodate examples like (11) above, where the numeral and its complement NP appear in different morphological cases, which we take to be realizations of different structural cases. Franks (1995) goes on to argue that the numeral actually appears in Spec-QP and that QP has an empty head. We can thus posit a more articulated QP structure as in (12), where NumP is the locus of the actual numeral (cf. Bailyn, this volume). This is Babby's (1987) 'heterogeneous' pattern, where the NP receives case from Q⁰, whereas the QP (or the DP containing it) receives case from outside in the usual fashion.



A major question that remains is how to incorporate into the analysis oblique, agreeing numerals — i.e., Babby's 'homogeneous' pattern, as in (13):



Franks (1995), following Neidle (1988), assimilates these to ordinary adjectives, adopting an Abney-style structure where AP

dominates NP (Bošković 2003 also adopts a similar analysis). This is however not necessary, given that, assuming (12), the numeral itself is *not* a functional head, but rather a specifier of one. As we show in Section 3.3 below, this is not even desirable, since there is evidence that numerals are introduced above NP, unlike ordinary adjectives but like demonstratives. Adjective phrases merge directly with (some projection of) N. Numerals, on the other hand, merge as specifiers of QP. This will be necessary because the data reveal numeral phrases always to be larger than NPs.

Our formalization of this involves assimilating case government/assignment and agreement/percolation to the same minimalist mechanism, recasting the approach in a bottom-up framework and adapting Chomsky's 'Probe and Agree' system. For the sake of explicitness, we adopt the case feature system in Franks (2002). Franks argues that GEN-Q is a special [-oblique] Genitive, essentially a pure quantificational case. Now, recall that lexical items are selected for the numeration with open feature values for syntagmatic properties such as case. The case features on a Goal XP with open case features are subsequently valued under Agree by a head Y° merged with a XP (or a ZP dominating XP) that bears valued case features. Percolation can then be treated as a kind of multiple Agree. In (12), the Q^0 values GEN-Q case on its complement NP and itself projects. Spec-QP is then occupied by some kind of quantitative operator.

The difficult technical question is then how the homogenous pattern in (13) obtains in oblique case contexts. Our approach to this takes advantage of Chomsky's notion of 'phases'. These are akin to the cycles of earlier transformational periods, but dictate periodic discharging of information to the interpretative PF and LF components rather than iterative rule application. Much attention has been paid to the phase nature of the clause, and in particular the idea that CP, but not the lower clausal IP projection, is a phase.

It is desirable, we contend, also to treat the maximal extended projection in the nominal system as a phase, but not lower units.⁵ Specifically, at the end of each phase the syntax interfaces with the morphology, which forces the unvalued features at that point to be valued. Here is where the difference between plus feature values (which

⁵ For a more detailed discussion of phases in the nominal domain, see Svenonius (2004).

we take to be marked) and minus ones comes into play. Crucially, we assume that [α oblique] is specified as [-oblique] (that is, its unmarked value) only at the end of the phase, when the structure is being shunted off to the morphology. Since GEN-Q is a [-oblique] case, it is only valued at the end of the phase.⁶ Thus, any oblique case in the same phase will appear to override it. That is why numerals in oblique contexts agree and the GEN-Q of the null Q⁰ is essentially ignored. In this way, the kinds of frequently observed interactions between direct and oblique cases can be made to follow automatically from our system.

4.2 *The Genitive-of-Negation construction*

Let us extend this reasoning to the Genitive-of-negation (GEN-NEG) construction, which, as is well-known, applies in Russian only to *non-referential* direct objects (examples from Gündel 1974).

- (14) a. Ja ne vižu [DP dno].
 I NEG see bottom_{ACC}
 'I can't see the bottom.' (But it's there.)
- b. Ja ne vižu [NP dna].
 I NEG see bottom_{GEN}
 'I don't see any bottom.' (It seems bottomless.)

There is a vast literature on the GEN-NEG in Russian, but one thing is generally agreed upon: the Accusative in (14a) presupposes existence, whereas the Genitive in (14b) does not. We thus take the Accusative to be an ordinary full DP and the Genitive not to project all the way up to DP. It is, presumably, a bare NP, hence it is not referential. Of course, the issue of exactly why it is marked Genitive remains. One could either imagine an Agree mechanism with Neg probing down the tree, or one could follow Bailyn (this volume) in taking advantage of a structure as

⁶ Franks (1995) exploits the GB distinction between D-structure for inherent case and S-structure for structural case to obtain the homogeneous-heterogeneous dichotomy. In earlier minimalism this may have been reworked in terms of strong vs. weak features. In this paper, we distinguish between features which immediately probe once merged into the tree (marked) and those that wait until the end of the phase and are filled in by default at the morphological interface (unmarked).

in (12), but with a null operator that needs to be licensed and identified through Neg. Here, we opt for the former approach for a number of reasons based on the observation that, to the extent morphological differences can be detected, GEN-NEG patterns with the regular oblique Genitive rather than with GEN-Q. Moreover, the numeral itself can be included in the scope of the negation, as in (15):

- (15) On ne čital i [QP četyrex knig].
 he NEG read even four_{GEN} books_{GEN}
 ‘He did not read even four books.’

Clearly, the entire QP is being marked Genitive, as an oblique case, which immediately specifies the values of all the case features therein, bypassing any conceivable effect of the putative null Q°.

This is not to say there are no QPs that lack phonetic exponence, either within Q° or Spec-QP. For example, Franks (1995) adopts such an analysis for partitives and large-quantity expressions. The crucial difference between these two kinds of constructions is that, unlike in (15), in such expressions a QP is selected for, with the value of the null operator in Spec-QP syntactically licensed and identified. This selectivity can most clearly be demonstrated by verbs whose semantics causes them to take QP rather than NP (or DP) complements, such as verbs with the cumulative prefix *na-*, as in (16):⁷

- (16) Ivan nakupil [QP ∅ [NP knig]].
 Ivan *na*-bought books_{GEN}
 ‘Ivan bought a lot of books.’

When compared with (17), we see that what is selected in (16) is actually not the Genitive case, but rather a QP.

- (17) Ivan nakupil [QP mnogo / *mnogix [NP knig]]
 Ivan *na*-bought many / *many_{GEN} books_{GEN}
 ‘Ivan bought a lot of books.’

⁷ For detailed argumentation for the claim that *na*-verbs select a QP rather than a DP or a bare NP, the reader is referred to Pereltsvaig (to appear).

To summarize, nominals in Russian do not need to be fully projected as DPs. Examples of nominals that we hypothesize to lack the DP include: (i) non-agreeing (Babby's 'heterogeneous') QPs; (ii) GEN-NEG NPs; (iii) QPs selected by verbs with quantificational semantics. These analyses require NPs and QPs to be able to receive case directly and, following the insights of Babby (1987), allow for different morphological cases on different projections within a single nominal domain.

4.3 *Predicative nominals in Russian*

Our claim is that, in addition to the bare QPs and NPs discussed above, non-referential NPs occur in other contexts as well. Below, we demonstrate that they play a considerably more prominent role in Russian grammar than previously imagined. Let us now turn to predicative nominals in Russian, which, as mentioned in Section 2 above, can be either Nominative or instrumental. We follow Pereltsvaig (2001), who treats predicate instrumental as a bare NP, as opposed to the predicate Nominative DP.

- (18) Oleg byl [_{NP} durakom] / [_{DP} durak].
 Oleg_{NOM} was fool_{INSTR} fool_{NOM}
 'Oleg was a fool.'

Before we discuss the association of cases with syntactic structures, a word or two on our assumptions about the two structures instantiated in (18) is in order. As argued in Pereltsvaig (2001), *byt'* 'to be' with a predicative instrumental is a light verb, introduced in v^0 , that governs the instrumental and selects a (non-referential) NP. Since, as argued in Franks (1995), *inter alia*, *byt'* is formally (if not semantically) perfective, its conjugated form results in future rather than present tense meaning. Hence, instrumental is possible only with past or future forms of *byt'*. In contrast, the structure with a predicative Nominative is equative, and *byt'* is inserted directly into T^0 to bear tense and agreement features. The subject DP, here *Oleg*, raises from a small clause where it had merged with the DP *durak* 'fool'.

Why do we associate the predicate instrumental with a bare NP and the predicate Nominative with a DP, rather than the other way around? It

turns out that if a predicative nominal includes material normally associated with the DP projection, then it has to be marked with the Nominative case and cannot be instrumental. For instance, as shown in (19) from Pereltsvaig (2001), only the DP is allowed in a context which requires referentiality:

- (19) On byl {tot brat /* tem bratom},
 he was that_{NOM} brother_{NOM} /* that_{INSTR} brother_{INSTR}
 kotoryj vseгда popadal v bedu.
 which_{NOM} always got into trouble
 ‘He was that brother who always got into trouble.’

Presence of the demonstrative element *tot* ‘that’ forces the projection of a DP; since the resulting phrase can only be Nominative, we conclude that the predicate instrumental is limited to bare NPs. Pereltsvaig observes that a similar situation arises for numerals, as shown by the contrast in (20):

- (20) a. Oleg i Ivan byli [_{QP} dva xorošix parnja].
 Oleg and Ivan were two good_{GEN} chaps_{GEN}
 ‘Oleg and Ivan were the two good chaps.’
 b. Oleg i Ivan byli (*dvumja) [_{NP} xorošimi parnjami].
 Oleg and Ivan were two_{INSTR} good_{INSTR} chaps_{INSTR}
 Intended: ‘Oleg and Ivan were two good chaps.’

Since the predicate instrumental is only licensed on bare NPs, it is incompatible with *dvumja* ‘two_{INSTR}’ in (20b). The status of this example is particularly telling. The fact that an instrumental adjective is perfectly acceptable, whereas the instrumental numeral is not, shows that when *dvumja* is present the phrase must be larger than an NP. Since the light verb *byt’* ‘to be’ selects an instrumental NP as its complement, (20b) with *dvumja* is impossible.

Furthermore, as shown in (21), negative polarity items, which are non-referential, must be instrumental and not Nominative.

- (21) On ne byl nič'im drugom /* ničej drug.
 he NEG was [nobody's friend] INSTR / *NOM
 'He wasn't anybody's friend.'

The flip side of this observation is that pronouns, which are often assumed to be D^0 s, normally appear in the Nominative case:

- (22) Èto byl on /*im.
 this was he NOM / *INSTR
 'It was him.'

There have been noted in the literature, however, certain apparent counterexamples where pronouns appear in the post-copular position in the instrumental case. Two such examples, suggested for a Dr. Jekyll – Mr. Hyde situation and cited by Nichols (1981: 206), are given in (23). In this example, the pronoun does not have its characteristic referential interpretation.

- (23) Kogda ja byl im, to ja soveršal užasnye prestuplenija.
 when I was he INSTR then I committed terrible crimes
 'When I was him, I committed terrible crimes.'

Because of this, we argue that pronouns in Russian are not merged in D^0 . Instead, we propose to merge them in N^0 and move them to D^0 (this possibility is also explored in Cardinaletti 1993, Progovać 1998 and Rutkowski 2003). In these exceptional cases where the pronoun has a non-referential interpretation *and appears in the instrumental case*, as in (23), it cannot, by hypothesis, be in D^0 , since no DP is projected. The possible N^0 status of pronouns is further corroborated by examples such as those in (24), where they can be modified by adjectives and preceded by determiners:

- (24) a. Silnaja ja smogu èto predolet'.
 strong I NOM will-manage this overcome
 'A strong me will manage to overcome this.'
- b. Ja ljublju togo tebja, kotorogo ja znaju.
 I love that ACC you ACC which I know
 'I love the you that I know.'

In the typical referential cases, however, the pronoun raises from N^0 to D^0 , when there is a DP above it. This is why, for example, we find the relative orders in (25):⁸

- (25) a. [ego_i samogo t_i]
 him_{ACC} self_{ACC}
 ‘himself’
- b. [samogo direktora]
 self_{ACC} director_{ACC}
 ‘the director himself’

To recap, we have argued that Nominative post-copular phrases are DPs and instrumental ones are NPs. One of our basic points was that Nominative but not instrumental post-copular phrases presuppose the existence of an individual. This is further supported by the coordination test for an equative reading, given in (26) from Holmberg (1993:130):

- (26) a. Peter is a teacher, and Lisa is a teacher, too.

 b. ??Peter is the teacher, and Lisa is the teacher, too.

Adapting this test to Russian, a similar contrast emerges for copular sentences. Since instrumental post-copular NPs do not refer, they cannot give rise to an equative reading. This is demonstrated by the minimal pair in (27):

- (27) a. Piter byl doktorom, i Andrej tože byl doktorom.
 Peter was doctor_{INSTR} and Andrew too was doctor_{INSTR}
 ‘Peter was a doctor, and Andrew was too.’

 b. ??Piter byl doktor, i Andrej tože byl doktor.
 Peter was doctor_{NOM} and Andrew too was doctor_{NOM}
 Intended: ‘Peter was the doctor and Andrew was too.’

4.4 *Approximative inversion*

Further support for our claim that nominals in Russian need not project all the way up to DP can be seen in the behavior of the curious

⁸ For a detailed discussion of similar facts in Serbian/Croatian and Polish, see Progovac (1998) and Rutkowski (2003), respectively.

‘approximative inversion’ construction, typologically peculiar to East Slavic. In this construction, the noun inverts around the numeral (stranding the adjectives — if any — behind) with the resulting meaning of approximation. Franks (1995:165-174) argues at length that this only occurs in bare QPs, never in DPs. Although either the heterogeneous (28a) or the homogenous pattern (28b) is allowed in the absence of approximative inversion,⁹ only the heterogeneous pattern is allowed with approximative inversion, as shown in (28c-d):¹⁰

- (28) a. Ja videl [_{QP} četyre soldata].
 I saw four soldiers_{GEN}
- b. Ja videl [_{DP} četyrex soldat].
 I saw four_{GEN} soldiers_{GEN}

both (a) and (b): ‘I saw four soldiers.’

- c. ? Ja videl [_{QP} soldata četyre].
 I saw soldiers_{GEN} four
 ‘I saw about four soldiers.’
- d. *Ja videl [_{DP} soldat četyrex].
 I saw soldiers_{GEN} four_{GEN}
 Intended: same as (28c)

Pereltsvaig (to appear) explains this distribution in terms of the semantic interpretations of QPs and DPs: only the former are non-referential (i.e., non-individual denoting) as required by the semantics of the approximative inversion. Further corroboration for this account can be seen in the fact that *na*-verbs, which select QPs, always tolerate approximative inversion:

⁹ As discussed in Section 3.5, the homogenous pattern in (28b) is the effect of animacy, which imposes genitive form on the entire DP; cf. (31b).

¹⁰ The sentence in (28c) is slightly odd pragmatically because ‘four’ is not easily seen as an approximation. However, crucially, there is a real contrast between (28c), which is slightly odd, and (28d), which is outright ungrammatical.

- (29) Ivan nakupil [QP knig sorok].
 Ivan *na*-bought books GEN forty
 'Ivan bought about 40 books.'¹¹

Finally, approximative inversion is not possible in contexts where the referentiality is forced by control or binding:

- (30) a.* [ženščin sorok]_i staralis' [PRO_i vstat'].
 women GEN-Q forty tried PL to-get-up
 b.* [ženščin sorok]_i uvažali sebja_i.
 women GEN-Q forty respected PL themselves

4.5 Animacy

Finally, we tie animacy, as reflected in how Accusative is realized, into referentiality, hence presence of a DP. We assume, following e.g., Fraser and Corbett (1995), that in the morphology there is a rule which invokes either the Nominative or Genitive form when the Accusative is called for (and when there is no distinct Accusative entry). In other words, this is *not* an instance of syncretism (contra Franks 1995), but rather obeys a rule like (31):

- (31) *Accusative prediction rule:*
 a. Accusative + inanimate ⇔ Nominative
 b. Accusative + animate ⇔ Genitive

Let us return in this light to the difference between (28a) and (28b). The latter, we maintain, is a DP. It has an individuated reading, meaning that a total of four separate soldiers were perceived, as opposed to (28a), which is a QP and therefore favors a group reading. This clearly correlates with the application of the Accusative prediction rule, in that

¹¹ Although it is possible to have an overt numeral in examples like (29), it must fulfill two conditions: (i) it must be a (contextually determined) large enough number to be compatible with the meaning of the quantifier 'a lot of' implicit in the cumulative prefix *na-*, (ii) it must be a round number, which can be easily seen as an approximation. Thus, *sorok* 'forty' is acceptable, but neither *pjat* 'five' nor *sorok vosem* 'forty eight' is appropriate here.

the QP functions as inanimate, the DP as animate. Concomitantly, (28c-d) shows that approximative inversion is only possible when the Accusative is mapped into Nominative rather than Genitive.

Consider also (32), in which the non-referential, metaphorical use of *dve ženy* ‘two wives’ as a temporal phrase causes the Accusative to be mapped into Nominative rather than Genitive.

- (32) Èto slučilos’ dve ženy/ *dvux žen tomu nazad.
 that happened two wives ACC=NOM/*ACC=GEN ago
 ‘This happened two wives ago.’

This follows from the assumption that Russian adjuncts are not DPs, since there is no referential feature of NP that would require merger of D^0 in order to be valued. The expression is thus treated as inanimate and mapped, by (31a) into the Nominative form.

A similar account can conceivably explain (33) as an instance of necessarily non-referential hence inanimate Accusative:

- (33) On pošel v soldaty/*soldat.
 he went into soldiers ACC=NOM/ *ACC=GEN
 ‘He became a soldier.’

This is sometimes regarded as an idiomatic construction, an exceptional use of the Nominative.¹² It would however be a unique instance of Nominative selected by a preposition. Moreover, as shown by an illustrative list of collocations in (34), this a quite a productive expression:

- (34) *pojti v povara* ‘become a cook’; *pojti v gosti* ‘go visiting’; *postupit’ na službu v kamerdinery* ‘get employment as a valet’; *podat’sja v lingvisty* ‘become a linguist’; *godit’sja v njan’ki* ‘be suited for a nanny’; *godit’sja v otcy* ‘be of a father’s age’; *vzjat’ v ženy* ‘take as a wife, marry’; *kandidat v prezidenty* ‘presidential candidate’, etc.

¹² According to Zolotova (1988:170-172), this construction expresses “a characteristic of an individual according to his belonging to a category, a group of people, usually a socially meaningful one” (translation – A.P.).

Under our account, what is unusual about v in this meaning is that it selects for an NP, rather than a DP; hence, there are no animacy features to trigger (31b).

5. Conclusion

In this paper, we have argued for a system in which NP can be dominated by a range of functional projections, encompassing at least QP and DP. The level of projection ultimately depends on the kinds of functional categories required in order to value the features of the nominal selected from the numeration. We hope to have shown that this kind of approach to the nominal domain opens up interesting new avenues of analysis of some familiar (and not so familiar) problems in Russian morphosyntax.

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Stem-Alignment, Syllable Markedness and Formation of Truncates in Polish*

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1. Introduction

This paper examines the formation of truncates in Polish in the framework of Optimality Theory (Prince and Smolensky 2002). It is argued that Polish truncates are sensitive to stem edges. It is also demonstrated that truncates provide evidence for the existence of a minimal phonological word in the language, i.e., that of a syllabic trochee. Finally, the formation of truncates sheds new light on the syllabification of medial consonant clusters in Polish. The paper is organized as follows: Section 1 provides a general introduction to the formation of hypocoristics in Polish. The role of stem-edges and stress in truncation is discussed as well. Section 2 contains an OT account of Polish truncation. Section 3 discusses the role of syllabification in the formation of truncates as well as syllable markedness effects. Sections 4 and 5 discuss truncates with C-initial suffixes and disyllabic suffixes, respectively.

2. Hypocoristic formation in Polish

According to McCarthy and Prince (2001), in languages without quantity distinctions, such as Polish, the minimal phonological word must be

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bisyllabic². This minimal word requirement is obeyed in Polish in truncation.

Polish hypocoristics are formed by attaching one of the following suffixes³ to the truncated stem (cf. Szpyra 1995):

- | | | | |
|-----|----------------------------|---------------------|--------------------|
| (1) | a.. -ka/ -ek | Dorot-a → Dor-ka, | Alfred → Alf-ek |
| | b. -ci ⁴ a/ cio | Dorot-a → Dor-cia, | Melchior → Mel-cio |
| | c. -usia/ -uś | Kamil-a → Kam-usia, | Alfred → Alf-uś |
| | d. -unia/ -unio | Dorot-a → Dor-unia, | Alfred → Alf-unio |
| | e. -a/-o | Jolant-a → Jol-a, | Ignac-y → Ig-o |

–a/-o are inflectional suffixes. Attachment of inflectional suffixes to masculine truncates in the nominative is characteristic of hypocoristics. Typically, masculine nouns are not overtly marked for case in the nominative.

It is possible to attach more than one suffix to the stem:

- (2) a. Jolant-a → Jol-usia → Jol-uś-ka, Jol-usi-eńka

There are two ways of forming truncates: stem-initial truncation (Type A truncation) and stem-final truncation (Type B truncation):

- | | | | |
|-----|--------------|---------------|---------------|
| (3) | <i>Base</i> | <i>Type A</i> | <i>Type B</i> |
| | a. Prakséd-a | Prá[kɕ]-a | Séd-a |
| | b. Ferdýnand | Férd-ek | Nánd-ek |
| | c. Halín-a | Hál-a | |
| | d. Benédykt | Bén-ek | |

² This requirement is not met by many (content) words of the shape (C)VC, e.g., *dom* (house_{NOM SG}), or even CV, e.g., *zna* (s/he knows). The minimal word requirement must be outranked by FAITH constraints that prohibit insertion of additional material.

³ Other suffixes can be used though not frequently, e.g., *-eńka/-eniek*, *-ula/-ulek*, *-uchna*.

⁴ <i> denotes palatalization in the CiV context. It does not constitute a separate syllable.

In Type A Truncation the left edge of the truncate coincides with the left edge of the base. If the base is onsetless, so is the truncate. If the base begins with a complex consonant cluster, the cluster is fully preserved in the truncate:

- | | | | | | |
|-----|----|-------------|--------------|---|--------------|
| (4) | a. | V-initial | Alín-a | → | Ál-a |
| | b. | C-initial | Danút-a | → | Dán-a |
| | c. | CC-initial | Skarbímir | → | Skárb-ek |
| | d. | CCC-initial | [m̥t̥ɕ]ísław | → | [m̥t̥ɕ]ís-ek |

The base is shortened to fit (with the morphological ending) the disyllabic template. No material is skipped while copying from the base into the truncate. The base syllabification does not determine the truncate syllabification⁵. Type A truncates preserve minimally one and maximally two consonants in stem-final position:

- | | | | | | |
|-----|-----------------|----|-------------|---|-------------------------|
| (5) | <i>C-final</i> | a. | Hi.pó.lit | → | Híp.-cio, Hí.p-ek |
| | | b. | Szczé.pan | → | Szczé.p-ek Szczép.-cio |
| | <i>CC-final</i> | c. | Rok.sá .n-a | → | Ró[k.ɕ ⁶]-a |
| | | d. | Bal.tá.zar | → | Bál.t-ek |

In Type B Truncation the right edge of the truncate stem coincides with the right edge of the base stem. No elements are skipped while copying from the base into the truncate. The base syllabification does not determine the syllabification of the truncate:

- | | | | | |
|-----|----|--------------|---|----------|
| (6) | a. | Kà.ro.lí.n-a | → | Lí.n-a |
| | b. | Gót.fryd | → | Frý.d-ek |

It has been observed that truncation can be sensitive to stress. E.g., in Spanish (Piñeros 2000), truncates are built on the syllable bearing the main stress in the base. This is not the case for Polish, where truncation is sensitive to stem edges rather than stress.

⁵ The base syllabification is violated when a C-initial suffix is added. In truncates with V-initial suffixes, the base syllabification is vacuously preserved: CV.CV.C-V → CV.C-V.

⁶ /ɕ/ results from hypocoristic specific stem-final palatalization, not discussed in this paper.

In Polish primary stress is penultimate (e.g., Rubach and Booij 1985, Hayes and Puppel 1985, Kraśka-Szlenk 1995). It is assigned after the attachment of all morphological endings. Secondary stress falls on every odd syllable starting from the first one on the left word edge. Stress clashes are not allowed:

- (7) (grý.mas) grimace_{NOM.SG.}
 gry.(máš.ny) fussy_{ADJ.MASC.NOM.SG.}
 (grỳ.mas.)(ní.ca) fussy girl_{NOM.SG.} (Kraśka-Szlenk 1995)

The forms below may indicate that truncation is sensitive to stresses in the base:

- (8) a. Klo.(týl.d-a) → (Týl.d-a)
 b. Am.(bró.ż-y) → (Bró.ż-ek)

However, this hypothesis would not account for the forms below, where only the final unstressed syllable is preserved:

- (9) a. (Zýg.fryd) → (Frýd-ek)
 b. (Wíl.helm) → (Hél.m-ek)

Further, it would also incorrectly predict the following forms:

- (10) a. Be.(né.dykt) → *(Né.d-ek) (Bé.n-ek)
 b. Do.(bró.gost) → *(Bró.ż-ek) (Gós.t-ek)
 c. Fer.(dý.nand) → *(Dý.n-ek) (Fér.d-ek), (Nán.d-ek)

The base forms in (8) contain a suffix. Consequently, the last syllable of the stem is in the penult and receives primary stress. The base forms in (9) and (10) are not suffixed: the last syllable of the stem is word final and so unstressed. It is only a coincidence that in (8) the last syllable of the stem is stressed. The theory that truncation is sensitive to stem boundaries provides a unified account of Polish truncation.

3. An OT account of Polish truncation

3.1. *The Model* (Itô and Mester 1992, 1997, Benua 1995)

Itô and Mester (1992) show that the prosodic variety of truncated forms can be reduced to a simple core: they are instances of the unmarked

prosodic word of the language. The notion of ‘unmarked prosodic word’ must be expressed by a set of constraints leaving a certain amount of variation space: hence the observed variety of prosodic shapes. This model easily adapts to the Polish facts.

Further developed within OT under the slogan ‘Emergence of the Unmarked’ (McCarthy and Prince 1994, 1995) for reduplication, this approach gave rise to a nontemplatic analysis of truncation (Benua 1995) summarized in (11), with structural markedness constraints sandwiched between IO-Faithfulness (MAX-IO) and truncation specific Faithfulness (Max-B(ase)-T(runcatum)).

(11) <i>general-purpose maximizer</i>	<i>size restrictors</i>	<i>Truncation specific maximizer</i>
MAX-IO	e.g., ALL-FT-R, PARSE- σ , FT-BIN, etc.	>> MAX-BT

McCarthy and Prince (1994) propose that MinWds are unmarked Prosodic Words (PW) that arise when the PW-Restrictor (PWR) constraints in (12a-d) are strictly respected. Polish has trochaic feet and so the constraint in (12e) needs to be added:

(12) *Prosodic-Word Restrictor Constraints (PWR):*

- a. PARSE-SYLL: *Parse syllables*: All syllables are parsed into feet.
- b. FT-BIN: *Foot Binarity*: Feet are binary at some level of analysis.
- c. ALL-FT-R: *All Feet Right*: Every foot stands in PW final position.
- d. ALL-FT-L: *All Feet Left*: Every foot stands in PW initial position.
- e. FT-FORM=T: *Trochaic Foot Form* (McCarthy and Prince 1993): Align the left edge of a foot with the left edge of its head.

Satisfaction of the PWR constraints is only possible when the PW contains a single binary foot. PARSE-SYLL demands that all syllables be parsed by a foot. FT-BIN requires feet to achieve binarity at the syllabic level in case of Polish. ALL-FT-R/L are alignment constraints that govern

the position of feet. Every foot is evaluated on the distance from the right/left edge of the PW. The distance is counted in syllables. When ALL-FT, PARSE-SYLL and FT-BIN are top-ranked, the output may contain only a single binary foot:

Tableau 13: MAX-IO >> FT-BIN, PARSESYLL, ALL-FT-R, ALL-FT-L >> MAX-BT

Base: da.nu.t-a Input: TRUNC+ a	MAX-IO	FT-BIN	PARSE-SYLL	ALL-FT-R	ALL-FT-L	MAX-BT
a. da.(nú.ta)			*!		*	
b. (dà.)(nú.ta)		*!		*	*	
c. (dá.n-a)						ut
d. (dá.-a)						nut!
e. (dán)	-a!	*!				ut
f. (dá.nu)	-a!					t

The Morphological Ending (ME) (*-a*) is the only input element. MAX-IO is violated when ME is not present in the output. TRUNC is an empty morpheme whose form is governed by MAX-BT that is dominated by well-formedness constraints.

3.2. *Deriving the differences between type A and type B truncates*

Type A/B specifications are a part of the input, in the same manner as MEs. These specifications decide which of the stem alignment constraints is ranked highest in the grammars. Thus, there are three elements of the input: the morpheme TRUNC, ME and the type specification. Type A truncation seems to be the default. Any name can have a Type A truncate. The option of Type B truncation is limited to older names or to names that begin with a vowel.

3.3. *Anchoring and contiguity*

The main argument I want to defend is that the formation of truncates in Polish is sensitive to the edges of the base stem. Related to this issue is the proposal made by McCarthy and Prince (1995, 2001) that the reduplicant and the base must share an edge element. The same can be attested in Polish truncation. Type A truncates anchor to the left edge of the base, while Type B truncates anchor to the right edge of the stem.

The following ANCHOR constraints are visible in Polish truncation (Based on McCarthy and Prince 1995):

- (14) ANCHOR-BT-L/R: *Anchor the left/right edge of the Base stem*
 Any element at the left/right periphery of the base stem has a correspondent at the left/right periphery of the truncate stem.

Following the model in (11), ANCHOR must outrank MAX-BT:

Tableau 15: Anchor-BT-L, PWR >> Max-BT

Base: fer.dy.nand Input: TRUNC+ek ^{Type A}	ANCHOR-BT-L	PWR	MAX-BT
☞ a. (fer.d-ek)			ynand
b. (fe.r-ek)			dyand!
c. (dy.n-ek)	*!		fer and
d. fer.(dy.n-ek)		*! PARSE-SYLL	and

(15c) fails ANCHOR-BT-L because its left edge is not aligned with the left edge of the base. In (15d) one of the syllables is unfooted, which incurs a violation of PARSE-SYLL and ALL-F-LEFT. (15a) preserves more base material than (15b) and so it wins.

The same ranking produces the right Type B truncates:

Tableau 16: ANCHOR-BT-R, PWR >> MAX-BT

Base: fer.dy.nand Input: TRUNC+ek ^{Type B}	ANCHOR-BT-R	PWR	MAX-BT
☞ a. (nan.d-ek)			ferdy
b. (na.n-ek)	*!		ferdy n
c. (an.d-ek)			ferdyn!
d. dy(nan.d-ek)		*! PARSE-SYLL	fer

Another candidate is *fen.d-ek*, where the order of base elements is not preserved in the truncate. The constraint banning such candidates is CONTIGUITY (McCarthy and Prince 1995, Benua 1995)

- (17) CONTIG-BT: *Contiguity between the Base and the Truncate*

The portion of the truncate standing in correspondence to the base forms a contiguous string.

4. Syllable structure and truncation

The ranking MAX-IO >> ANCHOR-BT-R, CONTIGUITY, PWR >> MAX-BT incorrectly predicts that if a Type B truncate is built on a base containing a medial cluster of consonants, it should fully preserve that cluster irrespective of its size and complexity:

Tableau 18: ANCHOR-BT-R, CONTIG-BT, PWR >> MAX-BT

Base: gas.par Input: TRUNC+ek ^{Type B}	ANCHOR- BT-R	CONTIG- BT	PWR	MAX- BT
⊗ a. (pa.r-ek)				gas!
☐ b. (spa.r-ek)				ga

MAX-BT selects (18b) because it preserves more base material than (18a). However, the attested form is (18a). (18b) cannot be ruled out by any phonotactic constraint since words with initial /s/+plosive clusters are common in Polish. It is not the case that structures with branching syllable nodes are prohibited in truncates. Polish allows Type B truncates with a branching onset in the first syllable, e.g., *Man.fré.d-a* → *Fréd.-ka*. Type B truncates are sensitive to syllabification of the base. The left edge of the truncate coincides with a syllable boundary in the base. In (18), the syllabification of the base is *Gás.par* and that is why /s/ is not kept in the truncate.

The constraint requiring preservation of base syllabification in the truncate is STRUCTURAL ROLE (STROLE):

- (19) STROLE: *Structural Role* (McCarthy and Prince 2001)
Correspondent elements play identical syllabic roles.

Ranking STROLE above Max-BT will yield the correct result:

Tableau 20: STROLE >> Max-BT

Base: gas.par Input: TRUNC+ek ^{Type B}	STROLE	MAX-BT
☞ a. (pa.r-ɛk)	*	gas
b. (spa.r-ɛk) ⁷	**!	ga

Both candidates incur at least one violation of STROLE as both of them resyllabify /r/, which in the base occupies a coda position, into the onset. (20b) has one more violation of STROLE because here /s/ is part of the onset, while in the base it was in a coda position.

ANCHOR-BT-R >> STROLE >> MAX-BT also allows for the preservation of two consonants in the onset:

Tableau 21: ANCHOR-BT-R >> STROLE >> Max-BT

Base: am.bro.ż-y Input: TRUNC+ek ^{Type B}	ANCHOR- BT-R	STROLE	MAX-BT
☞ a. (bro.ż-ɛk)			am
b. (ro.ż-ɛk)			amb!
c. (mbro.ż-ɛk)		*!	a

(21c) is the only one that does not respect the syllabification of the base and is excluded by STROLE. MAX-BT selects (21a) since it preserves more base segments than (21b).

In Type A truncates STROLE does not play any role because here the left edge of Type A truncates is determined by a highly ranked ANCHOR-BT-L. Effectively, Type A truncates contain bigger and more complex onsets than Type B truncates.

Although STROLE is ranked high in the grammar, it is not always perfectly obeyed. When a V-initial suffix is attached to a truncated stem, the stem final consonant is syllabified as an onset in the truncate, no matter what syllabic role it played in the base:

⁷ Another possible candidate is *spar.-ek* that does not violate STROLE. This candidate will violate ONSET discussed below.

- (22) *Type A* a. Dag.mar-a → Da.g-a
 b. E[d.v]ard → E.d-ek
 Type B c. Fer.dy.nand → Nan.d-ek
 d. Do.bro.gost → Gos.t-ek

Prince and Smolensky (2002) and McCarthy and Prince (1994) observe that the unmarked syllabification of a CVCV is CV.CV rather than CVC.V. The latter type of syllabification would produce an onsetless syllable. Polish adheres to this preference as well:

(23) ONSET: Syllables must have onsets.

ONSET must outrank STROLE as it is better to resyllabify the base final consonant as an onset, then to preserve the original syllabification of the base. ONSET must also be ranked below CONTIG-BT. The evidence comes from onsetless Type B truncates:

Tableau 24: ANCHOR-BT-R >> CONTIG-BT >> ONSET

Base: jo.an.n-a Input: TRUNC+a ^{Type B}	ANCHOR-BT-R	CONTIG-BT	ONSET
a. (a.si-a)			*
b. (ja.si-a)		*!	

(24b) violates CONTIG to satisfy ONSET. Candidate (24a) does not have an onset in the first syllable but it obeys CONTIG.

4.1. Truncates as diagnosis of word-medial-cluster syllabification

Formation of Type B truncates sheds new light on the syllabification of word-medial consonant clusters. If we use consonant retention/deletion in Type B truncation as a diagnosis for medial cluster syllabification, we can conclude that the following medial CC consonants are hetero-syllabified since only one medial consonant is preserved in the truncate:

- (25) R – resonant, O – obstruent, N - nasal
 a. RR He[n.r]yk-a → [r]yk-a
 Ma[r.l]en-a → [l]en-a
 He[r.m]an → [m]an-ek

- b. RO Ho[r.t]ensj-a → [t]eni-a
A[n.z]elm → [z]elm-ek
- c. OO Ga[s.p]ar → [p]ar-ek
Ro[k.s]an-a → [s]an-a
O[k.t]avi-a → [t]usia
Ja[d.v]ig-a → [v]ig-a
- d. ON Da[g.m]ar-a → [m]ar-a
Lu[d.m]ił-a → [m]ił-a
Pa[f.n]uc-y → [n]uci-o

There are only two types of word medial clusters that are fully syllabified into the onset, i.e., where both consonants are preserved. These are: O + L(iquid) and O + G(lide):

- (26) OL Lu[kr]ecj-a → [kr]eci-a
Eu[fr]ozyn-a → [fr]uzi-a
OG Rości[sw]aw → [sw]aw-ek
Miło[sw]aw → [sw]aw-ek

Only CC clusters that constitute optimal syllable onsets in terms of Syllable Sonority Sequencing (i.e., clusters with a sharp rise in sonority) are fully preserved in the onset. All other types of medial CC clusters are split between the coda and the onset.

In all the CCC medial clusters the syllable boundary is set after the first consonant and the two consonants preserved in the truncate constitute a cluster with a sharp rise in sonority:

- (27) ROR Ge[r.tr]ud-a → [tr]udzi-a
Me[l.xj]or → [xj]or-ek
A[m.br]oż-y → [br]oż-ek
- OOR Go[t.fr]yd → [fr]yd-ek
Zy[k.fr]yd → [fr]yd-ek

This paper contradicts the claims concerning the syllabification of medial OO and OR clusters put forward by Rubach and Booij (1990). Their conclusion was that medial OO and OR clusters can be freely syllabified as either O.O, O.R, or .OO, .OR. Type B truncates show that medial OO clusters are invariably split between the coda and the onset. OR clusters are syllabified .OR if they constitute an onset with an abrupt rise in sonority (26) or O.R if there is a minimal sonority distance between the two consonants (25d).

4.2. *Truncation and syllable-structure TETU effects*

4.2.1. *Coda constraint.*

Voiced obstruents are banned in truncate codas:

- (28) a. E[d.v]ard E.[d]-ek *E[d.v]-ek
 b. Da[g.m]a.r-a → Da.[g]-a *Da[g.m]-a

Codas other than voiced obstruents are permitted:

- (29) a. An.ze[lm] Ze[l.m]-ek
 b. Pra[k.s]e.d-a → Pra[k.ç]-a
 c. Ge[r.t]ru.d-a → Ge[r.t]-a

The avoidance of voiced obstruents in codas is an instance of the Emergence of the Unmarked (McCarthy and Prince 1994). Polish bans voiced obstruents in word final position. Truncates opt for an even stricter application of this rule: voiced obstruents are avoided in coda position of any syllable (Prince and Smolensky 2002).

- (30) *VDCODA: No voiced obstruents in coda

The truncates in (28) preserve only the first medial consonant of the base. They satisfy CONTIG-BT and ONSET at the expense of STROLE, which indicates that *VDCODA is ranked above STROLE.

Tableau 31: ONSET >> CONTIG-BT, *VDCODA >> STROLE

Base: dag.má.r-a Input: TRUNC+a ^{Type A}	ONSET	CONTIG-BT	*VOICED CODA	STROLE
a. (dá.g-a)				*
b. (dá.m-a)		*!		
c. (dág.m -a) ⁸			*!	

4.2.2. No complex onsets.

Another characteristic of Polish truncates is a ban on complex onsets in the unstressed syllable.

- (32) a. Am.bro.ż-y → Am.b-ek *Am.br-ek
- b. Wa.cław → Wa.c-ek *Wa.ć-ek
- c. Ru.precht → Ru.p-ek *Ru.pr-ek

Polish truncates allow branching onsets in stressed/initial syllables:

- (33) a. Ste.fá.ni-a → Sté.f-a
- b. Ger.trú.d-a → Trú.d-a

Similarly, secondary palatalized consonants are banned in truncates in unstressed syllables. Polish has a set of alveolo-palatal consonants /ç ʒ tç dʒ ɲ / and a set of palatalized labials and velars /pʲ bʲ mʲ fʲ vʲ kʲ gʲ xʲ/. In phonetic terms, palatalization in consonants other than alveolo-palatals is realized as a separate glide (Wierzychowska 1980).

Consonants with secondary palatalization are preserved in the stressed syllable of the truncate:

- (34) a. Elż[bʲ]et-a → [bʲ]e.t-a

⁸ Another possible candidate is (da.gma), which, according to the above ranking would tie with the actual winner (da.ga). In the next section I will introduce a constraint that will rule out (da.gma). Similarly, I will not consider (dák.m -a), where the plosive is devoiced. This candidate violates IDENT-BT-FEATURE constraints. This paper does not discuss feature changes in truncates.

- b. Mel[xʲ]or → [xʲ]ó.r-ek
 c. [mʲ]e.czy.sław → [mʲ]é.t-ek

but not in the unstressed syllable of the truncate:

- (35) a. Ame[ɫ̪]-a → Mé.[l]-a
 b. Gra[tsʲ]an → Grá.[tsʲ]-ek
 c. To.[bʲ]asz → Tó.[b]-ek

The ban on branching onsets in unstressed positions is another TETU effect. Prince and Smolensky (2002) propose the constraint *COMPLEX(SYLLABLE) to rule out complex syllable position nodes:

- (36) *COMPLEXSYLL: *No complex Syllable Position Nodes*

The ranking established so far will wrongly penalize Type B truncates with branching onsets in the initial/stressed syllable:

Tableau 37: ANCHOR-BT-R >> CONTIG >> *COMPLEXSYLL

Base: ger.trú .d-a Input: TRUNC+a ^{Type B}	ANCHOR-BT-R	CONTIG	*COMPLEXSYLL L
☹ a. (trú.d-a)			*!
☺ b. (rú.d-a)			
c. (tú.d-a)		*!	

The winner is (37b). It obeys both ANCHOR-BT-R and CONTIG and it does not have any complex syllable positions. (37a), the expected winner, fails *COMPLEXSYLL.

Low ranked *COMPLEXSYLL permits branching onsets in the stressed syllable of Type A truncates due to ANCHOR-BT-L and CONTIG, but it incorrectly penalizes branching onsets in the stressed syllable of Type B truncate. A solution to this problem is Positional Markedness (e.g., Alderete, 1999, de Lacy 2000, Smith 2001, Steriade 1999, Zoll 1998). Positional Markedness refers to marked structures that are licensed to appear only in certain positions.

I assume that *COMPLEXSYLL is a markedness constraint militating against complex structures in perceptually less salient positions, such as unstressed/ non-initial syllables. Positional Markedness requires constraint conjunction (Smolensky 1995), i.e., context independent markedness constraints, e.g., *COMPLEXSYLL, with positional constraints. In Polish positional markedness is expressed in the form of COINCIDE (after Zoll 1998).

- (38) COINCIDE (complex syllable, head σ):
Complex Syllable Position Nodes in stressed syllable.
 Syllable position nodes branch only in stressed syllables.

COINCIDE is a conjunction of the markedness constraint *COMPLEXSYLL and a positional constraint demanding the coincidence of all syllables with the head of the foot. According to the principle of local conjunction, a given candidate violates the conjoined constraint iff it violates both of its components. Thus, COINCIDE is violated only by a syllable that is unstressed and complex at the same time. Violations of only one of the components do not count as violations of the complex constraint.

STROLE, COINCIDE >> MAX-BT produces the correct results:

Tableau 39: STROLE, COINCIDE >> MAX-BT

Base: ger.trú.d-a Input: TRUNC+a ^{Type A}	STROLE	COINCIDE	MAX-BT
☞ a. (gér.t-a)			rud
b. (gér.tr-a)		*!	ud
c. (gért.r-a)	*!		ud
Base: am.bro .ž-y Input: TRUNC+ek ^{Type B}	STROLE	COINCIDE	MAX-BT
☞ d. (bró.ž-ek)			am
e. (mbró.ž-ek)	*!		a
f. (ró.ž-ek)			amb!

Type A truncation: (39c) satisfies COINCIDE but its coda does not obey STROLE. (39b) obeys STROLE but its unstressed syllable contains a

branching onset, which incurs a violation of COINCIDE. (39a) satisfies STROLE and COINCIDE although it fares worst on MAX-BT.

Type B truncation: (39e) fails STROLE. (39d) as well as (39f) pass STROLE and COINCIDE. The final selection is made by MAX-BT: (39d) preserves more base segments than (39f).

5. Truncates with consonant initial suffixes

The ranking established so far will wrongly eliminate truncates that contain a consonant in the base final position before a C-initial suffix. In truncates with V-initial suffixes base final consonants were preserved to provide an onset for the syllable containing the suffix. In truncates with C-initial suffixes ONSET will not suffice to rescue the base-final consonant. The suffix already contains a consonant that fills the onset position to the satisfaction of ONSET:

Tableau 40: ANCHOR, ONSET >> STROLE, COINCIDE >> MAX-BT

Base: do.ro.ta Input: TRUNC+ $\widehat{t\zeta}a$ ^{Type A}	ANCHOR- BT-L	ONSET	STROLE	COINCID E	MAX-BT
⊗ a. (dor.- $\widehat{t\zeta}a$)			*!		
b. (do.r- $\widehat{t\zeta}a$)				*!	
☞ c. (do.- $\widehat{t\zeta}a$)					rɔt

All the candidates pass ANCHOR and ONSET. (40a), the desired winner, fails STROLE because /r/ changed its place from the onset in the base to coda in the truncate. (40b) fails COINCIDE because the stem final /r/ and the suffix initial / $\widehat{t\zeta}$ / are in the onset of the unstressed syllable. The winner is wrongly (40c).

Truncates with C-initial suffixes reveal one important aspect of Polish morphology. A typical Polish stem ends in a consonant. McCarthy and Prince (1994, 2001) observe that certain domains require final consonants. They propose the constraint FINAL-C. I will extend McCarthy and Prince's proposal to the analysis of Polish stem. I will to employ the following definition of FINAL-C:

- (41) FINAL-C: *Align stem right, consonant right.*
 Stems must end in a consonant.

FINAL-C is defined in terms of right edge alignment. The definition does not make any reference to the syllable. The stem-final consonant can be freely placed either in the coda or in the onset, depending on the type of suffix attached to the stem.

FINAL-C must be ranked above STROLE, and STROLE must be ranked below COINCIDE:

Tableau 42: FINAL-C, COINCIDE >> STROLE

Base: zu.zan.n-a Input: TRUNC+ka ^{Type A}	FINAL-C	COINCIDE	STROLE
☞ a. zus.-ka			*
b. zu.s-ka		*!	
c. zu.-ka	*!		

FINAL-C successfully eliminates (42c), where the stem is V-final.

What will happen if we take a base with a medial consonant cluster, e.g., *Delfin-a*? A V-initial suffix allows preservation of both consonants in the truncate: *Delfin-a* → *Delf-a*. However, when a C-initial suffix is added, only a single stem-final consonant is preserved as predicted by the grammar shown below:

Tableau 43: FINAL-C, COINCIDE >> STROLE

Base: del.fi.n-a Input: TRUNC+ t̥ɕa ^{Type A}	FINAL-C	COINCIDE	STROLE
☞ a. (del.t̥ɕa)			
b. (del.f.t̥ɕa)		*!	
c. (delf.t̥ɕa)			*!

Finally, top-ranked ANCHOR-BT-R predicts that Type B truncates built on a base ending in CC should preserve this cluster even when a C-initial

suffix is added. However, most CC stem-final Type B truncates with a C-initial suffix produce clusters unattested in Polish

- (44) Esterk-a → Te[r-t̪ɕ]a *Te[rk-t̪ɕ]a
 Rajnold → No[l-t̪ɕ]o *No[l̪-t̪ɕ]o

This type of truncates indicate that ANCHOR-BT-R must be dominated by syllable structure constraints that eliminate candidates with consonant clusters not permitted in Polish.

6. Truncates with disyllabic suffixes

One of the claims of this paper is that truncates conform to the shape of a bisyllabic trochee. However, once we add a disyllabic suffix to the truncated stem, the resultant form is no longer bisyllabic. The claim can be sustained on the following grounds:

- Disyllabic truncates, i.e., truncates consisting of a clipped stem and a monosyllabic suffix, are the default in that they are the standard and the most frequent ones.
- Masculine truncates take up the inflectional suffix *-o*, e.g., *Grzegorz* → *Grze[ɕ]-o*, in the nominative to conform to the disyllabic requirement. A typical non-truncated masculine noun does not have an overt inflectional ending in the nominative.
- A hypocoristic containing a disyllabic suffix can be reduced to a bisyllabic foot, e.g., *Oktawi-a* → *Okt-usia* → *T-usia*. Hypocoristics with a monosyllabic suffix do not undergo further truncation, e.g., *Oktawi-a* → *Okt-a* → **T-a*.

7. Summary

The final OT grammar for the Polish truncates looks as follows:

- (45) MAX-IO >> ANCHOR-BT, PWR, ONSET >>
 CONTIG-BT, *VDCODA, COINCIDE, FINAL-C >>
 STROLE >> MAX-BT

The paper shows that stem edges play a vital role in the formation of truncates. Further, Type B truncates demonstrate that, contrary to

previous analyses (e.g., Rubach and Booij 1990), the unmarked syllabification of medial CC clusters in Polish is C.C.

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On Processing and Acquiring of Relative Clauses and Questions in Serbian/Croatian*

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This paper is divided into three parts. The first concerns processing of long-distance dependencies by adults and the second children's knowledge of the grammar of such dependencies. The third part deals with ongoing research into the processing of discourse-linked questions by children and Broca's aphasics. In each case I will try to show how the particulars of Serbian/Croatian can shed light on general debates in the psycholinguistic literature.

1. Processing

1.1 Principles of processing

The literature on adult sentence processing has proposed several principles that guide the choices that the processor makes as it deals with the incoming string of words. The Active Filler Strategy and the Minimal Chain Principle are principles that guide the processing of *wh*-questions and other long-distance dependencies.

* This paper is dedicated to the late Professor Ljiljana Mihailović, who was my mentor and my friend during a year I spent in Serbia in the early 1970s. She remains an inspiration. Many people have helped me over the years as I have wandered in and out of the grammar of Serbian/Croatian: Wayles Browne, Olga Tomić, and Ljiljana Progovač deserve a special mention. Much of the research summarized here is the work of Danijela Stojanović, and our joint work could not have been done without her. Grants # 410-91-04437 and #410-2001-0458 from the Social Sciences and Humanities Research Council of Canada provided support for the research on Serbian/Croatian reported here. Thanks to a reviewer for careful reading of the manuscript and helpful comments.

(1) *The Active Filler Strategy (Frazier and Flores d'Arcais, 1989)*

Assign an identified filler as soon as possible. I.e., rank the option of a gap above the option of a lexical noun phrase within the domain of an identified filler.

The Active Filler Strategy provides an explanation of two well-established processing results. First, it can account for the 'filled gap effect'. In self-paced reading experiments subjects read sentences by pressing a reaction time key to initiate the next word or phrase. Crain and Fodor (1985) found reaction times were longer to initiate the word following *us* in *wh*-questions such as (2a) than in yes-no questions such as (2b). Under the Active Filler Strategy, the processor will discharge the filler (*who*) at the first possible gap (trace) position, which is the position directly following *force*. This position is not in fact the position from which *who* has been extracted, as the reader will discover on accessing the true object of *force*, *us*. The elevated reaction times at *us* in (2a) can be explained as the result of the processor discovering its error. The filled gap effect has been found using various sentence types and various experimental methodologies (see, for example, Stowe 1986, Frazier and Clifton 1989)

- (2) a. Who did the little girl force *us* to sing those silly songs for last Christmas?
- b. Did the little girl force *us* to sing those silly songs for Cheryl last Christmas?

A second result accounted for by the Active Filler Strategy is the processor's preference for subject over object gaps. The Dutch sentence in (3) is globally ambiguous: the relative pronoun can be construed as either subject of the relative clause (interpretation 3a) or object (interpretation 3b). Frazier (1987) found a strong preference to assign the subject reading to such ambiguous relatives. This is the result predicted under the Active Filler Strategy, which will posit a trace at the first possible position — immediately following the relative pronoun rather than at the object trace position following *de Nederlander*.

- (3) Jan houdt niet van de Amerikaanse
 Jan likes not the American
 die de Nederlander wil uitnodigen.
 who the Dutchperson wants invite

- a. 'John doesn't like the American that wants to invite the Dutch person.'
 b. 'John doesn't like the American that the Dutch person wants to invite.'

Similarly, Frazier also found that if number morphology on the embedded verb in sentences of the type in (3) disambiguates towards the object reading of the relative clause, reading times will be elevated in comparison to when the morphology disambiguates towards the subject reading.

In *wh*-questions and relative clauses such as (2a) and (3) the processing mechanism knows immediately on accessing the *wh*-word/relative pronoun that it must posit a chain. Our second processing principle concerns situations in which the processor does not immediately know whether a chain is required.

(4) *The Minimal Chain Principle (de Vincenzi 1991)*

Avoid postulating unnecessary chain members at S-Structure, but do not delay required chain members.

The Italian question in (5) is ambiguous between a reading in which the subject position has been questioned and *Giovanni* is object of the verb (5a) and a reading in which the object position has been questioned and *Giovanni* is the post-posed subject (5b). The Minimal Chain Principle dictates that the processor will choose the reading (5a), since this avoids positing a subject-postposing chain. de Vincenzi found that this was the preference of Italian speakers. And when the pragmatics of the post-verbal NP disambiguated towards the dispreferred post-posed subject reading (as in the equivalent of 'who has arrested the detective?'), reading times were longer at that position than when the pragmatics supported the subject reading of the NP ('who has arrested the thief?').

- (5) Chi ha chiamato Giovanni?
Who has called Giovanni
- a. Chi_i t_i ha chiamato Giovanni? ('Who has called Giovanni?')
- b. Chi_i t_j ha chiamato t_j Giovanni?_i? ('Who did Giovanni call?')

1.2 Relative clauses in Serbian/Croatian

Relative clauses in Serbian/Croatian can be introduced by either a relative pronoun (6a, b) or an invariant complementizer (7a, b). In the former case resumptive pronouns are ungrammatical in both subject and object relatives, while in the case of complementizer relatives a resumptive is ungrammatical in subject relatives but obligatory when the object position is relativized (7b). The resumptive pronoun is cliticized to the second verb. *Što* relatives are analyzed as derived by movement of a covert relative operator since, as we will see below, they obey subadjacency.

- (6) a čovek_i koji_i (*on) t_i spava
man who_{NOM} (he) sleeping
'The man who is sleeping'
- b čovek_i koga_i sam (*ga) upoznala t_i
man who_{ACC} AUX_{1SG} (him) met
'The man who I met'
- (7) a čovek_i O_i što (*on) t_i spava
man comp (he) sleeping
'The man that is sleeping'
- b čovek_i O_i što sam *(ga) upoznala t_i
man comp AUX_{1SG} (him) met
'The man that I met'

1.3 Processing Serbian/Croatian relatives

Stojanović (1999) used a segment-by-segment self-paced reading task to examine Serbian speakers' processing of relative clauses. (8) is an example of her materials for *koji* (*wh*) relatives. The slashes indicate the

segments for the self-paced reading task. (8a) is the subject relative completion of the main clause and (8b) is the object relative completion. (9a, b) give the structure of (8a, b). As can be seen in (9b) the object relative clause contains a chain formed by subject post-posing.

(8) Rečima se nije moglo opisati

Words could not describe

- a. venčanje / koje je₁ / izazvalo₂ / divljenje₃ / čak i kod gostiju₄
wedding / which AUX/ caused / admiration/ even in guests /

iz grada
from city

‘the wedding which has caused admiration even in the guests
from the city’ (SwhVO)

- b. divljenje / koje je₁ / izazvalo₂ / venčanje₃ / čak i kod gostiju₄ /
admiration/ which AUX/ caused / wedding / even in guests /

iz grada
from city

‘the admiration which the wedding has caused even in guests
from the city’ (OwhVS)

- (9) a. NP-S koje_i AUX t_i V NP-O (SwhVO)

- b. NP-O koje_j AUX t_i V t_j NP-S_i (OwhVS)

The prediction of the Active Filler Strategy and the Minimal Chain Hypothesis is that the processor will assume that the head of the relative occupies the subject position in the relative clause. This assumption will be challenged in (8b) on accessing the post-verbal NP *venčanje* (‘wedding’), since that NP is not a plausible object of the verb in the relative clause. As predicted, reaction times to initiate the next segment were significantly longer in (8b) at segment 3 than they were in (8a). This experiment thus provides support from Serbian/Croatian for the Active Filler Strategy and the Minimal Chain Principle.

(10) gives examples of Stojanović’s materials for *što* relatives. (10a) is the continuation that yields a subject relative and (10b) the

continuation that yields an object relative. (11a, b) gives the structures for (10a, b). In (10/11 a), the pronoun following *što* is a direct object pronoun that is not part of the relative operator chain; in (10/11b) the pronoun is part of the relative operator chain.

(10) Otac će još dugo spominjati službenika.

‘Father will for a long time talk about clerk.’

a. što ga je₁ /satima₂ /maltretirao₃ /zbog jednog običnog
that him AUX / for hours / harassed/because of one simple
formulara₄/
form

‘that has harassed him for hours because of one simple form’

b. što ga je₁ /satima₂ /molio₃ /za jedan običan formular₄ /
that him AUX / for hours / begged / for one simple form
‘that he has begged for hours for one simple form’

(11) a. O_i što ga_k je t_i satima maltretirao t_k

b. O_j što ga_{j/k} je pro_i satima molio t_k

In the case of *što*, the Active Filler Strategy makes an interesting prediction. The first opportunity that the processor has to discharge the head/operator is when it accesses the pronoun *ga*. Thus we predict that in the case of *što* relatives, object relatives will be easier to process than subject relatives. This is in fact what Stojanović found: reaction times to access the segment following segment 3 — the segment in which the meaning of the verb confirms or challenges the object relative interpretation — were significantly longer in the case of (10a) than they were in the case of (10b). (Note that this is highly unlikely to be an effect of a preference for object *što* relatives in adult usage; *što* relatives in adult usage are overwhelmingly subject relatives, Stojanović 1999).

Some further evidence that for *što* relatives object relatives are easier than subject relatives comes from an acquisition study. In an act-out experiment in which 4-6 year old children used toys and other props to give their interpretations to sentences read to them by the experimenter,

Goodluck and Stojanović (1996) found fewer errors in acting out object relatives such as (12b) than in acting out subject relatives such as (12a).

- (12) a. Sanja vidi medveda što e jaše tigra
 Sanja sees bear that rides tiger_{ACC}
 'Sanja sees the bear that rides the tiger'
- b. Sanja vidi medveda što ga tigar_{NOM} jaše
 Sanja sees bear that him tiger rides
 'Sanja sees the bear that the tiger rides'

To sum up, Stojanović's experiments on the processing of Serbian/Croatian provide evidence in favor of the Active Filler Strategy and the Minimal Chain Principle (see also Sekerina (1997) for evidence from Russian in support of these principles). The results from the processing of *što* relatives argue that a principle such as the Active Filler Strategy is necessary to the theory of sentence processing. Any alternative that makes explicit reference to subject and object positions will fail to account for the reversal of the normal preference for subject relatives in the case of *što* relatives.

1.4 Evaluating processing principles

The Syntactic Prediction Locality Theory (SPLT, Gibson 1998) has challenged the need for processing principles such as the Active Filler Strategy and the Minimal Chain Principle. Instead, SPLT proposes that a general purpose complexity metric can do the job of these principles; no mention of specific types of structure (filler, chains, etc.) need be made.

One type of evidence that Gibson cites in favor of SPLT is Hemsforth's (1993) work on German. Hemsforth found that initial accusative case marked NPs took longer to read than initial nominative case marked NPs. The SPLT can account for this, since the initial accusative marking requires the immediate postulation of an extra piece of structure (verb, empty category for the fronted NP, subject vs. only NP and V for the initial nominative marked NP (see also Urošević et al. 1988).

It is interesting to consider whether the SPLT can account for the reversal of the normal subject-object asymmetry in Serbian/Croatian *što*

relatives. Looking at the structures in (11a, b), the number of categories projected at any given point appears to be identical, the difference is rather in the type of category that must be projected (trace vs pro) and the coindexing. For the SPLT to work, it must be the case that associating the head of the relative/relative operator with the object clitic pronoun reduces the burden on the processor, i.e. that the reduction in memory load caused by linking the head to the pronoun is more valued by the processor than the effort of building the coupled chain of operator-pronoun and pronoun-object position. McCloskey 2000 suggests that coupled chains (in particular, coupled movement-binding chains in Irish) may be dispreferred for performance reasons. Whether this is the case is a matter for empirical investigation.

2. Acquisition

2.1 *Is there a default mechanism for relative clause formation?*

Labelle (1991) initiated an ongoing debate concerning whether children have a default mechanism for relative clause formation. Labelle proposed that children are predisposed to use a binding/predication mechanisms for relative clauses, which will be incorrect when the ambient language uses a mechanism of successive cyclic movement. Labelle supported her proposal with data from an elicited production experiment with 3-6 year old French-speaking children. Amongst other features of the relatives she elicited were relatives with resumptive pronouns, which are ungrammatical in adult French. Examples from the productions of two three-year-olds are given in (13).

- (13) a. La petite fille qu'a est assis sur la boîte
 the little girl comp she is sat on the box
 'The little girl that she is sitting on the box'
- b. Sur la balle qu'i(l) l'attrape
 on the ball that he it catches
 'On the ball that he catches'

(In (13a) *qu'a* [ka] is the result of combining the complementizer *que* with the feminine subject pronoun *elle*)

On Labelle's analysis, the head NP and the relative CP are in a predication relationship established by coindexation, and, where the relative contains an element that can serve as a variable (gap or pronoun) this coindexation is the equivalent of lambda abstraction.

(14) [NP]_i [CP]_i

A study of 3-7 year old Irish-speaking children (Goodluck, Guilfoyle and Harrington, 2003) produced a result that implicates a similar mechanism. Irish is a language that has a dual mechanism for relative clause formation, movement and binding. The latter is judged grammatical for relativizing the direct object position, but in reality was not used for that position by either children or our adult controls. Our Irish speaking children did not innovate subject resumptives (which are ungrammatical in Irish, as in adult French) in the way the Labelle's French-speaking children did. However, they produced non-adult subject relatives. Irish is a language in which complementizers may never be omitted. (15a) is a grammatical subject relative produced by a six year old child, while (15b) is an example of a child subject relative in which the complementizer has been omitted, contrary to the dictates of the adult language. Although such omission of the complementizer occurred with some frequency in child subject relatives, it was never observed in child object relatives. Goodluck et al. argue that this can be accounted for if, in addition to adult-like mechanisms for relative clause formation, children are using a mechanism that merges TP with the relative head (16), in a manner similar to that proposed for the combination of NP and CP in French. The absence of omission of the complementizer in object relatives can be accounted for by the children's preference for the movement mechanism for forming object relatives: movement requires a CP, and the CP head in Irish is always phonetically overt.

(15) a. an fear a théann ar sciol gach lá (child, 6:10)
 a man COMP goes to school everyday
 'the man who goes to school every day'

b. an buachaill ag dul ar sciol (child aged 5;10)
 the boy PRT go-VN to school

(16) [NP]_i [TP]_i

To sum up, studies of child French and child Irish suggest that children learning those languages innovate a mechanism of merge/predication to form relatives, suggesting that a non-movement mechanism has a special status in the grammar of child relatives.

2.2 Further properties of Serbian/Croatian relative clauses.

Goodluck and Stojanović (1996) sketch the grammar of adult relative clauses in Serbian/Croatian. We started from the perspective that there is a clustering of properties associated with movement vs. binding mechanisms for relative clause formation, binding being characterized by subjacency violations, use of resumptive pronouns, use of an invariant complementizer to introduce the relative, and admissibility of relatives with a null preposition (the equivalent of ‘the chair the girl sat’ for ‘the chair the girl sat on’; see Klein 1993 for a cross-linguistic survey). These superficial criteria are fallible: Serbian/Croatian *što* relatives, like English *that* relatives, obey subjacency, just as *koji* relatives do (17, 18), and omission of the preposition in oblique relatives is not permitted in Serbian/Croatian. Thus, as mentioned above, we analyse *što* relatives as formed by movement of a null operator.

- (17) *čovек koga se ne sećam gde sam
 man who_{ACC} REFL NEG remember where AUX_{1SG}
 upoznala
 met
 ‘man who I don’t remember where I met’

- (18) *čovек što se ne sećam gde sam ga
 man comp REFL NEG remember where AUX_{1SG} him
 upoznala
 met
 ‘man that I don’t remember where I met him’

Serbian/Croatian does, however, have a mechanism for relativizing into islands: the *za koga* construction. (17) becomes grammatical if the preposition *za* is inserted before *koga* and a resumptive pronoun inserted after the auxiliary of the lower clause of the relative,

- (19) *čovек za koga se ne sećam gde sam ga*
 man prep who_{ACC} REFL NEG remember where AUX_{1SG} him
upoznala
met

‘man who I don’t remember where I met him’

We analyse the *za koga* construction as follows: a number of mental state verbs such as *sećati se* (‘remember’) subcategorize for *za koga*; the pronoun *koga* is coindexed with a pronoun in the complement to the verb, and subsequently moved short distance to the front for the relative. Evidence for this short-distance move comes from the fact that if the verb that subcategorizes for *za koga* is embedded inside an island, relativization with *za koga* becomes ungrammatical (compare (20a) with (20b)). Similar ‘mixed’ (binding and movement) chains have been observed in Modern Irish (McCloskey, 2000) and Selayese (Finer, 1997).

- (20) a. *čovек za koga si objasnio da znaš da*
 man prep who_{ACC} AUX_{2SG} explained comp know comp
ti je pro pomogao
 you_{DAT} AUX_{3SG} helped

‘man who you explained that you know that he helped you’

- b. * *čovек za koga si objasnio kako znaš da*
 man prep who_{ACC} AUX_{2SG} explained how know comp
ti je pro pomogao
 you_{DAT} AUX_{3SG} helped

‘man who you explained how you know that he helped you’

Given the fact that Serbian/Croatian has both a binding and movement mechanism for relative clause formation, and that *što* relatives exhibit the unusual combination of obedience to subadjacency and the requirement of a resumptive pronoun for relativization of positions other than the subject position, Serbian/Croatian appeared to us to be a potentially rich hunting ground with respect to whether children have a default mechanism for forming relative clauses.

2.3 *Child relatives in Serbian/Croatian*

Goodluck and Stojanović tested 4-6 year old children and adults with an elicited production task modeled on Labelle (1991). Subject were shown pairs of pictures with two similar objects/persons and asked to place different colored stickers on each of the two objects. We attempted to elicit relatives with relativization sites in subject, object, and oblique positions and long distance relativization into tensed and subjunctive clauses and *wh-islands*. (21) is an example of a protocol for eliciting direct object relatives and (22) is an example of a protocol for eliciting relativization into a *wh-island*. The pictures accompanying these protocols are given in the appendix.

(21) *Protocol for eliciting direct object relatives*

Devojčica vozi auto.	Devojčica pere auto.
The girl is driving the car	The girl is washing the car

Koji auto ima plavu nalepnicu?	Koji auto ima crvenu nalepnicu?
Which car has the blue sticker?	Which car has the red sticker?

(22) *Protocol for eliciting relatives with binding into a wh-island*

Ovo su dva čoveka.	Here are two men.
O ovom ništa ne znamo.	We don't know anything about this one.

Ni o ovome mi ništa ne znamo ali Saša zna gde on radi.	We don't know anything, about this one either but Sasha knows where he works.
---	---

Koji čovek ima plavu nalepnicu?	Koji čovek ima crvenu nalepnicu?
------------------------------------	-------------------------------------

Which man has the blue sticker? Which man has the red sticker?

The results can be summarized as follows:

- a. Adults preferred relativization with *koji* over *što*

- b. Adults correctly used *za koga* for relativization into islands
- c. Children used more *što* relatives than adults
- d. Children were largely unaware of the *za koga* construction
- e. Island violations for children were somewhat more frequent with *što* than with *koji*
- f. In relativizing oblique positions, children produced relatives with missing prepositions, and they did so more frequently for *što* than for *koji*.

(23) na onoj što devojčica sedi
 on one comp girl sits (Subject # 8)

- g. Children used resumptive pronouns with *koji* relatives when the relativization site is in an embedded clause, and did so most frequently when the relativization site is within a *wh*-clause.

Not all of the distinctions summarized above are statistically significant, but the overall pattern for children is consistent with the clustering of properties that is diagnostic of use of a binding mechanism: preference for use of an invariant complementizer, subjacency violations and null preposition relatives. Goodluck and Stojanović propose that children, like adults, have a dual mechanism for relative clause formation, but for children *što* relatives are non-movement, whereas for adults they are movement relatives.

2.4 Summary

The studies of French, Irish and Serbian/Croatian all show evidence of child relatives that deviate from those that are grammatical and/or preferred in the adult language. In the case of French and Irish, children appear to innovate a merge/predication mechanism. In the case of Serbian/Croatian, children appear to impose a non-adult analysis on relatives introduced by a complementizer. Both types of deviation from the adult behavior are consistent with a binding mechanism as a preferred form of relativization in the adult language.

3. For the (hopefully near) future

Hickok and Avrutin (1996) found that Broca's aphasics show a subject/object asymmetry in comprehending questions. The experimenter acted out scenarios with toy animals, followed by a question. The form of the scenario was for one animal of type *x* to perform an action on an animal of type *y*, which then performed the same action on another animal of type *x*. Thus for the questions in (24), one tiger would chase a pig which would then chase another tiger.

- (24) a. Who chased the pig?
 b. Who did the pig chase?
 c. Which tiger chases the pig?
 d. Which tiger did the pig chase?

Hickok and Avrutin found for their Broca's patients that the non-*D*(iscourse)-linked subject and object questions (24a, b) were equally easy, but *D-linked* object questions (24d) were harder than *D-linked* subject questions (24c), with performance at chance level for the former. Avrutin (2000) has replicated this result with 4-6 year old children. Following Cinque (1990), Hickok and Avrutin note that *D-linked* phrases can enter into binding chains, and they propose that binding chains are impaired in Broca's aphasia. Success with (24c) arises from use of a first NP = agent strategy.

In a series of experiments in progress (Goodluck 2003), I have replicated and extended the work of Hickok and Avrutin and of Avrutin, testing 4-6 year old children. The results to date can be summarized as follows:

- a. the basic subject-object asymmetry for *D-linked* questions is replicated, but only in some circumstances.
- b. the subject-object asymmetry is not found when a more specific *D-linked* phrase (such as 'which tiger') is replaced with 'which animal'.
- c. a d-linking effect is found for subject as well as object questions.

- d. a reversal of the subject-object asymmetry (subject questions harder than object questions) is found when the visual array is changed. In my replication of Hickok and Avrutin, the order of actions performed was always from left to right from the perspective of the child. In two new experiments, we have also tested with the order of actions being right to left from the child's perspective, and in this case the effect of D-linking in object questions is reduced or reversed, with D-linking subject questions being harder. Notice that a bias to point to the left will result in error for (24d) when the order is left to right and error for (24c) when the order is right to left.

Thus it appears that minimally the processing of *D-linked* and non-*D-linked* subject and object questions is more complex than the initial results of Hickok and Avrutin suggested. I believe that a set of interacting factors — linguistic, psycholinguistic and perceptual — may be at work (see de Vincenzi et al 1999, Tait et al 1995, and Thompson et al 1995 for further results). Does this mean that Hickok and Avrutin's original hypothesis that binding chains are impaired in Broca's aphasics is incorrect?

Tait, Thomson and colleagues point out that Cinque's analysis has been subject to criticism in the linguistic literature. They failed to replicate Hickok and Avrutin's results with their Broca's subjects when a phrase such as 'which tiger' was replaced with the less specific 'which one', and they propose a semantic account of the difficulty of the more specific phrase. However, that account cannot deal with the fact that I also failed to find the effect for children when I used the phrase 'which animal'.

Accepting the controversial nature of Cinque's analysis, let us none the less assume that the English results can be taken to support a relationship between D-linking and binding, as opposed to movement, and the impairment of binding chains. If that is the case, Serbian/Croatian may offer a better testing ground than English for the hypothesis that binding chains are impaired in Broca's aphasia. The *za koga* construction discussed in section 2.2-2.3 is not confined to relative clauses, but is used also for direct questions and focus constructions. The same subjects who took part in the relative clause experiment described above did a comprehension task testing their knowledge of the difference

between *koga* and *za koga* questions. The subjects listened to a short (three to four sentence) story accompanied by pictures, and then answered a (potentially) ambiguous question. An example of the test materials is given in (25),

(25)

Zoran i Vesna razgovaraju
o tome šta će raditi na leto.

Zoran and Vesna are talking
About what they are going
to do in summer.

Zoran hoće da idu kod
dede na selo.

Zoran wants to visit their
grandpa in the country.

Zoran kaže: “Pitaću tatu kada
when ćemo posetiti dedu.”

Zoran says “I’ll ask dad
we will visit grandpa”

Evo njihove kuće
na selu.

Here is their house
in the country.

Koga question:

Koga_i će Zoran pitati t_i kada će ga_j posetiti?
who AUX Zoran ask when AUX him visit
‘Who will Zoran ask when (he/they) will visit him?’

Adult interpretation: for which person x will Zoran ask x when
he/they will visit y (i.e. the answer is Dad)

Za koga question:

Za koga_j će Zoran pitati t_i kada će ga_j posetiti?
for whom AUX Zoran ask when AUX him visit
‘Who will Zoran ask when (he/they) will visit him?’

Adult interpretation: for which person y will Zoran ask x when
he/they will visit y (i.e the answer is grandpa).

As can be seen from the adult interpretations of the questions, *koga* permits only the answer corresponding to the main clause object position (since the embedded clause is an island), whereas *za koga* permits only

an answer corresponding to the subordinate clause object position (questioning from the main clause object position with *za koga* is permitted only in a small number of idiomatic cases).

The results of the experiment were clear cut, if not particularly interesting. The adults performed as expected under the grammar of Serbian/Croatian, with 100 percent top clause answers for *koga* and 100 percent embedded clause answers for *za koga*. Not surprisingly given their performance on the relative clause experiment described above, the children did not do well. Children almost invariably opted for the top clause construal of the *wh*-word, i.e., correct for *koga*, but incorrect for *za koga*.

The results with adults both for relatives and direct questions argue that the *za koga* binding construction is firmly embedded in the grammar of non-impaired Serbian/Croatian-speaking adults. If, as Hickok and Avrutin originally proposed, binding chains are impaired in Broca's aphasia, Serbian/Croatian Broca's aphasics are predicted to do badly with *za koga* constructions. This is the topic of experiments now on the drawing board, and I hope to be able to report results at a future FASL meeting.

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Interpretation of Slavic Multiple Wh-Questions*

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1. Pair-list and single-pair readings and their distribution

Interrogative clauses with more than one *wh*-phrase can sometimes have a Pair-List (PL) or a Single-Pair (SP) reading. A question with the intended PL reading would be felicitous in a scenario like in (1) and a felicitous response to such a question would involve listing propositions involving ordered pairs as in (2).

- (1) *PL Scenario: John is at a formal dinner where there are diplomats and journalists. Each journalist was invited by a different diplomat. To find out the details, John asks the host:*
- (2) Who invited who to the dinner?
- (3) Mr. Smith invited Mr. Jones, Ms. Black invited Mr. Green, etc.

A scenario corresponding to the SP reading is given in (4). Since English lacks SP reading in non-d-linked *wh*-questions, a d-linked question is used instead in (5) with the felicitous single-pair response in (6).¹

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¹ D-linked *wh*-questions, as in Pesetsky (1987), will not be analyzed in this paper; (5) was used only to demonstrate the SP reading in English.

- (4) *SP Scenario: John knows that a very important diplomat invited a famous journalist to a private dinner. To find out the details, John asks the caterer:*
- (5) Which diplomat invited which journalist to the dinner?
- (6) Ms. Black invited Mr. Smith.

Besides restrictions within a single language (as we just saw in English), the distribution of PL/SP readings is subject to crosslinguistic variation, which was pointed out by Hagstrom (1998) and Bošković (2001a) who extends Hagstrom's study of *wh*-in-situ languages to languages with overt *wh*-fronting. Thus, a SP reading is unavailable in the English question in (2), repeated in (7).² However, it is freely available in Serbo-Croatian (SC) (8). That is, unlike (7), the question in (8) is felicitous in both PL and SP scenarios. Bulgarian patterns with English in this respect (9). Outside the Slavic group, German patterns with English while Japanese patterns with SC (10) – (11).

- (7) *PL/*SP*
Who invited who to the dinner?

- (8) *PL/SP*
Ko je koga pozvao na večeru? SC
who AUX whom invited to dinner
'Who invited who to the dinner?'

² Dayal (2002) presents an apparent counterexample to this observation, attributing it to C.L. Baker. 'Who hit who first?' is felicitous on a single-pair reading. However, note that what is asked about here is not the identity of the hitter and the hittee, but rather the direction of the hitting event (i.e., Did John hit Bill or vice versa?). This is quite a different reading from the one we consider a SP reading in our discussion in that it presents a choice between two pairs already established in the discourse. Thus, it is important to filter out this reading when testing the availability of the SP reading (cf. Comorovski (1996) for more discussion of exceptions to the generalization in question).

- (9) *PL/*SP*
 Koi kogo e pokanil na večerjata? Bulgarian
 who whom AUX invited to dinner
 ‘Who invited who to the dinner?’
- (10) *PL/*SP*
 Wer hat wen zum Abendessen eingeladen? German
 who AUX whom to dinner invited
 ‘Who invited who to the dinner?’
- (11) *PL/SP*
 Darega dareo syokuzini manekimasita-ka? Japanese
 who who dinner invited-Q
 ‘Who invited who to the dinner?’

It will be the goal of this paper to account for these crosslinguistic facts.^{3 4} One thing to note about the overall pattern is that the PL reading seems to be the unmarked case. That is, we do not find a language that has the SP reading but lacks the PL reading in *wh*-questions of the type presented above. There are, however, constructions in certain languages that seem to force SP readings. One such construction is discussed in Hagstrom (1998) and Bošković (2001a): a lower *wh*-phrase is fronted over the higher *wh*-phrase, so-called Interpretive Superiority. SP readings can also be forced in the context of scope intervention effects (cf. Hornstein (1995) and Pesetsky (2000) for details). I will isolate from these interesting phenomena for the purpose of this paper (cf. Grebenyova (in preparation) for more discussion of Interpretive Superiority).

Bošković (2001a) observes that SP readings are unavailable in the multiple interrogatives where overt *syntactic wh*-movement (i.e., the

³ Hagstrom (1998) and Bošković (2001a) report these facts with *Who bought what?* questions. My switching to ‘who-who’ questions and corresponding scenarios was motivated by an interfering factor in Russian questions of *who-what* type, which will be discussed in section 3. A control testing of the new examples and scenarios was done, replicating the parallel judgments from Hagstrom and (1998) and Bošković (2001a).

⁴ My German informants were consistent in their judgments, confirming the same results of Bošković (2001a) and Citko and Grohman (2001). However, Roland Meyer (p.c.) expresses doubt about the impossibility of SP reading in this case.

movement of a *wh*-phrase to Spec,CP in order to check the uninterpretable [+*wh*] feature of C⁰) takes place. Using Superiority effects as a diagnostic for syntactic *wh*-movement, Bošković (1997), (cf. Bošković 2002), identifies English, German and Bulgarian *wh*-questions as such contexts. On the other hand, all contexts in Japanese and SC main clauses without an overt complementizer, as in (8), are treated as not involving syntactic *wh*-movement at all. SC is argued to involve covert C insertion in these contexts, multiple *wh*-fronting being viewed as multiple instances of focus movement to a position lower than C⁰, triggered by an uninterpretable [+focus] feature on *wh*-phrases themselves. It is in these contexts, lacking syntactic *wh*-movement, that SP readings are allowed freely, as data in (7) – (11) suggest.

Thus the questions arise, why the SP reading is unavailable in these languages and what the licensing requirements for the SP reading are. Bošković (2001a) attempts to answer these questions by arguing that in languages with overt syntactic *wh*-movement, a Relativized Minimality violation occurs, resulting in the loss of the SP reading. I will present this account next and then show that this solution is not general enough to account for other losses of SP reading. I will then propose an alternative analysis based on the lexical properties of an interrogative morpheme (Q-morpheme) and try to generalize it to all the cases of the absence of SP reading.

2. Relativized minimality account

Bošković (2001a)'s account of the restrictions on the occurrence of the SP reading involves three major aspects: (a) a specific analysis of syntactic *wh*-movement developed in Bošković (1997, 2002), Citko (1998), Stjepanović (1998) and Stepanov (1998), (b) Hagstrom (1998)'s semantics of *wh*-questions, and (c) Relativized Minimality.

2.1 Syntactic *wh*-movement

Adopting the economy approach to Superiority as formulated in Chomsky (1995), (cf. Rizzi 1990), many researchers have argued that Superiority can be used as a diagnostic for syntactic *wh*-movement (Bošković 1997, 2002, Citko 1998, Stepanov 1998, Stjepanović 1998). One source of evidence for this analysis is that in a multiple *wh*-fronting

language like Bulgarian, only the highest *wh*-phrase is sensitive to Superiority, with the other *wh*-phrases being freely ordered (Bošković 1997, 2002) as shown in (12)-(13).

- (12) a. Kogo kakvo e pital Ivan? Bulgarian
 whom what is asked Ivan
 'Who did Ivan ask what?'
 b. *Kakvo kogo e pital Ivan?
- (13) a. Koj *kogo kakvo* e pital?
 who whom what is asked
 'Who asked who what?'
 b. Koj *kakvo kogo* e pital?

This contrasts with SC, Polish and Russian, which do not show Superiority effects in these contexts and therefore are considered not to involve overt syntactic *wh*-movement (i.e., *wh*-movement to Spec,CP) in these cases (14)-(15), but rather involve focus fronting of all *wh*-phrases.

- (14) a. Kogo što Ivan sprosil? Russian
 whom what Ivan asked
 'Who did Ivan ask what?'
 b. Što kogo Ivan sprosil?
- (15) a. Kto *kogo što* sprosil?
 who whom what asked
 'Who asked who what?'
 b. *Kogo kto* što sprosil?
 c. Kto *što kogo* sprosil?

Recall the observation from the end of section 1 that it is the languages that involve syntactic *wh*-movement that lack the SP reading. It is this observation that Bošković (2001a) attempts to explain. We now turn to a brief overview of the semantics of multiple *wh*-questions developed by Hagstrom (1998) providing specific syntactic structures for

PL and SP readings. The account of Hagstrom (1998) was adopted in Bošković (2001a) and will be adopted here.

2.2 *Semantics of PL/SP readings (Hagstrom 1998)*

Unlike the semantic value of a statement, the semantic value of a question cannot be a truth value. Semantically, a question denotes what kind of statements would constitute its possible answers. Therefore, it was cleverly proposed by Hamblin (1973) that the semantic value of a question is a set of propositions that constitute all its possible answers (semantic type $\langle pt \rangle$).⁵ For example, the meaning of the question *What book did John buy?* is the following set of propositions {John bought *War and Peace*, John bought *Syntactic Structures*, etc.}.

Hagstrom (1998) adopts this treatment of questions for Yes/No questions, single *wh*-questions, and multiple *wh*-questions with the SP reading. He then proposes that *wh*-questions with the PL reading are different in that they represent a *set* of questions (i.e., a *set of sets* of propositions: $\langle pt, t \rangle$).

Wh-phrases are treated as sets of individuals (type $\langle et \rangle$). Q-morpheme has an important role by being interpreted as a quantifier over choice functions. By movement from the clause internal position to C^0 , Q-morpheme leaves behind a variable whose value ranges over generalized choice functions (type $\langle \alpha t, \alpha \rangle$), choosing one member of whatever set it is merged with.

Hagstrom assumes two different syntactic positions for the Q-morpheme in PL and SP readings. In a question with a PL reading, it merges with the lowest *wh*-phrase (16a), and in a question with the SP reading, it merges in some position F above the highest *wh*-phrase (16b). Hagstrom's analysis actually involves a movement step from the lower position of Q to the higher position (what he calls *Q-migration*). It is, however, an island- and intervention-insensitive movement operation (cf. Hagstrom 1998 for more details). I will ignore it for the purposes of my discussion. I will briefly sketch below how each reading is derived compositionally.⁶

⁵ In this notation, adopted from Hagstrom (1998), p represents a complex type $\langle st \rangle$.

⁶ See Hagstrom (1998) for the explicit formal semantic derivations.

- (16) a. [_{CP} Q_j-C⁰ ... [_{TP} ... wh1 ... V ... t_j wh2 ...]] PL
 b. [_{CP} Q_j-C⁰ ... [_{FP} t_j-F⁰ [_{TP} ... wh1 ... V ... wh2...]]] SP

In the derivation of the PL reading, the choice function (*t_j*) takes *wh2* (a set of individuals) as its argument returning an individual (<*e*>). The semantic result of combining the verb with its complement is a property (<*et*>). In order to combine this set of properties with the set represented by *wh1*, Flexible Functional Application (FFA) applies the property to every individual in that set and puts the result into a set. This is a set of propositions (<*pt*>) that are possible answers to a question like *Who bought what?*. The movement of Q-morpheme (quantifier over choice functions) to C⁰ evokes λ-abstraction over this set of propositions turning it into a set of propositions abstracted over choice functions (<*cp, t*>), where *c* stands for a choice function.⁷ The complex head [Q-C⁰] of type <*cp, pt*> then applies to this set of unsaturated propositions via FFA producing a set of sets of propositions <*pt, t*>.⁸ Note that the interrogative head [Q-C⁰] that normally turns an unsaturated proposition into a set of propositions (for example, in single *wh*-questions), here, combined with a set via FFA, turns each proposition in that set into a new set of propositions and puts the result into a set, producing this way a set of sets of propositions. Each set of propositions is the denotation of a question about each individual in the set represented by *wh1* (eg. *Who did Mr. Smith invite?, Who did Ms. Black invite?, etc.*).

In the SP reading derivation, the choice function variable is not there to reduce the set represented by *wh2* because the Q-morpheme moves from above both *wh*-phrases. As a result, the verb composes with *wh2* producing a set of properties. Then *wh1* is taken as an argument via FFA, producing a set of propositions pairing each individual in the set of *wh1* with each property (<*pt*>). The choice function then picks one member of that set, resulting in a single proposition (<*p*>). Via λ-abstraction, we get an unsaturated proposition (<*cp*>). Combining it with the complex head [Q-C⁰] results in a set of propositions.

The major difference between the two derivations is that there is no choice function in the PL derivation immediately after the highest *wh*-

⁷ Hagstrom formulates and uses ‘flexible-lambda-abstraction’ in this case.

⁸ Internally to [Q-C⁰], C⁰ takes Q as an argument (cf. Hagstrom 1998 for details).

phrase is combined with a set of properties. That allowed the set of *whI* propagate through the derivation. Crucially, this is not a possibility in the SP derivation due to the choice function reducing the set of propositions to a single proposition, making it the input to further computation. Thus, what licenses a SP reading semantically is the presence of the Q-morpheme above both *wh*-phrases.

2.3 Relativized minimality account (Bošković 2001a)

Having reviewed the semantic analysis of Hagstrom (1998), we can now consider the proposal of Bošković (2001a) of how to exclude the SP reading in the contexts described in section 1. Recall that the generalization about the distribution of the SP readings seems to be that it is absent in the contexts with obligatory syntactic *wh*-movement (i.e., Bulgarian, English, German, etc.).

Bošković (2001a) argues that syntactic *wh*-movement in the derivation of the SP reading creates the Relativized Minimality violation. That is, the movement of the *wh*-phrase in English and Bulgarian to Spec,CP violates Relativized Minimality by crossing the Q-morpheme. Here Bošković suggests that the Q-morpheme, like C^0 , and *wh*-phrases, carries [+wh] feature. The derivation of the question in (17) on the SP reading is shown in (18).

(17) Who invited who to the dinner? *SP

(18) * $[_{CP} \textit{Who}_j C^0 [_{FP} \textit{Q-F}^0 [_{TP} t_j \dots \textit{invited} \dots \textit{who} \textit{ to the dinner}]]]$

The derivation in (18b) is ruled out due to a Relativized Minimality violation; hence the SP reading is unavailable in English in this context. This effect can be generalized to all the languages with overt syntactic *wh*-movement. Bošković also assumes here that in *wh*-fronting languages, the *wh*-phrases in a language with overt *wh*-movement are interpreted in the base-generated position and not in the position they move to. It is also assumed that the Q-morpheme moves to C^0 covertly. If it moved overtly, it would be crossing the higher *wh*-phrase in PL reading derivation.

3. Limitations of the relativized minimality account

First, there seems to be a conceptual problem with the proposal that the Q-morpheme carries a [+wh] feature. What kind of feature is that? Since it never gets checked against another [+wh] feature, it must be an interpretable feature. There are [+wh] features on *wh*-phrases because they are obviously considered interpretable at LF. However, what does it mean for a Q-morpheme to have an interpretable [+wh] feature? The proposal would be plausible if at least the Q-morpheme always selected a *wh*-phrase. However, as some languages allow SP readings freely, we know this cannot be the case since, in these instances, the Q-morpheme must be generated in FP higher than both *wh*-phrases.

Moreover, if the Q-morpheme carries a [+wh] feature, and we know that Q-morpheme eventually ends up in C^0 , it is not clear why it cannot check the strong [+wh] feature of C^0 . Of course, that would take away the motivation for the *wh*-phrases to move in a language like English, producing ungrammatical results of the kind in (19). Then the crash of the SP reading derivation seems to be rather a result of a Last Resort violation and not a Relativized Minimality violation (i.e., a *wh*-phrase moves to Spec,CP for no reason).⁹

(19) * Did John give who what?

Of course, covertness of the Q-morpheme movement avoids this problem (cf. footnote 9), but it seems somewhat of a stipulation, given that the Q-morpheme has the relevant feature that is attracted by C^0 .

Besides these technical problems, there are some empirical limitations of the Relativized Minimality account. Below, I present some data from Russian and Sinhala and show that Relativized Minimality is not sufficient to rule out SP readings in these languages. First, consider the facts from Russian in (20).

⁹ The problem might be avoided though if we assume the necessity of specification of whether a feature is to be checked in a head-head or a spec-head relation (cf. Bošković (2001b) for some empirical argumentation for the necessity of such specification).

- (20) Kto kogo priglasil na užin? *PL/*SP* Russian
 who whom invited to dinner
 'Who invited who to the dinner?'

According to all of my informants and myself, only the PL reading is available in (20), the SP reading being disallowed, i.e., (20) is only felicitous on the scenario in (1) but not on the scenario in (4). SP readings are also disallowed when the object *wh*-phrase is fronted over the subject *wh*-phrase, as in (21).

- (21) Kogo kto priglasil na užin? *PL/*SP* Russian
 whom who invited to dinner
 'Who invited who to the dinner?'

However, Russian is a language that does not involve syntactic *wh*-movement to Spec,CP, as argued in Stepanov (1998), and Bošković (2002). Rather, on these analyses, Russian C^0 has a weak [+wh] feature and all the *wh*-phrases are fronted as instances of focus movement to some position lower than C^0 (cf. Stepanov (1998) for more discussion of where precisely this position might be located). Thus, the question becomes: why is the SP reading unavailable in Russian if there is no *wh*-movement to Spec,CP in this language?¹⁰

One possibility could be that in Russian, unlike in SC that does have SP reading in this context, the base-position of Q-morpheme in a SP reading structure is lower than the target position of the focus movement. In that case, fronted *wh*-phrases will still cross the Q-morpheme on their way up.¹¹

¹⁰ These facts contrast with the judgments of the Russian example (i) of Stepanov (1998) who claims it can have a SP reading. Besides the fact that none of my informants (including myself) allow the SP reading in (i), the sentence has an interfering factor in that Superiority effects emerge with *who/what* combination in Russian (ii), with all other combinations being insensitive to Superiority (14-15). This is important because we use Superiority effects as diagnostic of syntactic *wh*-movement. Hence, I changed the questions and corresponding scenarios to *who/what* combination.

- (i) Kto čto kupil? Russian
 who what bought 'Who bought what?'
- (ii) *Čto kto kupil?

¹¹ Thanks to Željko Bošković (p.c.) for bringing this possibility to my attention.

However, if that is on the right track, it can no longer be a [+wh] feature that is involved in the Relativized Minimality violation since *wh*-phrases in Russian do not front in order to check the uninterpretable [+wh] feature of C^0 but rather to check focus. Thus it is not clear why the Q-morpheme would intervene. It would not be plausible to posit a [+focus] feature on a silent Q element. However, this is an instance of a more general problem of how Relativized Minimality should be formulated. The feature-based (Attract) approach to Relativized Minimality fails to account for many other extraction facts, as pointed out in Bošković (2000). So perhaps this problem could be cleared away as our understanding of those issues developed.

Even if this technical aspect of Relativized Minimality works out, Relativized Minimality might be a solution for Russian but not for another language lacking SP readings, namely, Sinhala. Hagstrom (1998) observes that a configuration that forces the SP reading in Japanese (scrambling the lower *wh*-phrase over the higher one) shown in (22) makes a parallel question in Sinhala ungrammatical (23). Thus, he concludes that Sinhala does not allow SP readings.

- (22) [Nani-o t_Q]_j John-ga dare-ni t_j ageta no? SP/??PL
 what ACC John NOM who DAT gave Q
 ‘What did John give to who?’

- (23) * Mokak də Chitra kaate duunne kiyəla dannəwa də?
 what Q Chitra who DAT gave-E that know Q
 ‘Do you know what Chitra gave to whom?’
 (Hagstrom 1998: Kumara Henadeerage, p.c.)

Since Sinhala is a *wh*-in-situ language, Relativized Minimality cannot be the explanation for why the SP reading is not available here. *Wh*-phrases do not move and therefore cannot produce Relativized Minimality violation. So what is then responsible for the lack of SP readings in Sinhala?

4. Q-morpheme account

4.1 Proposal

In this section, I will present what seems to be a plausible solution to the problems raised above. I will account for the Russian and Sinhala data and then see how far this approach can be generalized to other cases.

I propose that the distinction between the languages allowing and disallowing SP reading lies in the crucial lexical differences of the Q-morpheme itself. Specifically, a given language would either allow or disallow SP readings depending on whether it has a particular Q-morpheme as part of its lexicon. Recall what the two different structures for the PL and SP readings are from (16) repeated below as (24).

- (24) a. [CP Q_J-C⁰ ... [TP ... wh1 ... V... wh2 t_J...]] PL
 b. [CP Q_J-C⁰ ... [FP t_J-F⁰ [TP ... wh1 ... V... wh2...]]] SP

In section 2.2 we concluded that what licenses a SP reading semantically is the presence of the Q-morpheme (or more precisely, its choice function variable) above both *wh*-phrases. It is needed there to reduce the set of propositions it combines with to a single proposition.

Now, if a language lacks a Q-morpheme that can be generated in FP as in (24b), it would not have the option of licensing the PL reading, for it would lack the licenser for it. That is exactly my view of the situations in Russian and Sinhala. That is, the Q-morpheme in these languages is lexically specified such that it only selects the *wh*-phrase and never FP. Hence, they lack the element that licenses the SP reading.

Some supporting evidence for this approach comes from SC multiple *wh*-questions with a question particle *li*. I will assume that *li* is the SC counterpart of the Q-morphemes *ka* and *no* in Japanese. In SC, *li* is primarily used in Yes/No questions. When used in *wh*-questions, it adds some emphatic force to a question. This additional semantic property of *li* should not prevent us from analyzing it as a legitimate Q-morpheme, for such ‘fusion’ of functional and lexical semantic material is a common property of Slavic languages (e.g., perfective prefixes carrying additional lexical meaning along with grammatical information).

Recall that SC is a language that allows both PL and SP readings in

the original context in (8). However, whenever *li* is used in a multiple *wh*-question, it forces the SP reading as shown in (25)-(26).

- (25) Ko li koga pozva na večeru? SP/??PL SC
 who Q whom invited to dinner
 ‘Who (on earth) invited who to the dinner?’
- (26) Ko li koga tucbe? SP/??PL
 who Q whom beat
 ‘Who (on earth) is beating whom?’

Based on these facts, I propose that SC has two different lexical Q-morphemes. One is associated with the PL reading and the other with the SP reading. The former is always phonetically null. It evokes the PL reading by movement to C⁰ from the base position of being merged with the lower *wh*-phrase (24a). The latter has two allomorphs: [*li*] and phonetically null [∅]. It evokes SP reading via movement to C from its base position in FP as in Hagstrom (1998) (24b).

Recall that Russian contrasts with SC in that the SP reading is not allowed in Russian. Significantly, while *li* is allowed in Russian Yes/No questions, it is completely disallowed in Russian *wh*-questions (27).^{12 13}

- (27) * Kto *li* kogo priglasil na užin? Russian
 who Q whom invited to dinner
 ‘Who invited who to the dinner?’

Unlike SC, Japanese Q-morpheme is always phonetically realized. Hence, a Japanese multiple *wh*-question with *-ka* is ambiguous between PL and SP readings.

¹² *Li* is disallowed in both multiple and single *wh*-questions in Russian (i). There might be some independent reason for the absence of *li* in Russian *wh*-questions, which I leave to further research.

(i) * Kogo *li* Ivan priglasil na užin?
 whom Q Ivan invited to dinner
 ‘Who did Ivan invite to the dinner?’

¹³ Bulgarian, like SC, allows *li* in multiple *wh*-questions which are compatible with the PL reading. I suspect that this difference between Bulgarian and SC stems from the more general difference between *li* in those two languages as discussed in Bošković (2001b).

(28) *PL/SP*

Darega dareo syokuzini manekimasita-ka?
 who who dinner invited-Q
 'Who invited who to the dinner?'

Japanese

The Sinhala *də* then always selects *wh*-phrase and therefore there are no SP readings in Sinhala.

4.2 *Implications and consequences*

Note that the analysis presented here does not involve postulating of anything new in the system. Particularly, it does not posit a [+wh] feature on the Q-morpheme. The technical problems of Relativized Minimality do not arise here either. The theoretical foundation for my proposal is already set in the analysis of Hagstrom (1998) and particularly in associating the structural distribution of the Q-morpheme with the distinction between PL and SP readings. If two syntactic positions for the Q-morpheme lead to different semantic interpretations, it seems only natural to associate the condition on the distribution of the SP reading with the Q-morpheme having only one or both of these structural possibilities. It is important not to confuse the lexical approach to parameterization I peruse here with merely restating the facts. Note that for languages like Russian and Sinhala (where no *wh*-movement to Spec,CP takes place) this lexical solution is unavoidable.

Besides the empirical coverage of this approach, it also takes a step toward increasing the degree explanatory adequacy of the theory in that it limits crosslinguistic parameterization to the properties of individual lexical items. The learnability picture with respect to PL/SP readings becomes more clear: a child has a PL reading as a default reading for a multiple interrogative and only needs positive data (like *li* in SC) to project to SP readings. Thus, my approach predicts that SP readings would emerge later than PL readings in Japanese and SC speaking children, which seems testable.¹⁴

¹⁴ It might still be interesting to ask what determines the lexical choice of a particular Q-morpheme crosslinguistically. However, that would be parallel to asking what determines C⁰ having a strong vs. weak [+wh] feature. I doubt that questions like that can be answered in an insightful way.

We have seen that this approach is general enough to account for the distribution of the Q-morpheme in both the in-situ languages and the languages with *wh*-fronting that is not triggered by [+wh] feature of C^0 . It is interesting to see whether this analysis can be extended to languages with overt *wh*-movement like English, German and Bulgarian (i.e., the core of Bošković's analysis). The advantage of such an extension would be in the resulting uniform treatment of the unavailability of the SP readings crosslinguistically. However, there is a difficulty in losing the connection between overt *wh*-movement and unavailability of SP reading. A possibility arises of there being a language with overt *wh*-movement to Spec,CP, yet allowing a SP reading, which has not been attested so far.

However, the generalization that overt *wh*-movement to Spec,CP forces PL reading still needs some independent explanation and the work in the spirit of Bošković (2001a) should continue in the overall theory of PL/SP reading distribution. In light of the problems with the Relativized Minimality account pointed out in section 3, it is worth considering an alternative proposal of Citko and Grohmann (2001). It is similar to the Bošković (2001a) account in that it directly connects the syntactic *wh*-movement and the loss of the SP reading. However, on this analysis, there is no Relativized Minimality violation involved, but rather the SP reading is disallowed in certain contexts simply because *wh*-movement changes the structural configuration of the Q-morpheme with respect to the two *wh*-phrases. Consider the representation of the SP reading derivation in (29).

(29) * $[_{CP} \textit{Who}_j C^0 [_{FP} \textit{Q-F}^0 [_{TP} \textit{t}_j \dots \textit{invited} \dots \textit{who} \textit{ to the dinner}]]]]$

By moving a *wh*-phrase out of the scope of the Q-morpheme generated in FP, we destroy the required configuration for the SP reading where the Q-morpheme is supposed to take scope over both *wh*-phrases. The subject *wh*-phrase is now out of the scope of Q. Thus the SP reading cannot arise in these languages. On the other hand, the PL reading derivation works fine since the Q-morpheme is already between the two *wh*-phrases from the start. It is important to note that on the Citko and Grohmann (2001) account, it is the *wh*-phrases that must be interpreted in the position they move to and not in their base-position. This might

have some consequences for the semantics of questions we are adopting here, which I will leave for future research.

To summarize, this paper has shown that the Relativized Minimality account is not sufficient to rule out SP readings in languages other than languages with overt syntactic *wh*-movement. My analysis of PL/SP readings distribution relies on the lexical properties of the Q-morpheme, specifically proposing that the absence of the SP reading can be the direct result of the absence of the Q-morpheme of a particular kind. This approach raises the degree of explanatory adequacy in that it explains crosslinguistic parameterization based on the properties of individual lexical items.

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A Formal Approach to /v/: Evidence from Czech and Slovak*

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1. Introduction

It has long been noted that the sound /v/ in many Slavic languages exhibits anomalous voicing behaviour. For example, Broch (1911:197) writes, "Für das v ist ein Vorbehalt zu machen: es wird zwar gewöhnlich assimiliert (vt zu ft u.a.), hat aber selbst keine assimilierende Kraft (tv geht nicht in dv über)." ¹ Diachronically, the fact that /v/ does not behave entirely as other obstruents do can be attributed to its origins as what might be termed a 'lapsed sonorant,' derived from Common Slavic *w.

More contentious is the question of how /v/ should be represented synchronically. Lightner (1965), Hayes (1984), and Kiparsky (1985), among others, have proposed that in Russian, the segment that surfaces as [v] (or, when devoiced, as [f]) is underlyingly a /w/. Its phonological status as a sonorant prevents it from triggering voicing assimilation, but it is subject to a process of strengthening that causes it to surface as an obstruent. Avery (1996) presents an account of Russian /v/ in which the anomalous segment is unspecified for the voicing features that characterize regular sonorants and obstruents. More recently, Padgett (2002) has argued that Russian v is both phonetically and phonologically a 'narrow approximant' [ʋ], and that its anomalous phonological

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¹ 'For v a proviso must be made: though it is generally subject to assimilation (vt becomes ft and so on), it has no assimilatory power of its own (tv does not become dv).'

patterning follows from the fact that it is phonetically intermediate between a sonorant [v] and an obstruent [v̥].

In this paper, I examine the phonological behaviour of /v/ in Czech and Slovak, and show how it can be accounted for through formal underspecification of voicing features, along much the same lines as Avery's (1996) treatment of Russian. I then go on to show that an approach along the lines of Padgett's treatment of Russian is phonetically untenable in Czech: although Czech /v/ is phonologically ambiguous, it is articulatorily and acoustically very much an obstruent. Under the assumption that a consistent account of the anomalous behaviour of /v/ in the Slavic languages is to be preferred, the phonetic facts in Czech thus indirectly lend support to Avery's formal account of Russian voicing assimilation, and to similar treatments of related voicing systems.

2. The behaviour of /v/ in Czech

2.1 *The inventory*

The phonemic consonant inventory of Czech is shown below in (1). Orthographic symbols are shown in angle brackets where they differ from the IPA symbols.

(1)

	labial	dental/ alveolar	palatal/ postalveolar	velar/ glottal
stops	p	t	c <č>	k
	b	d	ɟ <ď>	g
affricates		ts <c>	tʃ <č>	
fricatives	f	s	ʃ <š>	x <ch>
	v	z	ʒ <ž>	ɦ <h>
nasals	m	n	ɲ <ň>	
trills		r	ř <ř>	
approximants		l	j	

2.2 Ordinary Czech obstruents

2.2.1 Voicing assimilation. Most Czech obstruent clusters agree in voicing. This pattern appears to be generated by a rule of regressive assimilation, as (non-final) clusters take on the underlying voicing values of their rightmost members. This can be seen from the data in (2), which show how voicing assimilation applies to the prepositions *s* /s/ ‘with’ and *z* /z/ ‘from’. Before sonorants (2a), the prepositions surface with their underlying voicing values; before voiced obstruents (2b), both are voiced; before voiceless obstruents (2c), both are voiceless.²

(2)	a.	<i>s lesem</i>	[slesem]	‘with a forest’
		<i>z lesa</i>	[zlesa]	‘from a forest’
		<i>s mužem</i>	[smužem]	‘with a man’
		<i>z muže</i>	[zmuže]	‘from a man’
	b.	<i>s domem</i>	[zdomem]	‘with a house’
		<i>z domu</i>	[zdomu]	‘from a house’
		<i>s hradem</i>	[zhradem]	‘with a castle’
		<i>z hradu</i>	[zhradu]	‘from a castle’
	c.	<i>s polem</i>	[spolem]	‘with a field’
		<i>z pole</i>	[spole]	‘from a field’
		<i>s chybou</i>	[sxibou]	‘with a mistake’
		<i>z chyby</i>	[sxibi]	‘from a mistake’

2.2.2 Final devoicing. Word-final obstruents and obstruent clusters are consistently voiceless, as shown in (3).

² The Czech data in this paper are drawn from de Bray (1969), Hála (1962), Kučera (1961), Palková (1994), Townsend (1990), and V. Ambros (p.c.); glosses are based on Poldauf et al. (1994).

(3)	a.	<i>muž</i>	[muʃ]	‘man’ (nom.sg.)
		<i>mužem</i>	[muʒem]	‘man’ (inst.sg.)
		<i>myš</i>	[miʃ]	‘mouse’ (nom.sg.)
		<i>myši</i>	[miʃi]	‘mouse’ (inst.sg.)
	b.	<i>hrad</i>	[fɾat]	‘castle’ (nom.sg.)
		<i>hradem</i>	[fɾadem]	‘castle’ (inst.sg.)
		<i>robot</i>	[robot]	‘robot’ (nom.sg.)
		<i>robotem</i>	[robotem]	‘robot’ (inst.sg.)
	c.	<i>hvozd</i>	[fivost]	‘forest’ (nom.sg.)
		<i>hvozdem</i>	[fivozdem]	‘forest’ (inst.sg.)
		<i>host</i>	[fiost]	‘guest’ (nom.sg.)
		<i>hostem</i>	[fiostem]	‘guest’ (inst.sg.)

2.3 Czech /v/

2.3.1 /v/ as a target. Czech /v/ is like an obstruent in that it is a target for regressive voicing assimilation, as illustrated in (4) by the behaviour of the preposition *v* /v/ ‘in(to)’:

(4)	a.	<i>v lese</i>	[vlese]	‘in a forest’
		<i>v muži</i>	[vmuʒi]	‘in a man’
	b.	<i>v domě</i>	[vdomɲe]	‘in a house’
		<i>v hradě</i>	[vfɾajɛ]	‘in a castle’
	c.	<i>v pole</i>	[fpole]	‘in a field’
		<i>v chybě</i>	[fxibɛ]	‘in a mistake’

It is also a target for final devoicing:

(5)	a.	<i>zpěv</i>	[spjɛf]	‘song’ (nom.sg.)
		<i>zpěvem</i>	[spjɛvem]	‘song’ (inst.sg.)

b.	<i>barev</i>	[baref]	‘colours’ (gen.pl.)
	<i>barva</i>	[barva]	‘colour’ (nom.sg.)

2.3.2 /v/ as a non-trigger. However, /v/ is like a sonorant in that it does not trigger assimilatory voicing. In some varieties of Czech, /v/ surfaces as [v] after a voiceless obstruent, resulting in a cluster that does not agree in voicing; in other dialects, /v/ undergoes progressive assimilatory devoicing:

(6)	a.	<i>s vránou</i>	[svra: nou] ~ [sfra: nou]	‘with a crow’
	b.	<i>tvůj</i>	[tvu: j] ~ [tfu: j]	‘your’
	c.	<i>tvořit se</i>	[tvořit se] ~ [tfořit se]	‘to take shape’
	≠ d.	<i>dvořit se</i>	[dvořit se]	‘to court’

The trilled fricative /r̥/ follows a similar pattern, which will not be discussed here. See Hall (2003) for a more detailed discussion.

3. The behaviour of /v/ in Slovak

3.1 The inventory

The phonemic consonant inventory of Slovak is similar to that of Czech, except for the absence of the trilled fricative /r̥/ and the presence of voiced affricates /dz, dz/ and a palatal lateral /ʎ/. Slovak also makes a quantity distinction in the syllabic liquids: /r̥/ contrasts with /r̥:/ and /l̥/ with /l̥:/

3.2 Ordinary Slovak obstruents

3.2.1 Voicing assimilation to obstruents. As in Czech, Slovak obstruents participate in a process of regressive voicing assimilation. This can be seen applying within derived words in (7) and across the boundary

between a preposition and its object in (8). Regressive assimilation results both in voicing (7a, 8a) and in devoicing (7b-8b).³

(7)	a.	<i>prosit'</i>	[prɔsɪc]	'to ask'
		<i>prosba</i>	[prɔzba]	'request'
		<i>mlatieb</i>	[mlatjɛp]	'threshing' (g.pl.)
		<i>mlatba</i>	[mladba]	'threshing' (n.sg.)
	b.	<i>srdčný</i>	[sɾdɛtʃni:]	'cordial' (adj.)
		<i>srdce</i>	[sɾttɕɛ]	'heart'
		<i>muža</i>	[muʒa]	'man' (gen.sg.)
		<i>mužstvo</i>	[muʃstvɔ]	'team'
(8)	a.	<i>k domu</i>	[gdɔmu]	'to a house'
		<i>z domu</i>	[zdɔmu]	'from a house'
		<i>s dievčatkom</i>	[zdjɛftʃatkɔm]	'with a girl'
	b.	<i>k tebe</i>	[kɛɕɛɛ]	'to you'
		<i>z kina</i>	[skina]	'from a cinema'

3.2.2 *Voicing assimilation to sonorants.* In Slovak, voicing assimilation can also be triggered by sonorants (including vowels):

(9)	a.	<i>vlak</i>	[vlak]	'train'
	b.	<i>vlak mešká</i>	[vlag mɛʃka:]	'the train is late'
	c.	<i>vlak ide</i>	[vlag ijɛ]	'the train is coming'
	d.	<i>tak+mer</i>	[tagmɛr]	'almost'
	e.	<i>s otcom</i>	[zɔtsɔm]	'with a father'

³ The Slovak data are drawn from de Bray (1969), Short (1993b), Rubach (1993), Krajčovič (1975), and Pauliny (1978).

However, assimilatory voicing triggered by sonorants occurs only across (some) morpheme boundaries. In (10a), there is no morpheme-internal assimilation of /k/ triggered by /n/ (cf. (9a–c) above). There is no assimilation across the boundary between the stem and the inflectional suffix (nor morpheme-internally between the /x/ and the /l/) in (10b), but the same sequence of segments does result in assimilation across the word boundary in (10c).

- | | | | |
|---------|-------------------|--------------|-------------------|
| (10) a. | <i>vlákno</i> | [vla:knɔ] | ‘fibre’ |
| b. | <i>chlap+mi</i> | [xlapmi] | ‘guys’ (inst.pl.) |
| c. | <i>chlap môže</i> | [xlab mwɔʒɛ] | ‘a guy can’ |

3.2.3 *Final devoicing.* Slovak obstruents are subject to final devoicing, as illustrated in (11).

- | | | | |
|---------|---------------|---------|-------------------|
| (11) a. | <i>dub</i> | [dup] | ‘oak’ (nom.sg.) |
| | <i>duby</i> | [dubi] | ‘oaks’ (nom.pl.) |
| | <i>chlap</i> | [xlap] | ‘guy’ (nom.sg.) |
| | <i>chlapi</i> | [xlapɪ] | ‘guys’ (nom.pl.) |
| b. | <i>zväz</i> | [zvæʒ] | ‘union’ (nom.sg.) |
| | <i>zväzu</i> | [zvæzu] | ‘union’ (gen.sg.) |
| | <i>čas</i> | [tʃas] | ‘time’ (nom.sg.) |
| | <i>času</i> | [tʃasu] | ‘time’ (dat.sg.) |

3.3 Slovak /v/

3.3.1 *Assimilation.* Like Czech /v/, Slovak /v/ is a target (12), but not a trigger (13), for obstruent voicing assimilation:

- | | | | |
|---------|--------------|---------|-------------------|
| (12) a. | <i>vták</i> | [fta:k] | ‘bird’ |
| b. | <i>vtip</i> | [fcɪp] | ‘joke’ |
| c. | <i>v tom</i> | [ftɔm] | ‘in that’ |
| d. | <i>vši</i> | [fʃi] | ‘lice’ (nom.pl.) |
| e. | <i>voš</i> | [vɔʃ] | ‘louse’ (nom.sg.) |

- (13) a. *tvoj* [tvɔj] 'your'
 b. *tvár* [tva:r] 'face'

The sources on Slovak do not mention /v/ as a trigger for assimilatory voicing of the sort illustrated in (9).

3.3.2 *Lenition*. Unlike Czech /v/, Slovak /v/ is not subject to final devoicing. In Slovak, all syllable-final instances of /v/, including word-final ones, are realized as [w]:

- (14) a. *pravý* [pra.vi:] 'true'
 pravda [praw.da] 'truth'
 b. *stav* [staw] 'position'
 stavba [staw.ba] 'building'
 c. *krv* [krw] 'blood'

4. A formal approach

4.1 *Theoretical assumptions*

The anomalous behaviour of /v/ in Czech and in Slovak can be elegantly accounted for in a formal system that allows for underspecification of phonological features. The account presented here is based on a theory of contrastive specification defined by the Continuous Dichotomy Hypothesis of Dresher, Piggott, and Rice (1994), and elaborated in subsequent work by Dresher (1998a, 1998b, 2003). This approach to underspecification is based on an algorithm for assigning features based on contrasts in the phonemic inventory (the Successive Division Algorithm). Unlike various other approaches to contrastive specification, such as the algorithm described by Archangeli (1988), the Successive Division Algorithm consistently produces minimal sets of feature specifications that fully distinguish the members of an inventory, while allowing for restricted variation in feature assignments among languages with phonetically similar inventories. (See Dresher (2003) for discussion.)

In this paper, I will assume that phonological features are privative (monovalent), and that the phonological computation is a derivation consisting of (partially) ordered rules that operate on non-linear repre-

sentations. Although much of the elegance of the account proposed here follows from the logical consequences of underspecification in this theoretical framework, these assumptions are not necessarily crucial. For example, some version of the present treatment of /v/ should in principle be tenable within a version of Optimality Theory (Prince and Smolensky 2002) that allows for underspecification.

4.2 *Featural representations*

Given the assumptions stated above, the attested patterns in Czech and Slovak can be accounted for using laryngeal feature specifications proposed for Russian by Avery (1996). Each of these languages has a system of voicing features that combines properties of what Avery refers to as Laryngeal Voice and Contextual Voice systems. In a Laryngeal Voice (LV) system, all obstruents bear a Laryngeal node, the voiced obstruents being distinguished from the voiceless ones by the further presence of the dependent feature Voice. In a Contextual Voice (CV) system, voiceless obstruents again are characterized by a bare Laryngeal node, but their voiced counterparts are entirely unspecified for voicing features. Sonorants in both systems bear the feature SV (an abbreviation for ‘sonorant voice’ or ‘spontaneous voicing’; see Avery and Rice (1989), Piggott (1992), Rice (1993)). In the Czech and Slovak systems, most obstruents are specified as in a Laryngeal Voice system, but the anomalous /v/ is unspecified, as in a Contextual Voice system.⁴ This mixing of the two systems is schematized in (15).

(15) a. *Laryngeal Voice system*

Voiced obs.	Voiceless obs.	Sonorants
/d/	/t/	/n/
Laryngeal	Laryngeal	SV
Voice		

⁴ Czech /r/, which is also exceptional, and also historically a sonorant, has a similar representation. In some Czech dialects, /v/ and /r3/ exhibit the same voicing behaviour, and are both unspecified for voicing features; in others, a more complicated set of representations is required (see Hall 2003).

b. *Contextual Voice system*

Voiceless obs.	Voiced obs.	Sonorants
/t/	/d/	/n/
Laryngeal		SV

c. *Mixed system (Czech and Slovak)*

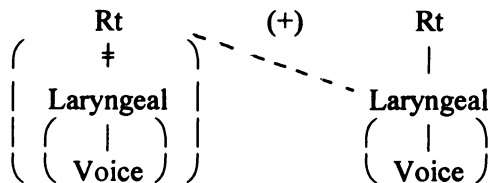
Voiced obs.	Voiceless obs.	/v/	Sonorants
/d/	/t/	/v/	/n/
Laryngeal	Laryngeal		SV
Voice			

Historically, this mixed system seems to have developed from a straightforward LV system as /*w/ became phonologically and phonetically less sonorant, losing the feature SV without gaining a Laryngeal node in its place.

4.3 Rules

Regressive voicing assimilation can be formalized as the leftward spreading of a Laryngeal node, replacing any existing Laryngeal node on the target, as shown in (16).

(16) *Regressive Voicing Assimilation (Czech and Slovak)*



True sonorants are protected from devoicing by the presence of SV, but /v/, which lacks SV, is subject to assimilation. However, since /v/ itself has no Laryngeal node to spread, it does not trigger assimilation. The Laryngeal node is, in effect, the formal instantiation of what Broch (1911) describes as ‘*assimilierende Kraft*’ (assimilatory power).

In dialects of Czech that show progressive assimilatory devoicing of /v/ (as in *tvůj* [tfu:j]), this is accomplished by the rightward spreading of a Laryngeal node to a segment with no voicing features, as in (17).

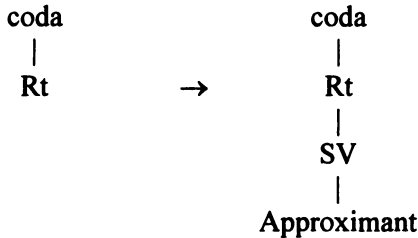
(17) *Progressive Voicing Assimilation (some varieties of Czech)*



Note that the absence of a dependent feature on the Laryngeal node is not a crucial aspect of the structural description of the rule in (17). Assimilation of /v/ to an obstruent with the feature Voice would be phonetically vacuous, since /v/ is realized as voiced (by a phonetic default rule) even if it remains without voicing features.

In Slovak, coda /v/ is turned into [w] by the rule in (18).

(18) *Coda v-Lenition (Slovak)*



Final devoicing in both Czech and Slovak can be generated by the insertion before a word boundary (#) of a bare Laryngeal node, which then spreads leftward (by the rule in (16)) if there is a non-sonorant

segment available for it to target.⁵ In Slovak, final devoicing is blocked by Coda *v*-Lenition; in Czech, /*v*/ is a target for final devoicing.

5. A functional approach to Russian *v*...

The formal, feature-based account of Czech and Slovak voicing patterns presented here contrasts with the functionalist approach taken by some recent work in Optimality Theory. For example, Steriade (1999) presents a theory of laryngeal neutralization based on the generalization that environments in which laryngeal contrasts are neutralized are precisely those in which the contrasts are phonetically most difficult to perceive.

Within this framework, Padgett (2002) offers a functional, phonetically driven account of the voicing behaviour of *v* in Russian, which is very similar to that of /*v*/ in Czech. Russian *v* is a target, but not a trigger, for regressive voicing assimilation. Padgett argues that this is because Russian *v* is a ‘narrow approximant’ /*ʋ*/, linking this phonetic fact to Jakobson’s (1978) phonological observation that *v* ‘occupies an obviously intermediate position between the obstruents and the sonorants.’ Its voicing behaviour results from the way in which it is treated by the constraints shown in (19)–(22). Padgett introduces the articulatory feature [–wide] as a means of distinguishing the ‘narrow’ approximant /*ʋ*/ from its more open counterparts: “Vowels, glides, and at least some liquids are [+wide], while obstruents and narrow approximants are [–wide]” (Padgett 2002: 18).

- (19) IDENT_{PS}(VOICE): An output segment in pre-sonorant position has the same value for [voice] as its input correspondent.
- (20) AGREE(VOICE): Within a clitic group, all contiguous [–wide, –nasal] segments share any [voice] specification.

⁵ This bare Laryngeal node appears to mark the edge of the phonological word in much the same way in which boundary tones (Pierrehumbert 1987) mark the edges of intonational phrases. An intriguing alternative to the insertion rule would be to posit that the Laryngeal node is associated with the word boundary itself. The difficulty with this approach is that in combination with the rule in (18), it would incorrectly predict word-initial devoicing of /*v*/.

- (21) *D/v: [-wide, -nasal] segments should not be [+voice].⁶
- (22) IDENT(VOICE): An output segment has the same value for [voice] as its input correspondent.

The relevant feature specifications Padgett posits for /v/ are shown in (23).

- (23) /v/

[+ continuant]
[+ approximant]
[- wide]
[- nasal]
[+ sonorant]

Because /v/ is [-wide, -nasal], it is subject to regressive voicing assimilation driven by AGREE(VOICE), as shown in the tableau in (24).

- (24) /layka/ → [lafka] ‘bench’ (Padgett 2002: 20)

/layka/	ID _{PS} (VOICE)	AGREE(VOICE)	*D/v	ID(VOICE)
[layka]		*!	*	
+ [lafka]				*
[layga]	*!		**	*

However, because /v/ is [+sonorant], obstruents to its immediate left are required by IDENT_{PS}(VOICE) to retain their underlying voicing values, as shown in (25).

⁶ Padgett’s somewhat elliptical label for this constraint can be glossed as ‘disallow the voicing feature of [d] on segments that are no more sonorous than [v]’; it is based on Steriade’s (1999) more general constraint (*D) against voiced obstruents.

(25) /sʏerx/ → [sʏerx] ‘above’ (Padgett 2002: 26)

/sʏerx/	ID _{PS} (VOI)	AGREE(VOI)	*D/ʏ	ID(VOI)
+ [sʏerx]		*	*	
[zʏerx]	*!		**	*
[sferx]	*!		.	*

In (25), the /ʏ/ must retain its underlying voicing value because it is immediately followed by the [+sonorant] segment /e/, and the /s/ must retain its underlying value because it is followed by the [+sonorant] /ʏ/. This results in a surface cluster that violates AGREE(VOICE).

Final devoicing of obstruents and /ʏ/ is driven by the constraint *D/ʏ, as in (26).

(26) /trezʏ/ → [tresf] ‘sober’ (Padgett 2002: 26)

/trezʏ/	ID _{PS} (VOI)	AGREE(VOI)	*D/ʏ	ID(VOI)
[trezʏ]			*!*	
[tresf]		*!	*	*
+ [tresf]				**
[tresʏ]	*!	*	*	*

Although *D/ʏ makes no reference to position, its effects emerge only word-finally. If a [–wide, –nasal] segment is followed by a sonorant, IDENT_{PS}(VOICE) dictates that it must keep its underlying voicing value; if it is followed by an obstruent, its voicing is determined by AGREE(VOICE).

6. ... is non-functional in Czech

Although Czech /v/ and Russian /ʏ/ are phonologically very similar, it would be difficult to extend Padgett’s analysis to Czech. Czech /v/ is phonetically nothing like an approximant; on the contrary, it is generally described as being more like a stop than like a fricative, especially at the

beginning of a syllable (Kučera 1961; Palková 1994). From a phonetic point of view, there is no reason to classify it as a sonorant *a priori*.

Figure 1 shows two spectrograms illustrating the acoustic realization of Czech /v/. The spectrograms were produced from sound files accompanying the IPA *Handbook* (International Phonetic Association 1999), using the speech analysis program Praat (Boersma and Weenink 2002).

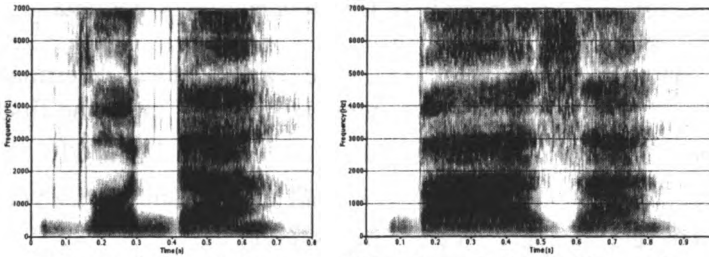


Figure 1: Spectrograms of Czech *voda* /voda/ ‘water’ and *váza* /vra:za/ ‘vase’

Although [v] in these examples is quite visibly voiced, it is not particularly sonorous. The [v] in *váza* is difficult to distinguish from the [b] in *bota*, shown in Figure 2; if anything, the [v] is less sonorous than the [b].

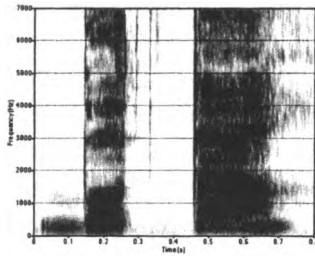


Figure 2: Spectrogram of Czech *bota* /bota/ ‘shoe’

There is, however, one very sonorous Czech obstruent: the breathy voiced glottal fricative /fi/. Articulatorily, this sound is maximally open; in Padgett’s feature system, it would presumably be [+wide]. Acoustically, as shown in Figure 3, it is characterized by significant voicing and a clear formant pattern.

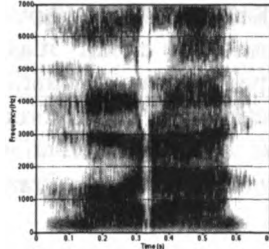


Figure 3: Spectrogram of Czech *hora* /fiora/ ‘mountain’

If phonetic characteristics were a reliable determinant of phonological behaviour, then we should expect /fi/ to be the first Czech obstruent to show sonorant-like patterning. Yet /fi/ patterns phonologically as if it were /ɣ/: it is both a target and, as shown in (27) (=2b), a trigger for regressive voicing assimilation.⁷

- (27) a. *s hradem* [zɦradem] ‘with a castle’
 b. *z hradu* [zɦradu] ‘from a castle’

Short (1993b:535–6) notes that /fi/ in Slovak also patterns as a regular voiced obstruent, and gives the example shown in (28) of /fi/ devoicing to [x] before a voiceless consonant.

- (28) *vrah pil* [vraxpil] ‘murderer drank’

Czech and Slovak thus present two distinct challenges to the phonetically based functionalist approach: Czech /v/, though phonetically clearly an obstruent, patterns with sonorants in not triggering voicing assimilation, while Czech and Slovak /fi/, though articulatorily very open and, if the example in Figure 3 is typical, acoustically highly sonorous, patterns with the obstruents.⁸

⁷ Short (1993a) indicates that in Bohemian varieties of Czech, /fi/ is subject to progressive assimilatory devoicing. However, progressive devoicing is not characteristic of Czech sonorants, so this pattern too is unexpected in Padgett’s phonetic approach.

⁸ The assimilation of obstruents to sonorants in Slovak is problematic for both the functional and the formal approach, partly because of the difficulty of characterizing the environment in which it applies, and partly because sonorants are unexpected triggers in

7. Conclusions

Padgett's approach, although it neatly accounts for the Russian data, appears to be untenable in Czech. Furthermore, despite its phonetic naturalness, it is formally arbitrary. Padgett's account of Russian depends on constraints that refer to a class of segments defined by the features [-wide, -nasal], but nothing in the formal structure of the representations or the constraints explains why these features should be more relevant to each other, or to the feature [±voice], than to any other properties of segments.

The formal approach to /v/ presented in section 4 lacks the phonetic naturalness of Padgett's approach. To the extent that the behaviour of /v/ in modern Czech and Slovak can be linked to phonetics within the underspecified approach, the connection is purely diachronic: present-day /v/ lacks the features of a regular obstruent because it is historically descended from *w.

The advantages of the underspecified approach, however, are its formal naturalness and its cross-linguistic extensibility. Under this approach, /v/ cannot trigger voicing assimilation for the simple reason that it has no voicing features to spread. Because this phonological pattern is derived from featural representations rather than from phonetic properties, this account works both for cases such as Russian, in which the pattern appears phonetically natural, and cases such as Czech, in which it does not. The fact that such similar patterns appear in languages with and without phonetic motivation for them suggests that a more abstract, phonological explanation is required. Phonetics alone cannot determine whether a segment is phonologically an obstruent, a sonorant, or something in between.

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either theory. Under the formal approach, the process might be accomplished by leftward spreading of SV, combined with appropriate rules for the phonetic realization of segments with conflicting feature specifications. For the functional approach, the phenomenon is, if anything, more problematic, as Padgett's constraints explicitly predict the preservation of underlying voicing contrasts in pre-sonorant position.

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Topicality and Superiority in Bulgarian *wh*-questions*

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1. In a nutshell

In this paper, I present a topicality-based analysis of object clitic doubling in *wh*-questions in colloquial Bulgarian. The analysis draws intimately on earlier research on two phenomena well-known in the literature on Slavic syntax, Superiority (Chomsky 1973) in Bulgarian multiple *wh*-questions (e.g., Billings and Rudin 1996, 1998; Bošković 1993, 1998a, b; Citko and Grohmann 2001; Grewendorf 2001; Lambova 2003; Pavlov 2000; Richards 1997; Rudin 1985, 1988a, b, 1989; see Blaszcak and Fischer 2001 for a recent overview of the literature) and clitic doubling of topic-fronted objects (e.g., Alexandrova 1997; Avgustinova and Andreeva 1999, Guentchéva 1994; Jaeger 2002; Jaeger and Gerassimova 2002; Leafgren 1997, 1998; Rudin 1997; Schick and Beukema 2001). (1) illustrates the effect of Superiority. The subject *wh*-word *koj* ‘who’ has to precede the direct object *wh*-word *kogo* ‘whom’ is

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an example of clitic doubling of a fronted phrase (henceforth CD).¹ Note that CD is possible out of embedded clauses as well as within a clause (no example of the latter is given here).²

(1) *Superiority in Bulgarian wh-questions: subject > object*

a. Koj kogo kak e celunal?
who whom how is kissed

b. * Kogo koj kak e celunal?

‘Who kissed whom how?’

(2) *Clitic doubling of a topic-fronted object (Jaeger 2002:4)*

Todor e jasno, [če Ivan *(go) e vidjal].

Todor is clear that Ivan him is seen

‘Todor, it is clear that Ivan has seen (him).’

Although both phenomena have received an enormous amount of attention in the literature on Bulgarian as well as in cross-linguistic studies (see above for Bulgarian; for Superiority and CD in other languages, see Jaeger 2003:183), no account has yet been presented of CD in *wh*-questions, as in (3); that is the only construction which falls in the domain of both Superiority *and* CD.

(3) *CD in wh-questions (Dimitrova-V. and Hellan 1998)*

Na kogo kakvo mu dadoxa?

to whom what IOC gave_{3PL}

‘To whom did they give what?’

While CD has been connected to D-linking before, I focus on new data containing CD of *bare wh*-phrases. Based on the new data, I argue that topicality is a determining factor for *wh*-phrase ordering in Bulgarian

¹ Here, I am not interested in the difference between clitic doubling of ‘topicalized’ phrases and clitic left dislocation (but see Arnaudova 2002; Jaeger 2002). All that matters to current approach is that the same mechanism involving CD available in declarative clauses is also available in *wh*-questions, as I will show below.

² I use the following mark-up conventions in examples: fronted constituents such as *wh*-words and topics are underlined; object clitics and the fronted constituents co-referential to them are doubly underlined; object clitics are *italicized*.

multiple *wh*-questions.³ By tying *wh*-phrase ordering to topicality rather than directly to CD, the data presented below bears on *wh*-phrase ordering in general (i.e., in questions with or without CD). This in turn raises the question to which extent topicality accounts for the so-called Superiority effects.

The remainder of the paper is organized as follows. Section 2 gives a brief overview of the role of Superiority in Bulgarian *wh*-questions and summarizes two prominent competing proposals. In section 3, I introduce new data showing CD in multiple *wh*-questions. Section 4 provides a brief introduction to the literature on CD in non-question contexts and links it to topicality of the object. This is the point of departure for section 5, where I bring together the previously unconnected research discussed in sections 2 and 4 and develop an account for CD in Bulgarian *wh*-questions. Finally, section 6 summarizes the argument made in this paper and discusses its implications and possible avenues for further research.

2. Multiple *wh*-questions and superiority

In this section, I summarize the two accounts of multiple *wh*-questions in Bulgarian, that are most relevant to the remainder of the paper, one by Bošković (1998a, b) and one by Billings and Rudin (1996, 1998).

In Bulgarian non-echo questions, all *wh*-phrases are obligatorily fronted (see above) and can only be preceded by topic-fronted phrases, an example of which is given below:

(4) *Topics precede wh-words (Rudin 1985:92)*

Ivan na kogo dade knigite?

Ivan to whom gave books_{+DEF}

'Ivan, to whom did (he) give the books?'

Bulgarian multiple *wh*-questions have been the subject of an ongoing debate under the label Superiority (see references in section 1). That is, the goal of the research on multiple *wh*-questions was to understand the

³ For all practical purposes in this paper, readers more familiar with the syntactic literature than the literature on information structure can substitute '(overt and covert) D-linking' for 'topicality'. Note, however, that the two concepts are not identical. I will return to this issue in section 5.

determining factor(s) for the ordering of fronted *wh*-phrases. With the emergence of the Minimalist Program, the debate has received even more attention. In recent years, several proposals have been made to account for the apparent Superiority effects in Bulgarian (e.g., Billings and Rudin 1998; Bošković 1998a, b; Grewendorf 2001; Richards 1997).

Revising an earlier claim by Rudin (1988a, b, 1989), Bošković (1993, 1998a, b) shows that Bulgarian *wh*-questions show selective Superiority effects. That is, the first *wh*-phrase is subject to Superiority, as in (5) and (6), and all following *wh*-phrases can order freely after the initial one, as shown in (7).

(5) *Subject > direct object*

- a. Koj kogo e tselunal?
who whom is kissed
- b. *Kogo koj e tselunal?
'Who kissed whom?'

(6) *Direct Object > indirect object (Lambova 2003)*

- a. Kakvo na kogo e kazal?
what to whom is said
- b. *Na kogo kakvo e kazal?
'What did he say to whom?'

(7) *Subject > direct object <> adverb [based on Bošković 1993]*

- a. Koj kogo kak e tselunal?
who whom how is kissed
- b. Koj kak kogo e tselunal?
'Who kissed whom how?'

Bošković's hypothesis (1998a, b) accounts for these ordering facts by means of economy and thereby reduces Superiority to a merely 'descriptive generalization' (Bošković 1998a:60).

Hypothesis 1: Bošković (1998b:7)

‘Superiority effects follow from the requirement that the strong +wh feature of C be checked in the most economical way.’

A number of exceptions to this generalization have been reported in the literature. For example, Grewendorf (2001:97) further constrains Superiority to subjects, and shows that Superiority is not obeyed by non-subject initial *wh*-words. This is also supported by some examples in Billings and Rudin (1996):

(8) *Direct object <> indirect object (Grewendorf 2001:97)*

a. Kakvo na kogo e dal Ivan?
what to whom is given Ivan

b. Na kogo kakvo e dal Ivan?
‘What has Ivan given to whom?’

(9) *Direct object <> adverb (Billings and Rudin 1996:42)*

a. Kakvo koga e kupil Ivan?
what when is bought Ivan

b. Koga kakvo e kupil Ivan?
‘What did Ivan buy when?’

Billings and Rudin (1998) provide the following examples against Bošković’s (1998b) model:⁴

(10) *Subject [-hum] <> direct object [+hum]*

(Billings and Rudin 1998:5)

a. Kakvo kogo e udarilo?
what whom is hit

⁴ IOC refers to the indirect object clitic; DOC refers to the direct object clitic. A brief introduction to object clitics is given in section 4.

- b. Kogo kakvo e udarilo?
 ‘What hit whom?’
- (11) *Int. subject [- hum] <> ind. object [+ hum]*
(Billings and Rudin 1998:6)
- a. Koj na kogo mu xaresva?
 who to whom IOC pleases
- b. Na kogo koj mu xaresva?
 ‘Who likes whom?’

According to Billings and Rudin (1996, 1998), (10) is due to animacy. That is, a [+hum] accusative case marked *wh*-phrase and an inanimate external subject *wh*-phrase can occur in both possible orders. (11) contains an ‘impersonal psych predicate’, a ‘di-unaccusative’ (Billings and Rudin 1998:6) with two internal arguments. The dative marked *wh*-phrase and the internal nominative marked *wh*-phrase can order freely because both are [+hum]. Both cases serve to license violations of Superiority. Considering many other configurations, Billings and Rudin (1996:46) conclude:

Hypothesis 2: Billings and Rudin (1996:46)

External subject *wh*-phrases must be the first *wh*-phrase. If there is no external argument, then animate *wh*-phrases must precede inanimate *wh*-phrases. All other *wh*-phrases order freely.

Next, I will introduce new data, similar to (11) involving CD. Following that I very briefly summarize the research on Bulgarian CD outside of questions and link the two phenomena to each other.

3. CD in *wh*-questions

In this section, I introduce new data, thereby extending the observations made by Billings and Rudin (1998) to a more general class of examples that involve CD in *wh*-questions. If not stated otherwise, the data were collected by means of surveys and interviews with several native

speakers (some linguistically naïve, others linguistically trained). Since CD is restricted to colloquial speech, informants were given instructions accordingly (i.e., ‘Could you say that while talking to your friends?’).⁵

Billings and Rudin (1998:6) restrict examples like (11) above to di-unaccusatives. However, as shown in (3) above, in which the indirect object of ‘give’ (clearly not an unaccusative) is CDed, CD of *wh*-words is possible in other contexts, too (Dimitrova-Vulchanova and Hellan 1998:xxii).

Jaeger (2002:31) mentions an example of CD in a question, here given as (12), where the CDed direct object *wh*-phrase precedes the subject *wh*-phrase.⁶

(12) *CD: direct object > subject (Jaeger 2002:31)*

a. Kogo kakvo go iznenada?
whom what DOC surprised_{3SG}

b.?*Kakvo kogo go iznenada?

‘What surprised whom?’

Note that, in contrast to the examples discussed in the previous section, the CDed *wh*-word in (12) *must* be fronted, whereas in Billings and Rudin’s (1998:6) example of a [-hum] subject (in this case an external argument), given above as (10), as well as in the CD example in (11), both orders of subject and object were possible.

Interestingly, CD of *wh*-words is generally not restricted to specific verb types in colloquial Bulgarian. (13) is another example with a [-hum] external argument and (14) shows that the CD of fronted *wh*-phrases is possible (and obligatory) for [+hum] external arguments as well.⁷

⁵ Note further that availability of CD differs among dialects of Bulgarian (as a rule of thumb, dialects spoken closer to the Macedonian border are more prone to CD). All informants I interviewed had CD in declaratives and questions.

⁶ It is not clear whether Billings and Rudin (1998) would have analyzed *kakvo* ‘what’ as an internal argument, but in this case further explanation would be necessary since *iznenavam* ‘to surprise’ can also take [+hum] (agentive) subjects.

⁷ Judgments differed slightly (across informants and across different sessions with the same informant) in how well-formed (b) was considered with the DOC. Judgments sometimes seemed to depend on the verb, although the verbs did not pattern together according to any known lexical class (e.g., Aspect). It is also important to note that some

(13) *CD: direct object [+hum] > subject [+/-hum]*

- a. Kogo kakvo *(gø) ubi?
whom what DOC killed
- b. Kakvo kogo (?gø) ubi?
'What killed whom?'

(14) *CD: direct object [+hum] > subject [+/-hum]*

- a. Kogo koj *(gø) narisuva/pozna/vidja?
whom who DOC painted/recognized/saw
- b. Koj kogo (?gø) narisuva/pozna/vidja?
'Who painted/recognized/saw whom?'

To further illustrate the strength of the generalization that the CDed *wh*-phrase must be fronted, note that my informants (quite strongly) rejected (15) because it "didn't make sense" to them (but see (16)):⁸

(15) *CD: semantic oddity due to enforced interpretation*

- # Kogo kakvo gø obiça?
whom what DOC loves
(Translation by informants) 'What loves whom?'

- (16) Kogo koj gø obiça?
whom who DOC loves
'Who loves whom?'

Given (13)-(16) it seems that CD prefers or even *requires* the doubled *wh*-phrase to be fronted, thereby apparently violating Superiority even for the subject, and even if the external argument is [+hum], contrary to

speakers seem to lack any Superiority restrictions even without CD (Mila Tasseva-Kurktchieva, *p.c.*). Idiolects lacking Superiority in all cases were not considered here.

⁸ Note that the fronted phrase is interpreted as object if the more colloquial direct object *wh*-word *koj* (cf. Engl. 'who') is used. In this case, nothing should prevent the interpretation 'Who loves what' since *koj* can also be subject *wh*-word. The fact that the nonsensical reading 'What loves whom' is preferred even then (Veronica Gerassimova, *p.c.*) supports my point.

both Bošković's and Billing and Rudin's hypotheses. Furthermore the class of examples in (13)-(16) does not require psych-verbs or di-unaccusatives.

This raises the following questions. Do the CD-variants (with the fronted object *wh*-word) and the non CD-variant of a *wh*-question have the same meaning?⁹ Do they have they same distribution/uses? If not, what does the CD-variant mean?

Before addressing these questions (in section 5), I will set the ground for an analysis of CD in questions by providing a very brief introduction to CD in non-questions, and linking CD to topicality.

4. Clitic doubling and topicality in non-interrogatives

Like all other languages of the Balkan-Sprachbund, Bulgarian allows for CD by either the indirect object clitic (IOC) or the direct object clitic (DOC). The CDed phrase does not have to be fronted, e.g., (17), but for fronted topical objects CD is obligatory, as shown in (18).

(17) *Optional doubling of non-fronted objects (Jaeger 2002:3)*

Decata (*ia*) obiĉat Marija/neja.
 Children +DEF DOC 3SG.FEM love 3PL Maria/her 3SG.FEM.ACC
 'The children love Maria/her.'

(18) *Obligatory doubling of topic-fronted objects (Jaeger 2002:3)*

Marija/Neja *(*ia*) obiĉat decata.
 Maria/her 3SG.FEM.ACC DOC 3SG.FEM love_{3PL} children DEF.PL
 Maria/her, the children love.

Many hypotheses about the function of CD in Bulgarian have been proposed (see Jaeger 2002 for an overview). Nevertheless, it seems fair to say that there is now considerable agreement that CD of fronted constituents marks *topicality* (for references, see section 1). More specifically, I have argued elsewhere (Jaeger 2002; Jaeger and Gerassimova 2002; see also Leafgren 1997) that this holds if topicality is

⁹ Up to this point, I have tacitly assumed this in the translations only for the sake of simplicity.

understood in the sense of ‘aboutness’ (Reinhart 1982, Lambrecht 1994), as illustrated in the following example, where the sentence is intended to provide information about ‘the elephants’.

(19) *CD: Topic-marking (Jaeger 2002:16)*

Slonovete TOP *(*gi*) obučavat xorata.¹⁰
 elephants +DEF DOC 3PL train 3PL people +DEF
 ‘The elephants, (the) people train (them).’

Few have mentioned that CD is also possible in questions (but see Dimitrova-Vulchanova and Hellan 1998; Jaeger 2002), and nobody has yet discussed the meaning/usage of such examples.

5. Putting it together: topicality in *wh*-questions

I propose that topicality is the driving factor for CD of *wh*-phrases. Thus CD of *wh*-phrases follows the same rules that are well-known for CD in declaratives. This hypothesis is formulated below:

Hypothesis 3: WH-Topic-fronting Hypothesis (WTH)

- (A) CD in Bulgarian *wh*-question indicates that the CDed *wh*-phrase is the topic of the question.
 (B) Thus fronting of CDed *wh*-phrases is due to the same feature (topicality) that causes topic-fronting in non-question clauses.

Ad (A), what does it mean to be the *topic of a question*? *Wh*-fronting is commonly associated with *focus* rather than topicality (see e.g., Bošković 1998a, b). This view is usually based on either or both of the following two observations: (a) *wh*-words request *new information*, and (b) like focused phrases, *wh*-words can be treated as *variables in the proposition* expressed by the sentence they occur in.

Here, I adopt a more than one-dimensional approach to information structure, in which topicality is defined independently of focus. Thus a semantic object may be focused and topical at the same time (cf. Dik

¹⁰ (19) is grammatical without the DOC if *slonovete* ‘the elephants’ is realized with emphatic stress, in which case it is interpreted as exhaustive focus.

1989:Ch. 13; Jaeger and Oshima 2002:13-14; Lambrecht 1994).¹¹ Ergo, all fronted *wh*-phrases are foci and sometimes a *wh*-phrase can also be the topic of the question (cf. Gündel 1988:210; Leafgren 1997:127; Steedman 2000:659).

In the approach taken here, the notion ‘topic of a question’ is closely related to D-linking (Pesetsky 1987) and I will come back to the relation between these two concepts shortly. First, I present an example that is representative for contexts licensing CD of *wh*-phrases. I chose verbs with a prototypical agent and patient, and asked my informants in what context the verbs could occur in a CD *wh*-question. Consider the context in (20) which licenses the question in (21):

(20) *Context facilitating topicality of the direct object in (21)*

Some of the most popular painters in town recently made portraits of a couple of my friends. I know that each of my friends wanted to be painted by a particular artist, but I don't know by whom. So the question is:

- (21) Kogo koj go e narisuval?
 whom who DOC has painted
 ‘Who has been painted by whom?’

The question in (21) was judged to be felicitous only in a context in which the set of friends has been mentioned before *and* is salient in the discourse. This suggests that ultimately it will not be enough to only require CDed *wh*-phrases to be D-linked (in the sense that the set of referents of the *wh*-phrases are ‘given’ in the discourse; cf. Pesetsky 1987:107f.).¹² Note, however, that CDed *wh*-phrases seem to be a subtype of D-linked items both syntactically (whereas D-linking frees *wh*-phrases from Superiority, CDed *wh*-phrases have to be fronted; see section 3 and below) and functionally (CDed *wh*-phrases have to be *very* salient in the discourse).

This leads me to assume the stronger hypothesis that the WTH should be interpreted in terms of an aboutness-based approach (e.g.,

¹¹ Within the literature on information and discourse structure, the necessity to account for ‘new/focused topics’, as in e.g., the English left-dislocation (cf. Keenan-Ochs and Schieffelin 1976), has been recognized for some time.

¹² See Comorovski (1996:2) for a definition of D-linking that incorporates saliency.

Jacobs 2001; Lambrecht 1994; Reinhart 1982), in which the topic of a question is ‘what the sentence primarily requests information about’ (cf. Gundel 1988:210; Leafgren 1997:127; see also Kuno’s *key sorting hypothesis* in section 6.1). In such an approach, topicality implies (covert or overt) D-linking because, roughly speaking, whatever ‘Xs’ a piece of discourse is ‘about’, those ‘Xs’ are ‘given’ in the discourse and therefore D-linked. However, not everything that is D-linked is also a topic (in the aboutness-based sense). The idea that the CDed *wh*-phrases are aboutness-based topics (rather than merely D-linked) captures the intuition of my informants that (20) and (21) are *about* the ‘friends’. I take this to support clause (A) of the WHTH.¹³

Clause (A) makes strong predictions about the distribution of CDed *wh*-phrases, which follow from the distribution of topic-fronted non-*wh*-phrases in questions and non-question clauses (cf. section 2 and 4). This is summarized in clause (B) of the WHTH, a corollary of (A). Next, I discuss some of the consequences of (B).

First, CDed *wh*-words should be able to precede D-linked *wh*-phrases, which have been shown not to be subject to Superiority (Rudin 1988a:476; Richards 1997:42-3; cf. Blaszcak 2002:23-24), *even if the D-linked phrase is the subject*. This prediction is borne out, as shown in (22) where the direct object *wh*-phrase *kogo* precedes the D-linked subject *wh*-phrase *koja žena*. Note that this is even the case when the colloquial direct object *wh*-word *koj* is used, in which case nothing in the *wh*-phrases themselves marks *koj* to be the direct object (both *koj* and *koja žena* can be either nominative or accusative).

(22) CD: direct object > D-linked subject

<u>Kogo/koj</u>	<u>koja žena</u>	*(<u>go</u>)	običa?
Whom/whom	which FEM woman	DOC	loves?
‘Who does which woman love?’			

Second, a similar type of evidence for the WHTH comes from sentences with two inherently D-linked *wh*-phrases. In (23), the absence or presence of the DOC determines whether the first or the second *wh*-

¹³ Here I do not have the necessary space to motivate an aboutness-based approach in more detail but I hope to have shown that D-linking (as defined in Pesetsky 1987) and CD of topical *wh*-phrases differ in their distribution. For cross-linguistic support for topicalization of *wh*-phrases, see e.g., Grohmann (1998) and Scott (2003).

phrase is interpreted as object (inherently D-linked *wh*-phrases are not case marked). Interestingly, the same two types of readings are available even for (22) with the bare *wh*-phrase *koj*.

- (23) *CD: determining the interpretation of D-linked object and subject*
Koj măž koja žena (go) običa?
 which _{MASC} man which _{FEM} woman DOC loves
 (Without DOC) ‘Which man loves which woman?’
 (With DOC) ‘Which woman loves which man?’

Third, assuming a topic-sensitive ordering constraint on the left periphery (cf. Jaeger 2003:294f.) more prototypical topics, such as topic-fronted lexical NPs, should precede CDed *wh*-words. This prediction is borne out. Whereas topic-fronted non-*wh*-phrases can precede topic-fronted *wh*-words (Lambova 2003:130f.; Rudin 1985:92; also cf. (4) above), the opposite order is not possible:

- (24) *Fronted topics have to precede the wh-cluster*
 * Kogo, na Marija, koj (i) (go) e pokazal?
 whom to Maria who IOC DOC has shown
 (Intended) ‘As for Maria, who showed her whom?’

Fourth, if CD really marks topicality and topicality is independent of focus-fronting, then CD of *wh*-words should not depend on the presence of multiple *wh*-phrases (although it is expected that CD is much more common with multiple *wh*-questions, in which there is a need to identify the topic of a question — after all it is often the speaker’s choice to overtly mark a topic for the sake of clarity; cf. Leafgren 1997, a.o.). Like the first two predictions, this one is borne out as well. Example (25) was found in Aleksova’s corpus of colloquial Bulgarian (*k’o* is a colloquial form of *kakvo* ‘what’).¹⁴

- (25) *CD of single wh-phrase (from Aleksova’s corpus)*

The speakers are discussing different options for what they could knit: a jacket, a pullover, etc.

¹⁴ Krasimira Aleksova’s corpus consists of transcribed conversations in family contexts (approx. 138,000 text words; <http://www.hf.uio.no/east/bulg/mat/Aleksova/>). I am grateful to Olga Arnaudova for making me aware of the preceding context.

Kaži majko k'o da ti gø oplita?
 tell mother what SBJ for-you DOC knit
 'Say, mother, what (shall I) knit for you?'

Fifth, given that the echo *wh*-phrase of an echo-question is arguably the topic of that question ('what the question primarily requests information about'), the fact that the echo *wh*-phrase in (27) is CDed can be taken to support the WHTH:

- (26) Koj e narisuval Ivan?
 who has painted Ivan
 'Who has painted Ivan?'
- (27) Kogo koj gø e narisuval?
 whom who DOC has painted
 'Who has been painted by WHOM?'

I have given further support for the WHTH in Jaeger (2003:190f.). I argued that some elements (e.g., emphatic particles and certain adverbs) known to appear between topic-fronted NPs and the *wh*-cluster (Lambova 2003) also appear between CDed *wh*-phrases and the rest of the *wh*-cluster. If CDed *wh*-phrases are topic-fronted, this phenomenon is straight-forwardly accounted for.

To sum up, the predictions made by the WHTH about the distribution of CDed *wh*-phrases are borne out and the WHTH is supported by native speaker intuitions.

6. Summary, implications and a new perspective

I have presented new data from colloquial Bulgarian relating the research on (multiple) *wh*-questions to the research on clitic doubling (CD). I have argued that CD marks topicality (see the WHTH formulated in section 5) within as much as outside of *wh*-questions. I have done this on the basis of three types of evidence. First, the interpretation and translation by native speakers was taken to ascertain if and how the meaning of CD questions is different from non CD questions. Second, the distribution of CD questions, or more precisely the fact that they are licensed by a specific type of context, shows that only topical object *wh*-phrases can be

CDed. Finally, I have shown that the predictions made by the WTH are borne out.

Next, I will discuss several possible implications of the analysis proposed here (section 6.1), sketch how a formal account might look (section 6.2), and mention two important open questions (section 6.3).

6.1 *Implications and outlook*

Strikingly, CDed *wh*-phrases *must* be fronted before non-CDed *wh*-phrases just as topic-fronted elements in non-interrogatives must precede the focus-fronted elements. While I have shown that CDed objects are topical in both interrogatives and non-interrogatives, and that topical objects must be fronted, I have not yet said anything about topical *non*-object *wh*-phrases. However, the parallelism between CD in interrogatives and non-interrogatives, and the well-known fact that in Bulgarian declaratives at least some non-object phrases (i.e. subjects, non-object arguments, and adjuncts) can be topic-fronted without CD are compelling (there are no clitics for non-object arguments).

This raises the question to which *extent* topicality directly influences *wh*-ordering (rather than only indirectly through CD). Consider the following hypothesis which declares topicality rather than CD to be the cause for ordering constraints on fronted *wh*-phrases:

Hypothesis 4: Topics-First! Hypothesis

Like order constraints on the left-periphery of non-interrogatives, *wh*-phrase ordering (including so-called Superiority effects) in Bulgarian *wh*-question is (partly) determined by topicality.

There is not enough space here to discuss this issue in appropriate detail. I discuss, however, very briefly (a) why I think it is worth investigating the validity of the Topics-First! Hypothesis, and (b) some points that support it.

Ad (a), reducing a linguistic phenomenon (in this case *wh*-phrase ordering) to another, more general and independently motivated principle, is preferable to stipulating a specific constraint such as Superiority. This leads me to (b). Firstly, topics precede foci in non-interrogatives, and

CDed *wh*-phrases are topical. Second, cross-linguistically subjects have been observed to be most frequently topics (cf. Givón 1976, Lambrecht 1994:131f). This would be in line with both native speaker intuitions regarding multiple *wh*-questions with initial subjects (i.e. they seem to primarily request information about the subject), and the fact that, in most multiple *wh*-questions with a subject *wh*-phrase, the subject is the initial *wh*-phrase. Cross-linguistic support for topic-fronting in *wh*-questions comes from colloquial Russian (Scott 2003), German (Grohmann 1998, and upcoming work), and from Romanian (Comorovski 1996). Finally, the Topics-First! Hypothesis captures the spirit of Kuno and Takami's (1993:112) *sorting key hypothesis* and ties it to information structure, by claiming that the *key of a question* is the topic of that question.

Hypothesis 5: Kuno and Takami's (1993:112) Sorting Key Hypothesis
 "In a multiple *wh* question, the leftmost *wh*-word represents the key for sorting relevant pieces of information in the answer."

6.2 A short note on a formal analysis

Formally, the data introduced in section 3 can be captured by assuming that topics and foci are fronted to one and the same left-periphery field that is the locus of discourse functions of different kinds (cf. ΔP in Lambova 2003:8; see also the multiple-filler construction in Jaeger 2003:196). The correct order of fronted constituents (i.e., topics before foci) is achieved by positing a linear order constraint sensitive to topicality on this left-periphery projection. Such an approach is spelled out in detail in the HPSG analysis presented in Jaeger (2003) where a linear precedence constraint working on the left-periphery orders fronted constituents. The commonalities between CD in *wh*-interrogatives and non-interrogatives are captured via a type-hierarchy.

Lambova (2003a:10), dealing with data related to the cases presented here, suggests that the order of fronted constituents may be due to prosodic constraints on the linear order between the intonational contours on topics and foci. If this turns out to be true, the order constraint would not have to be stipulated for information structure but would rather be the

(indirect) effect of (more general) prosodic constraints and the information structure to prosody mapping.

6.3 *Open questions and future research*

If the Topic-First! Hypothesis turns out to be true, it immediately raises the question as to whether topicality is the *only* ordering factor on the left periphery or whether it is *one among several* factors (e.g., animacy, agentivity, and/or subjecthood). More specifically, a very relevant question would be whether there are *any* Superiority effects (as defined in Chomsky 1973; or Bošković 1998a, b) that cannot be reduced to other (non-syntactic) factors.

One directly related empirical question is whether the second and third *wh*-phrases order freely in non-echo questions with at least three *wh*-phrases and one CDed (and therefore initial) object *wh*-phrase. I have not yet been able to determine the acceptability of (28a) and (28b) with or without the indirect object clitic (IOC) *mu* to a satisfying degree:

(28) *Are both orders acceptable and, if yes, do they require the IOC?*

- a. Koja knjiga koj na kogo (mu) ja dade?
 which book who to-whom IOC DOC gave
- b. Koja knjiga na kogo koj (mu) ja dade?
 (Intended) 'Which book did who give to whom?'

A second empirical question is that apparently *some* speakers of Bulgarian do not at all allow CD of *kakvo* 'what', while it is marked, but acceptable for others (see also (25) above). The status of *kakvo* cannot be due to a general constraint on the fronting of inanimate *wh*-phrases, as suggested in Billings and Rudin (1996, 1998; cf. section 2 above), because CD of inanimate object *wh*-phrases is grammatical, as shown in (28). Interestingly, similar restrictions have been observed for other languages (e.g., Pesetsky 1987 for English who notes that 'what' is preferably *not* D-linked although it can be). This suggests that D-linking (as a syntactic notion) is a prerequisite for topic-fronting. The precise nature of the relation between D-linking and aboutness-based topicality is subject to further research.

Another avenue of research that I take to be crucially necessary investigates the semantics of multiple *wh*-interrogatives and especially CDed *wh*-questions. Kazenin (2000; cf. Blaszcak 2002:24) argues that *wh*-questions with (contrastive) single-pair interpretations obey Superiority but pair-list *wh*-questions do not show Superiority effects (see also Comorovski 1996:129ff. for the related distinction between *conjoined* and *matching* questions). It remains to be seen whether this distinction, if it turns out to be true, follows from more general constraints on the syntactic effects of semantic scope in Bulgarian or whether is specific to *wh*-fronting. If the former holds, Superiority could be a side effect of scope (cf. Bošković 2001 for a recent investigation of the relation between Superiority and the semantics of multiple *wh*-questions).

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Counterfactuality and Conditional Inversion in Russian in the Light of English*

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1. Goals

This paper aims to examine Conditional Inversion (CI) in Russian expressed by imperatives that have a counterfactual (CF) conditional meaning; they imply that *p* and *q* do not hold in the actual world, as (1a) illustrates. See also its approximate paraphrases in (1b) and (1c). Notice that the past tense verb in the inverted conditionals (1c) occupies the same clause-initial position that the imperative verb occupies in (1a) (Section 2).

- (1) a. Vypej on lekarstvo, emu stalo by lučše.¹
drink IMP. 2SG he NOM medicine ACC he DAT got MOD better
(i) * 'If he took the medicine, he would get better.'
(ii) 'Had he taken the medicine, he would have gotten better.'
- b. Esli by on vypil lekarstvo, emu stalo by lučše.
if MOD he NOM drank medicine ACC he DAT got MOD better
(i) ? 'If he took the medicine, he would get better.'
(ii) 'If he had taken the medicine, he would have gotten better.'

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¹ This phenomenon exists in Czech as well; only, it is expressed by another nonfinite verbal category, the infinitive. Because of space limitation, this will not be discussed.

(i) Přijít Petr včas, tak (by) sme ten film stihli.
come-_{INF} Peter-_{NOM} on-time then (cond-BY) AUX-_{1PL} this-_{ACC} film-_{ACC} made-it-_{PL}
'If Peter came on time, we would have made the movie.' (Vladimira Sylla, pc.)

- c. Vypil by on lekarstvo, emu stalo by lučše.²
 drank MOD he_{NOM} medicine_{ACC} he_{DAT} got MOD better
 (i) 'If he took the medicine, he would get better.'
 (ii) 'Had he taken the medicine, he would have gotten better.'

Another goal is to give a brief preliminary account for the sentence-initial position of imperatives (V to C) (*Section 3*) and for the subject's default nominative case (*Section 4*).

Finally, light will be shed on how the same morphology leads to differences in interpretation: it will be argued that while English conditionals containing CF morphology can have a FLV (*future less vivid*) interpretation, as in (2), Russian conditionals containing the same CF morphology can not. By FLV interpretation, understand a conditional which implicates that the world of evaluation is more likely to become *not p* than *p* (*Section 5*).

(2) If he took the medicine, he would get better.

(2) is interpreted as a FLV conditional (in addition to presCF), i.e., *p* (= *he gets better*) is still realizable in the present world, and thus the sentence is not necessarily a counterfactual.

In contrast with English conditionals, in Russian, the FLV interpretation in CF constructions such as (1b) and in conditional-type imperatives such as (1a) does not exist. The interpretation of such sentences is restricted to that of 'genuine' counterfactuality, and no future meaning is implied at all. The FLV interpretation is rendered in Russian by indicative conditionals only.

2. Conditional inversion

2.1 Exclusion operator (EO)

I shall relate the core CF reading of imperatives denoting conditionals to the observation made by Iatridou and Embick (I&E) 1994 which claims

² As a FASL reviewer pointed out, (1c) can also have a 'wishing reading.' Because of space limitations, present CF sentences and those with CF morphology that potentially refer to the future as well as CF wishes will not be discussed here.

that inverted (or V1) conditionals in English (3) are also restricted to (past) counterfactuals.

- (3) Had I been offered the job, I would have brought champagne
(I&E 1994: 200)

It will be shown that inversion is possible only in case a certain kind of CF morphology serving as an EO (cf. Iatridou 2000) is present. It is a cross-linguistic fact that languages tend to use past-tense morphology to express CF conditionals, for example (4).

- (4) If we wanted war, we would have to fight.

The implication of (4) is that antecedent and consequent do not hold in the actual world (i.e., we do not want war and we do not have to fight). The past tense serves as an EO, and the past tense morpheme induces the following semantics given in (5):

- (5) $T(x)$ excludes $C(x)$. (Iatridou 2000: 246)

In other words, $\text{Topic}(x)$ [the x that we are talking about] excludes $C(x)$ [$C(x)$ = the x of the speaker] where the variable X ranges over times (i) or worlds (ii).

- (i) When X ranges over times, we obtain:
 $T(t)$ = topic time
 $C(t)$ = utterance time

Thus (5) reads like (6):

- (6) Topic time excludes utterance time.

- (7) a. Ivan byl doma.
 Ivan was at-home
 'Ivan was at home.'
 b. I on vse ešče tam.
 and he still there
 'And he is still there.'

(7a) implicates that at topic time, 'John was at home' is true, and that the topic time excludes the utterance time (i.e., John is not at home any

more). (7b) cancels the implicature by asserting that the situation time³ includes the utterance time; consequently, the past tense (i.e., exclusion relation) is cancelable.

- (ii) When X ranges over worlds (counterfactuals), (5) reads like (8)
- (8) The topic worlds excludes the actual world [the worlds of the antecedent do not include the actual world].

2.2 *Cancelability of counterfactuality*

Since CF conditionals convey that the actual world is not among the *p* worlds that we are talking about, but they do not indicate that the actual world is not among the *p* worlds, it is predicted that counterfactuality of CF conditionals can be canceled (see Iatridou 2000: 248)

- (9) If the patient had the measles, he would have exactly the symptoms he has now. We conclude, therefore, that the patient has the measles.

Cancelability is the result of the use of the past-tense EO, which implicates but does not assert counterfactuality of conditionals.

The question arises: what happens when CF is expressed by something else, not the EO? In Iatridou's theory, the past-tense verbal morphology indicates the meaning of counterfactuality as an implicature, and therefore, that CF has the property of cancelability of the past tense. We predict that languages that use other morphological means than past tense to express CF should not be cancelable in the sense of (5). This prediction is borne out, as (10) and (11) demonstrate. In Russian, for example, CF can be expressed by using past tense morphology (10b) and (11b) as well as the imperative verb form (10c) and (11c).

- (10) a. *Esli by u bol'nogo byla krasnuxa, u nego byli by točno*
if MOD at patient was measles at him were MOD exactly
te že simptomy, čto (u nego) sejčas.
those EMPH symptoms that at him now
'If the patient had the measles, he would have exactly the
symptoms he has now.' (presCF)

³ Situation time or event time, i.e., the interval throughout which the predicate holds (cf. Iatridou 2000).

- b. ?? Byla by u bol'nogo krasnuxa, u nego byli by točno
 was MOD at patient measles at him were MOD exactly
 te že simptomy, što (u nego) sejščas. (?presCF)
 those EMPH symptoms that at him now
- c. * Bud' u bol'nogo krasnuxa, u nego byli by točno
 be IMP. 2SG at patient measles at him were MOD exactly
 te že simptomy, što sejščas. (*presCF)
 those EMPH symptoms that now
- (11) a. Esli by u bol'nogo byla krasnuxa, on by umer. (pastCF)
 if MOD at patient was measles he MOD died
 'If the patient had had the measles, he would have died.'
- b. Byla by u bol'nogo krasnuxa, on by umer.⁴ (pastCF)
 was MOD at patient measles ...
 'Had the patient had the measles, he would have died.'
- c. Bud' u bol'nogo krasnuxa, on by umer. (pastCF)
 be IMP. 2SG at patient measles ...
 'Had the patient had the measles, he would have died.'

Because of the extreme neutralization of tenses that Russian exhibits, especially in conditionals and subjunctives (the distinction in Russian is quite mirky exactly because of the lack of tense specification)⁵, the antecedent of (10a) and (11a) can be interpreted as either a present counterfactual (presCF) or as a past counterfactual (pastCF), depending on the context. In other words, when CF is expressed by the past tense (the EO), the CF conditional can refer to both the present and the past, as (10a) and (11a) illustrate. However, the cancelability of CF happens only under the present CF conditional interpretation, as in (10a).

⁴ According to a reviewer, this sentence can also be interpreted as a wish (cf. fn. 2).

⁵ The example in (i) further illustrates this tense neutralization in conditionals; the sentence can have both a present and a past counterfactual reading, given in (a) and (b), respectively.

- (i) Esli by ty prišel, ja byl by rad. (Comrie 1986: 94)
 if MOD you came I was MOD glad
 a. 'If you came, I would be glad.'
 b. 'If you had come, I would have been glad.'

I want to argue that when the CF conditional is expressed by the imperative form, the conditional can refer only to the past. This hypothesis is based on the observation that CF cannot be canceled when the imperative is used, as in (10c). On the other hand, the past CF conditional reading naturally obtains, as (11c) shows.

2.2.1 *Past tense yet no cancelability*

When CF is expressed using regular past tense-CI, the acceptability of a present CF conditional interpretation is strongly degraded, as (10b) demonstrates. The more natural reading is that of the past CF conditional, as in (11b).

Similarly, in English, when CF expressed by CI, past tense is present yet it does not lead to cancelability, as (12-13) illustrate.

(12) *Had the patient the measles, he would have exactly the symptoms he has now. We conclude, therefore, that the patient has the measles. (*presCF)

(13) Had the patient had the measles, he would have died. (pastCF)

Hence, I suggest that past tense V/AUX fronting in both Russian and English CF conditionals have the same properties with respect to cancelability as the use of imperatives in CFs in Russian.

2.3 *Other similarities between Russian and English*

It is interesting to notice that English does not permit inversion in indicative conditionals, see (14), just as Russian imperative-type conditionals do not allow an indicative conditional interpretation, as (1a) repeated as (15) illustrates.

- (14) a. * Has John eaten the calamari, there will be no food left for us.
 b. If John has eaten the calamari, there will be no food left for us.
 (I&E 1994: 191)

(15) Vypej on lekarstvo, emu stalo by lučše.
 drink_{IMP. 2SG} he_{NOM} medicine_{ACC} he_{DAT} got MOD better

- (i) 'If he takes the medicine, he will get better.' (*IndCond)
 (ii) 'If he took the medicine, he would get better.' (*presCF)
 (iii) 'Had he taken the medicine, he would have gotten better.'
 (pastCF)

Another similarity between these three types of inverted conditionals (the English (3) and the *a*- and *c*-examples of (1)) is that such inverted (V1) clauses always convey a conditional meaning, in contrast with *if*-sentences which can have other than conditional interpretations, as (16)-(17) show.

(16) a. Esli Ivan pridet, Katja ujdet.
 if Ivan comes Katie leaves
 'If [because] Ivan comes Katie leaves.'

b. If Tom comes Ann leaves.
 'Because Tom comes Ann leaves.'

(17) Ja daže radovalas', esli popadala in bol'nicu.
 I even was-happy if ended-up(imperf) in hospital
 'I was even happy, if/whenever I ended up in the hospital.'
 (Hacking 1998: 33)

Moreover, inverted conditionals in English and in Russian also exhibit similar properties with respect to their inability of being focussed. I&E show a salient property of inversion, namely, that its function is to make a connection to previous discourse. They argue that inversion also indicates that the content of the proposition in the antecedent is old or known information. This discovery of I&E is in accord with the fact that in English only past counterfactuals can be inverted and it reinforces Xrakovskij's (1994) explanation for the core past counterfactual reading of imperative-like conditionals in Russian, given in (18).

(18) Since past counterfactuals state something about an irreal world which is in the past, it is natural for us to know about it because we know about what happened in the past (cf. Xrakovskij 1994)

One of I&E's proofs for the fact that inverted conditionals connect to previous discourse and they themselves contain old information is that they can not be focussed. That is, inverted (V1) conditionals can not be modified by focal adverbs such as *only* and *even* in contrast with uninverted conditionals, which can (since they are not necessarily old information). This contrast is illustrated in (19) by English examples, and in (20)-(21) by Russian examples.

- (19) a. Only if Peter had come would Susan have left. (I&E 1994: 195)
 b. *Only had I thought that he was sick would I have called him.
 (I&E 1994: 195)
- (20) a. *Tol'ko vypej on lekarstvo, emu stalo by lučše.⁶
 only drink_{IMP.2SG} he_{NOM} medicine he_{DAT} got MOD better
 ' *Only had he taken the medicine, he would have gotten better.'
- b. Tol'ko esli by on vypil lekarstvo, emu stalo by lučše.
 only if MOD he_{NOM} drank medicine he_{DAT} got MOD better
 'Only if he had taken the medicine, he would have gotten better.'
- c. * Tol'ko vypil by on lekarstvo, emu stalo by lučše.
 only drank MOD he_{NOM} medicine he_{DAT} got MOD better
 ' *Only had he taken the medicine, he would have gotten better.'
- (21) a. * Daže vypej on lekarstvo, emu ne
 even drink_{IMP.2SG} he_{NOM} medicine he_{DAT} NEG
 stalo by lučše.
 got MOD better
 ' *Even had he taken the medicine, he would not have gotten better.'

⁶ It is interesting to note that the adverb *tol'ko* 'only' may follow the imperative verb rendering a different meaning, namely, 'if only' (which expresses wishes), as in (i).

- (i) Vypej tol'ko on lekarstvo, emu stalo by lučše.
 drink_{IMP2SG} only he_{NOM} medicine_{ACC} he_{DAT} got MOD better
 'If only he had taken the medicine, he would have gotten better.'

- b. Daže esli by on vypil lekarstvo, emu ne
 even if MOD he_{NOM} drank medicine he_{DAT} NEG
 stalo by lučše.
 got MOD better
 ‘Even if he had taken the medicine, he would not have gotten better.’
- c. * Daže vypil by on lekarstvo, emu ne
 even drank MOD he_{NOM} medicine he_{DAT} NEG
 stalo by lučše.
 Got MOD better
 ‘*Even had he taken the medicine, he would not have gotten better.’

Finally, with respect to the focus properties of questions in both English and Russian, uninverted conditional antecedents may answer questions (22b) and (23b), whereas V1 antecedents can not (22c) and (23 c, d).

- (22) a. When would Mary come?
 b. If she were promised a hundred dollars.
 c. * Were she promised a hundred dollars.
- (23) a. V kakom slučaje by Anna prišla?
 in what case MOD Ann came
 ‘Under what circumstances would Ann come?’
 b. Esli by ej obeščali sto dollarov.
 if MOD her promised hundred dollars
 c. * Obeščali by ej sto dollarov.
 promised MOD her hundred dollars
 d. * Obeščaj ej sto dollarov.
 Promised her hundred dollars

In sum, when the conditional is inverted either using past tense or imperative morphology, cancelability is not possible since, as we saw, inversion indicates that the antecedent contains old information, which, by definition, can not be canceled. It can thus be concluded that cancelability is indeed the result of the use of the EO, which implies but does not assert temporal precedence. In the absence of this EO, cancelability

is not possible exactly because the counterfactuality (temporal precedence) of such conditionals is asserted, not implied.

3. V to C

3.1 Morphological visibility of V to C

Languages exhibit different agreement morphology on inverted verbs, i.e., V to C is usually morphologically visible. In Icelandic, for example, the verb that moves to C in an indicative conditional is in the present subjunctive, as (24b) illustrates.

- (24) a. Ef hann hefur faridh, eg kom (Icelandic)
 if he has PRES. IND gone I come
 'I he has gone, I will come.'
- b. Hafi hann faridh, eg kom
 has PRESUBJUN he left I come (I&E 1996: 192)

As we have seen, Russian also has the option to show different morphology in inverted conditionals, i.e., the imperative (1a). However, this form is possible only in counterfactual conditionals, and most often in past counterfactual conditionals. This makes sense since, possibly, the use of the imperative/subjunctive mood correlates with the requirement that the truth of a proposition be known to be part of the world ('state of the world'); this hypothesis includes inverted counterfactuals (which use the past subjunctive) in general, and inverted Icelandic non-counterfactual conditionals (which use the present subjunctive). The use of inversion is quite natural since it allows to indicate that the content of the proposition in the antecedent is old, not just that the antecedent connects to previous discourse.

3.2 C's [irrealis] feature

I propose that the imperative verb raises to C which has the feature [irrealis] selected by a higher V (something like *wish*⁷), thereby inhibiting the realization of the complementizer (cf. Giorgi & Pianesi 1997; Munaro 2003; Poletto 2000). This feature is realized by the

⁷ For a discussion of the semantics of conditional-imperatives, see Jakab 2003.

complementizer or by the verb that moves into C, hence the complementizer *esli* and the verb (imperative/past tense verb) are in complementary distribution. Another reason for the imperative to move to C is that the imperative form in conditional-imperatives is strongly deficient (always 2sg, no agreement with the subject); and structurally deficient elements tend to raise higher (cf. Cardinaletti & Starke 1999).

Usually, in clauses denoting some sort of modality (subjunctive, imperative, optative, counterfactual), the verb raises higher than in indicative clauses (e.g., Poletto 2000). Poletto also points out that the syntactic space-encoding modal distinction is higher than TP and AgrSP.

3.3 *Adverb positions and the location of the verb*

I shall thus assume that modal features are realized low in the CP layer (cf. Rizzi 1997). On the basis of Cinque's (1999) system of modal FPs (that encode a distinct modal feature and host a different type of adverb in their specifier position), the 'fixed' position of the adverbs with respect to the inflected verb serves as a test to locate the verb. The examples in (25)-(27) show that adverbs are not allowed to precede the inverted element, be it an imperative or a past-tense verb.

- (25) a. ...*živi* Kostja v Amerike, on stal by
live _{IMP2SG} Kostya in America he became MOD
millionerom.
millionaire _{INST}
- (i) '... if Kostya lived in America, he would become a millionaire.'
(ii) '...had Kostya lived in America, he would have become a millionaire.'
- (Rybakov, *Deti Arbata*, 373; from Hacking 1998:78)
- a.' /**postojanno/ živi* Kostja /*postojanno/ v Amerike*, on
permanently live _{IMP. 2SG} Kostya in America he

- b. Esli by Kostja žil v Amerike, on stal by
 if MOD Kostya lived in America he became MOD
 millionerom.
 millionaire_{INST}
 (i) 'If Kostya lived in America, he would become a
 millionaire.'
 (ii) 'If Kostya had lived in America, he would have become a
 millionaire.'
- b.' Esli by Kostja /postojanno/ žil v Amerike, on ...
 if MOD Kostya lived in America he
- c. Žil by Kostja v Amerike, on stal by millionerom.
 lived MOD Kostya in America he became MOD millionaire_{INST}
 (i) 'If Kostya lived in America, he would become a
 millionaire.'
 (ii) 'Had Kostya lived in America, he would have become a
 millionaire.'
- c.' /*Postojanno/ žil by Kostja /postojanno/ v Amerike, on ...
 lived MOD Kostya in America he
- (26) a. Piši by učenik, učitel' ne delal by
 write _{IMP.2SG} MOD pupil teacher NEG did MOD
 emu zamečanj.
 he _{DAT} remarks
 'Had the pupil been writing, the teacher would not have
 rebuked him.' (Barnetová et al. 1979: 197)
- a.' /*Pravil'no/ piši by učenik /pravil'no/, učitel' ...
 correctly write _{IMP.2SG} MOD pupil teacher
- b. Esli by /pravil'no/ pisal učenik, učitel' ...
 if MOD correctly wrote pupil teacher
- c. /*Pravil'no/ pisal by učenik /pravil'no/, učitel' ...
 correctly wrote MOD pupil teacher

- (27) a. Bud' on p'janym, on by ne smog zdes' rabotat'.
 be_{IMP. 2SG} he drunk he MOD NEG could here work_{INF}
 'Were he often drunk, he could not work here.'
- a.' /*Často/ bud' on /často/ p'janym, on ...
 often be_{IMP. 2SG} he drunk he
- b. Esli by on /často/ byl p'janym, on ...
 if MOD he often was drunk he
- c. /*Často/ byl by on /často/ p'janym, on ...
 often was MOD he drunk he

We observe V to C also in Italian CFs as the SCI indicates in (28).

- (28) Gavesse-lo fato presto, nol gavarìa perso el treno.
 had-SCL done hurry not-SCL had missed the train
 'Had he not been late, he would not have missed the train.'
 (Poletto 2000: 117)

(26) shows that in colloquial Russian, the modal particle *by* may appear after the imperative verb in imperative-type conditionals just as it appears after *esli* 'if' in 'regular' conditionals and in inverted ones, as the paraphrases (26b-c) illustrate. The optional occurrence of the particle *by* after the imperative strengthens my claim according to which the imperative verb acts like the conditional complementizer in such conditional constructions.

In sum, the imperative verb is not only higher than its subject but also it can not be preceded by adverbs; therefore, we can conclude that the imperative moves to C to check its [irrealis] feature.

4. The default nominative case

I shall assume Pesetsky & Torrego's (P&T) definition of nominative case in (29) as well as their motivation for T-to-C movement in (30).

- (29) *The nature of nominative case*
 Nominative case is uT [uninterpretable T feature] on D.
 (P&T 2000: 5)
- (30) C bears an uninterpretable T feature (uT) with the EPP property.
 (P&T 2000: 4)

In English embedded declarative clauses that are not introduced by *that*, the nominative subject moves to Spec-CP to delete uT on C (and also satisfying the EPP property of C's uT feature), as in (31).

- (31) Mary expects [_{CP} [Sue, #F]_j] [_C, #F] [_{IP} *t*-Sue_j will buy the book].
(P&T 2000:13)

Although P&T do not spell this out, in (31), the subject DP must go through T in the Spec of which it checks its uT feature, and at the same time, it gets valued as nominative. In contrast, in Russian conditional imperatives, the subject DP cannot go through T since the entire FinP (TP and AgrP) is missing (cf. Jakab 2003, in press); thus the uT feature on D does not get valued. Since T lacks uninterpretable ϕ -features, and has no other uninterpretable property, it is not active, it cannot be a probe, i.e., the probe is uninterpretable. This is why it must be uT C that acts as the relevant probe, as the Russian example in (32) illustrates.

- (32) a. Bud' tam ja, ne slučilos' by ètogo.
Be_{IMP2SG} there I_{NOM} NEG happened MOD this_{GEN}
'Had I been there, it would not have happened.'

- b. [_{CP} #F] [_C bud'] [_{VP} ja #F [_v t_v].

The feature uT of the subject DP enters into some kind of an agreement relation with the uT feature of C which also bears a uT . Since in Russian, unlike in English, C lacks the EPP property for uT (cf. also uT on C in English embedded questions has no EPP property: *Bill asked what Mary bought*. BUT **Bill asked what did Mary buy?*), the subject DP does not move to C. Because both features on D and C are uninterpretable, we do not get a full-fledged nominative case, but rather, the default nominative case. Evidence for this is the lack of subject-verb agreement induced by a defective probe, lacking a complete set of ϕ -features. The default character for nominative also derives from the assumption that a non-default nominative would have to be a response to ϕ -features on T, which are absent.

5. The Future less vivid (FLV)

Finally, I shall discuss certain significant differences in the interpretation of the same types of conditionals in English and in Russian, following Iatridou's 2000 classification.

I propose that while English conditionals containing CF morphology can have a FLV interpretation, as in (33), Russian conditionals containing the same CF morphology (past tense or imperative) can not (34).

According to Iatridou, the English equivalents, e.g., (33) of sentences like (34-36) can have a FLV interpretation (a conditional which implicates that the world of evaluation is more likely to become *not p* than *p*) as well in addition to the presCF.

(33) If he took the medicine, he would get better.

Thus, (33) is interpreted as a FLV conditional, i.e., *p* (= *he gets better*) is still realizable in the present world, and thus the sentence is not necessarily a counterfactual.

It is, however, not always easy to make a distinction between a presCF conditional and a FLV conditional meaning since in many languages these two types of conditionals bear the same morphology: therefore, the essential factor in deciding whether a sentence is a presCF or a FLV is the Aktionsart of the predicate that the sentence contains (cf. Iatridou 2000:250). Iatridou's claim is that a FLV involves a telic predicate and a presCF involves an individual-level stative. On the other hand, stage-level statives are ambiguous: they can have either a FLV or a presCF reading depending on the larger context. Iatridou, however, also observes that these two types of conditionals are almost the same (e.g., they both have CF morphology (past tense in many languages) which functions as an exclusion operator); the only difference is in the predicate's Aktionsart which provides the future-oriented meaning: "PresCF and FLV are names of interpretations of conditionals that have the same CF setup and differ only in the Aktionsart of their predicates. In other words, the counterfactuality content, so to speak, of a presCF and of a FLV should be the same." (Iatridou 2000: 253).

In contrast with English conditionals, in Russian, the FLV interpretation in CF constructions like (34b-36b) and in conditional imperatives like (34a)-(36a) does not exist. The interpretation of such

sentences is restricted to that of ‘genuine’ counterfactuality, and no future meaning is implied at all. The FLV interpretation is rendered in Russian by indicative conditionals only.

telic predicate

- (34) a. Vypej on lekarstvo, emu stalo by lučše.
 Drink_{IMP2SG} he_{NOM} medicine he_{DAT} got MOD better
 (i) * ‘If he took the medicine, he would get better.’
(neither presCF nor FLV)
 (ii) ‘Had he taken the medicine, he would have gotten better.’
(pastCF)
- b. Esli by on vypil lekarstvo, emu stalo by lučše.
 if MOD he drank medicine he_{DAT} got MOD better
 (i) * ‘If he took the medicine, he would get better.’
 (ii) ‘If he had taken the medicine, he would have gotten better.’
- c. Vypil by on lekarstvo, emu stalo by lučše.
 drank MOD he_{NOM} medicine_{ACC} he_{DAT} got MOD better
 (i) * ‘If he took the medicine, he would get better.’
 (ii) ‘Had he taken the medicine, he would have gotten better.’

stage-level stative predicate

- (35) a. Bud’ on p’janym, on pel by gromče.
 be_{IMP.2SG} he_{NOM} drunk_{INST} he sang MOD more-loudly
 (i) ‘If he were drunk, he would sing more loudly.’
(presCF but not FLV)
 (ii) ‘Had he been drunk, he would have sung more loudly.’
(pastCF)

- b. Esli by on byl p'janym, on pel by gromče.
 if MOD he_{NOM} was drunk_{INST} he sang MOD more-loudly
 (i) 'If he were drunk, he would sing more loudly.'
 (ii) 'If he had been drunk, he would have sung more loudly.'
- c. Byl by on p'janym, on pel by gromče.
 was MOD he drunk_{INST} he sang MOD more-loudly
 (i) 'Were he to be drunk, he would sing more loudly.'
 (ii) 'Had he been drunk, he would have sung more loudly.'

individual-level stative predicate

- (36) a. Znaj ja kakoj-nibud' inostrannyj jazyk,
 know_{IMP2SG} I some-kind foreign language
 ja rabotal by perevodčikom.
 I_{NOM} worked MOD translator_{INST}
 (i) 'If I knew some foreign language, I would work as a
 translator.' (presCF but not FLV)
 (ii) 'Had I known some foreign language, I would have worked
 as a translator.' (pastCF)
 (Townsend 1970:257)
- b. Esli ja by znal kakoj-nibud' inostrannyj jazyk,
 if I MOD knew some-kind foreign language
 ja rabotal by perevodčikom.
 I_{NOM} worked MOD translator_{INST}
 (i) 'If I knew some foreign language, I would work as a
 translator.'
 (ii) 'If I had known some foreign language, I would have
 worked as a translator.'

- c. Znal by ja kakoj-nibud' inostrannyj jazyk,
 knew MOD I some-kind foreign language
 ja rabotal by perevodčikom.
 I_{NOM} worked MOD translator_{NST}
 (i) 'If I knew some foreign language, I would work as a
 translator.'
 (ii) 'Had I known some foreign language, I would have worked
 as a translator.'

To make it more concrete, let us look at the examples above. Keeping Iatridou's typology, individual-level statives allow both presCF and pastCF readings and no FLV meaning, as in (36a-b), exactly the way that she predicts. On the other hand, stage-level statives in Russian can not have a FLV interpretation as they can in English, as (35a-b) illustrate. Moreover, sentences involving telic predicates can be only interpreted as pastCFs, as (34a-b) show, in contrast with English telic predicates that have a FLV interpretation.

Hence, Russian sentences involving telic predicates can be only interpreted as pastCFs (34a-b), unlike English ones that have a FLV interpretation. Similarly, Russian stage-level statives do not allow a FLV interpretation and thus neither do they allow a future-oriented adverb to occur, as opposed to English (cf. (37)).

stage-level stative

- (37) a. If he were drunk, he would be louder. (presCF)
(Iatridou 2000: 250)
- b. 'If he were drunk *at next week's meeting*, the boss would be
 really angry.' (FLV)
- c. * Bud' on p'janym na sobranii na sledujuščej nedele
 be_{IMP2SG} he drunk on meeting on next week
 on by poterjal rabotu.
 he MOD lost work
 * 'If he were drunk *at next week's meeting*, he would lose his
 job.' (not FLV)

Moreover, predicates denoting activities behave in a similar way as telic predicates, i.e., they make the sentence that contains them to have a FLV interpretation, as in (38).

(38) If you came closer, I would shoot you. (FLV) (*activity*)

The Russian equivalent of (38), given in (39a), on the other hand, can be interpreted only as a pastCF conditional according to my native informants. The FLV meaning (and, naturally, the IndCond meaning) can be obtained only with an indicative conditional in Russian, as in (39b), but not with an imperative-type conditional, as the ungrammaticality of a sentence like (39c) shows.

activity

- (39) a. Podojdi ty bliže, ja by tebja zastrelila.
 come IMP. 2SG you NOM closer I MOD you shot
 (i) *‘If you came closer, I would shoot you.’
 (*neither presCF nor FLV*)
 (ii) ‘Had you come closer, I would have shot you.’ (*pastCF*)
- b. Esli ty podojdeš bliže, to ja tebja zastrelju.
 if you come 2SG. PERF closer then I you shoot 1SG. PERF
 (i) ‘If you came closer, I would shoot you.’ (*FLV*)
 (ii) ‘If you come closer, I will shoot you.’ (*IndCond*)
- c. *Podojdi ty bliže, to ja tebja zastrelju.
 come IMP. 2SG you NOM closer then I you shoot 1SG. PERF
 *‘If you come closer, I will shoot you.’ (*IndCond*)

As Hacking (1998: 65) also observes, there is “an interesting disjuncture in the coding of hypothetical meaning in Russian and English. The Russian expectative conditionals [i.e., IndConds] in these examples⁸ cannot necessarily be translated using English *real* [i.e., IndCond] conditional

⁸ (i) Čto vy! Esli ja budu čitat', u menja vse razvorujut!
 what you if I will read_{INF} by me everything steal_{3PL}
 ‘Are you crazy! If I read, they'd steal everything from me!’
 (*Stolica*, 30 from Hacking 1998: 65)

morphology.” In other words, a common translation of Russian IndConds is precisely what Iatridou calls a FLV conditional in English (see the first reading of (39b)). This is not surprising given the future-oriented meaning of FLVs.

In sum, the failure of Russian ‘exclusion relation’ morphology to show a FLV interpretation could be mainly due to the nature of Russian CF morphology. In other words, the Russian imperative constructions denoting counterfactuality are morphologically too specific to be able to occur with future-oriented elements; their interpretation is idiosyncratically restricted to the past, therefore they are unable to have a FLV meaning.

6. Summary

This study demonstrated that English and Russian conditionals exhibit certain differences in their interpretation: while English conditionals containing CF morphology (i.e., past tense) can have a FLV interpretation, Russian conditionals containing the same CF morphology (past tense or imperative) can not. Thus, the cancelability of the counterfactuality of conditionals and the possibility of a FLV seem to be connected and dependant on the presence of the Exclusion Operator, which implies but does not assert temporal precedence.

It was also shown that in the absence of any uninterpretable feature on T, it cannot be a probe. T lacking a complete set of ϕ -features does not induce agreement and gives a default character to the nominative subject.

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Possessives, Theta Roles, and the Internal Structure of Bulgarian DPs*

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In the past two decades researchers have shown great interest in the syntax and semantics of the nominal domain. In generative syntax Szabolcsi (1983, 1987) and Abney (1987) suggest that the nominal structure is dominated by a higher Determiner Phrase (DP). The proposals open the door for further discussion of the (dis)similarities between determiners and possessives. Recently, work by Franks (1998), Embick and Noyer (2001) and Dimitrova-Vulchanova and Giusti (1999 a, b) on Bulgarian propose the existence of a Clitic Phrase (CLP) which holds the possessive clitic pronominals.

In semantics, research in the nominal domain has led to two streamlined theories on the argument structure and thematic properties of nouns. Some have looked at the verbal properties of nouns (Williams 1981, Rappaport 1983, Dowty 1989, Grimshaw 1990, Hoeksema 1992, Davies and Dubinsky, 2003 among others). Others have been concerned with the purely nominal domain and have investigated argument structure and thematic roles pertaining to that domain only (Barker and Dowty 1993). Both perspectives point to the same conclusion — only certain nouns have true syntactic arguments. For the first group of researchers, those are the complex event nominals (to use the term in Grimshaw 1990). For the second group, those are the relational nouns.

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This paper has a twofold goal. On one hand, it aims to show that, at least in Bulgarian, not all possessive structures² can be treated as determiners. I propose that the language provides evidence for a functional projection Possessor Phrase (PossP) between the lexical Noun Phrase (NP) and the top functional DP. PossP is the insertion point for the possessive (dative) clitic but not for the genitival adjectives or the PP possessives, as they exhibit different syntactic distribution and semantic properties. On the other hand, this paper looks further into the question of nominal argument structure and θ -role assignment in the particular domain of possessive noun phrases in Bulgarian. We follow Grimshaw (1990), further developed in Davies and Dubinsky (2003) (hereafter D&D), who propose that complex event nouns have true argument structure and thus can map the semantic interpretation directly to the syntactic structure in the form of a θ -role. Those nouns assign the <agent> and/or <theme> θ -roles to their arguments. We claim that the possessive semantic interpretation is external to the nominal domain in the sense that it is not assigned by the head of NP but rather by the head of PossP. Thus, the possessive relation is not applicable to the complex event nominals. On the other extreme, the concrete nouns take only the possessive θ -relation³ which is related with the head of the Possessive Phrase (PossP). Our analysis of possessives supports D&D's treatment of result and representational nouns as nominals that have participants in their Lexical Semantic Structure (LCS) but not true arguments. We propose that those nouns do not assign θ -roles, but rather participate in purely semantic θ -relations that pertain to the conceptual-pragmatic level.

² The term 'possessive structures' is used to cover all types of possessive phrases, including those in which syntactic possessives do not denote the semantic relation of possession.

³ For a lack of a better way to distinguish between thematic relations that are mapped onto syntactic structures and thematic relations that cannot map to syntactic positions, I use the term θ -role to denote the former and θ -relation for the latter.

1. Possessive structures in Bulgarian

1.1. Syntax: one side of the problem

In Bulgarian, possession can be expressed in three different ways:

(i) with a genitival adjective (1a,b); (ii) with a dative clitic (2); and (iii) with a N + PP construction (3):

- (1) a. Ivan-ova-ta kniga *genitival adjective*
 Ivan_{GEN}⁴ DEF book
 'Ivan's book'
- b. neg-ova-ta kniga *(pronominal) genitival adjective*
 his_{GEN, DEF} book
 'his book'
- (2) kniga-ta mu *dative clitic*
 book_{DEF} his_{DAT}
 'his book'
- (3) kniga-ta na Ivan/? na nego⁵ *PP*
 book_{DEF} of Ivan/ of him_{DAT}
 'the book of Ivan's'

The examples in (1)-(3) show a well-known pattern of syntactic disambiguation between genitives and datives (Landau 1999, Shlonsky 1988, Vergnaud and Zubizarreta 1992) where genitive inflection appears in Bulgarian, the possessor is prenominal (1a-b), but where dative case can be used, the possessor is in postnominal position (2, and possibly 3). The first similarity holds across the board when the noun is modified by a sole possessive structure. Genitival adjectives can appear in any prenominal position within DP. They can be in [Spec, DP] (4a), in intermediate position between [Spec, DP] and head of NP (4b), but not in postnominal position (4c).

⁴ For discussion of the case of Bulgarian possessives see Pancheva (to appear).

⁵ Grammaticality judgements differ on forms like *knigata na nego* 'the book of his'. I will leave the question open for further investigation.

- (4) a. *moja-ta/Ivan-ova-ta nova kniga*
 my_{DEF} / Ivan_{GEN. DEF} new book
 'my/Ivan's new book'
- b. *njakolko-to (novi) moi/Ivan-ovi (novi) knigi*
 several_{DEF} (new) my/Ivan_{GEN} (new) books
 'several of my/Ivan's (new) books'
- c. * *njakolko(-to) novi šapki moi/Ivan-ovi*
 several_(DEF) new hats my/Ivan_{GEN}
 'several of my/Ivan's (new) hats'

Consider also the definiteness in all of the examples in (4): possessives and determiners coexist in all three structures. This goes against Abney's (1987) proposal that D^0 is the insertion point for both the definite article and the possessive clitic. If the other two types of possessives (the PP and the dative clitic) are examined, we are led to believe that there are syntactic reasons for the co-occurrence of a possessor and a determiner in those structures. Both the clitic and the PP possessor require (5a,b) or prefer (5c,d) the definite conditions. The genitival adjective structures do not pose such a restriction (6a, b):

- (5) a. *kniga-ta mu*
 book_{DEF} his
- b. **kniga mu*
 book his
- c. *kniga-ta na Ivan*
 book_{DEF} of Ivan
- d. ? *kniga na Ivan*⁶
 book of Ivan

⁶ A reviewer suggest that some speakers accept (5d) as fully grammatical. However, the contrast in (i) is more visible. In Section 2 we suggest a solution to this problem:

(i) *Vidjax šapka(?ta) na Ivan*
 saw hat_(-DEF) of Ivan
 'I saw Ivan's hat.'

- (6) a. *neg-ova-ta /Ivan-ova-ta kniga*
 his_{GEN. DEF} /Ivan_{GEN. DEF} book
- b. *neg-ova /Ivan-ova kniga*
 his_{GEN} /Ivan_{GEN} book

The dative clitic can only appear in DP-second position. Compare (7a) to (7b, c). Note also that the crucial factor here is the syntactic position, not the (in)definiteness of the DP.

- (7) a. *xubava-ta mu kniga*
 good_{DEF} his book
- b. * *mu xubava(-ta) kniga*
 his good_{DEF} book
- c. * *xubava(-ta) kniga mu*
 good_{DEF} book his

The occurrence of two or more possessive structures in one DP is well attested across world languages. Bulgarian also shows multiple possessives but demonstrates yet another syntactic restriction on clitic possessives. Two occurrences of possessive clitics in the same DP are ruled out (8) but not two occurrences of the other three types of possessive structures (9):

- (8) * *kniga-ta mu j*
 book_{DEF} his her
 ‘his her book’
- (9) *Ivan-ova-ta Šekspir-ova kniga*
 Ivan_{GEN. DEF} Shakespeare_{GEN} book
 ‘Ivan’s book by Shakespeare’

Finally, possessive clitics but not genitival adjectives can be raised to verbal complement position. We take raising of the modifier past the definite article *-ta* to be evidence for raising out of DP.

- (10) *Vidjax [mu₁ [kniga-ta t₁]]*
 I-saw his_{DAT} book_{DEF}
 ‘I saw his book’

- (11) * Vidjax [neg-ova/Ivan-ova₁ [t₁ kniga₂-ta [t₁ t₂]]]
 I-saw his_{GEN} / Ivan_{GEN} book_{DEF}
 'I saw his/Ivan's book'
- (12) Vidjax [na Ivan₁ [kniga₂-ta [t₁ t₂]]]
 I-saw of Ivan book_{DEF}
 'I saw his/Ivan's book'

While in (10) we observe that the raising of the dative clitic above the definite-marked nominal (thus, outside the DP) is grammatical, in (11) we see that the same does not hold for the genival adjectives⁷.

1.2. Semantics: another side of the problem

As was noted above, the different possessive structures can coexist in the same DP. In such case each of them plays different θ -role. As (13) shows, it is also possible that the sole possessive structure in a DP can be interpreted as holding different semantic relations: <possessor>, <agent>, or <theme>.

- (13) a. portret-ât mu
 portrait_{DEF} his_{DAT}
 <poss> 'the portrait belonging to him'
 <agt> 'the portrait which he painted'
 <th> 'the portrait on which he was depicted'
- b. portret- ât na Ivan
 portrait_{DEF} of Ivan
 <poss>/<agt>/<th>
- c. Ivanovi-yat/negovi-yat portret
 Ivan's_{DEF} /his_{DEF} portrait
 <poss>/<agt>/<th>
 'Ivan's/his portrait'

⁷ For extended discussion on possessor raising in Bulgarian see Stateva (2002). Also, Dimitrova-Vulchanova and Giusti (1999a) argue briefly for the possibility that the PP possessives (as in (12)) can also raise to VP-internal positions under certain conditions.

If both <possessor> and <agent> θ -roles are available and there are no semantic or syntactic restrictions on which possessive structure can map which θ -role, then in DPs with two possessive structures we can observe the θ -roles being freely assigned to any of the possessives. This is the case in (14). However, (15) shows that the dative clitic has strong preference for the <possessor> role. Note that the element with the <agent> role can surface as an external (15a) or internal (15c) argument of the head noun⁸:

(14) a. *mojata kniga na Ivan*
 <poss> <agt>
 <agt> <poss>
 my_{DEF} book by/of Ivan

b. *Ivanovata moja kniga*
 <agt> <poss>
 <poss> <agt>
 Ivan's_{DEF} my book

(15) a. *Ivanovata mi kniga*
 <agt> <poss>
 by-Ivan_{DEF} my book

b. *na Ivan knigata mi*
 <agt> <poss>
 by-Ivan book_{DEG} my

c. *?knigata mi Ivanova*
 <poss> <agt>
 book_{DEF} my Ivan_{GEN}

The restriction on the thematic role the clitics can play also holds in DPs with three possessive structures (16). It is only when the clitic is the sole possessive that it can attract other θ -roles.

⁸ The questionable grammaticality of (15c) arises from the post-nominal position of the genitival adjective, not from the semantic interpretation of the structures (cf. (15a)).

- (16) Ivanovijat mu_i portret na Marija_k
 <agt> <poss> <theme>
 <theme> <poss> <agt>
 Ivan's_{DEF} his portrait of Maria

Clitic doubling provides the final piece of semantic evidence for the unique role the dative clitics play in Bulgarian possessive structures. Both the clitic and the doubled element refer to the same referent, so they should play the same θ -role. As we saw above, the other possessive structures do not pose restrictions on the semantics/syntax mapping. However, when any of them is doubled by a clitic, e.g., the element is co-indexed with the clitic, the only possible reading for the whole doubled element is that of <possessor> (17):

- (17) negovata_i mu_i kniga
 his.the his book
 <poss_i> <poss_i>
 * <agt_i> <agt_i>⁹

1.3. Possessive structures in Bulgarian: syntactic analysis

Based on both semantic and syntactic restrictions on the dative clitics but not on the other kinds of possessive structures, we can say that there are distinct syntactic positions for the different types of possessors. The dative clitics project their own functional projection Possessor Phrase (PossP), directly dominated by DP (18). Thus, we can tentatively call the clitics syntactic possessors. The rest of the possessive structures are inserted lower in the tree as modifiers (genitival adjectives) or right adjuncts (PP possessive structures) to the head noun (19)-(20). As the syntactic component does not pose strong restrictions on both types, we can tentatively call them semantic possessors.

⁹ The same example is much better with the reflexive possessive. However, the reflexive clitics do not behave semantically the same way as the dative ones: they disallow the <theme> role at all. We will leave the question open for future consideration.

- (18) [_{DP} xubava₁ [_D -ta [_{PossP} t₁ [_{Poss} mu [_{NP} t₁ [_{NP} kniga]]]]]]]]]
 good the his book
- (19) [_{DP} Ivanova₁/negova₁ [_D -ta [_{NP} t₁ [_{NP} kniga]]]]]
 Ivan _{GEN}/his the book
- (20) [_{DP} xubava₁ [_D -ta [_{NP} t₁ kniga na Ivan]]]
 good the book of Ivan

In (18) the DP (overtly realized by *-ta* ‘the’) selects for a PossP. The syntactic possessor *mu* ‘his’ is base-generated in head of PossP. In such a case the highest XP below Poss⁰ can move over the head of the functional projection to its specifier position and then further raise to [Spec, DP] to check off the [+def] feature of the determiner phrase. At Spell-out the bound definite morpheme undergoes PF affixation and is pronounced as a suffix to the constituent residing under [Spec, DP]¹⁰.

The genitival adjectives (19) are base-generated as APs in the [Spec, NP] node. In this case PossP is optional, depending on the semantic relation between the possessive structure and the head noun. From [Spec, NP] they raise (optionally to [Spec, PossP] and then) to [Spec, DP] to check off the [+def] feature there. The θ -roles are assigned by the head noun. The other semantic possessors – the PPs -- are base-generated as right adjuncts to the head noun as in (20). Here PossP is not projected at all.

As we will see in Section 2 the syntactic realization of the semantic relations between the head noun and the possessive structures depends on the type of the head noun. Section 1 explored DPs with a head noun of the representational type only as this is the only type that can express all three thematic relations. As we will see shortly, the complex event nouns do not project PossP at all. In such case DP selects a light nP which is responsible for assigning the <agent> θ -role to the external argument of the complex event nominal (cf. (21)).

¹⁰ The possessive clitic poses a problem to the current analysis when it has the <theme> θ -role. We leave the question open for further consideration.

- (21) [DP *dálgo*₁ [D -to [NP t₁ [_n mi [NP t₁ [NP *izpitvane*]]]]]]]
 long the my examination
 ‘the long examination which I gave’
- (22) [DP *golemi*₁ [D -yat [NP t₁ [_n mi [NP t₁ [NP *kamák*]]]]]]]
 big the my stone
 ‘my big stone’

Concrete nouns do not allow for any other relation but possession (cf. (21)). We further develop the distinction in Section 2.

2. Nominal typology and theta roles

2.1 Grimshaw (1990) and Davies and Dubinsky (2003)

It has long been noted that one set of nominals shares with verbs some fundamental distributional properties. Grimshaw (1990) points out that both nouns and verbs take complements in the range of CP complement, infinitival complement, or locative PP complement. On the other hand, while in English subjects are obligatory at sentential level, they are optional in the nominal domain. Also, transitive verbs ask for their non-subject complements while nouns derived from a transitive verb take non-subject complements only optionally.

For Grimshaw this optionality of nominal complements is only superficial. She presents extensive evidence to support the claim that nominals such as *examination* actually have two different syntactic structures: complex event nominals (CENs) have obligatory complements (23), while result nouns are mandatorily complementless (24):

(23) The *examination* of the patients took a long time.

(24) The *examination/exam* took a long time.

Grimshaw proposes a wide variety of tools to disambiguate between CENs and result nouns. The one she uses mostly is an agent-oriented modifier (such as *frequent*, *deliberate* or *constant*) which forces the event reading in ambiguous derived nouns (25).

- (25) a. *The frequent expression is desirable.
 b. The frequent expression of one's feelings is desirable.

A third group of nouns Grimshaw pays attention to are the simple event nominals such as *race*, *trip*, *exam*, and even *event*. Although simple event nouns denote events or processes in some ways at least, they behave as result nouns in their syntactic properties. They can take determiners other than *the*, they disallow agent-oriented modifiers like *frequent*, and, finally, they can pluralize.

Based on the outlined syntactic properties of the different nominals, Grimshaw proposes that there are differences in their argument structure. While all of them have related lexical conceptual structures (LCS), only CENs have an event structure and a syntactic argument structure like verbs. Davies and Dubinsky (2003) take and develop Grimshaw's proposal. They show that result nouns imply certain participants in their lexical conceptual structure. For example, the result noun *assignments* in (26) denotes a material entity (e.g., blue book) such that was created by X and given to Y, thus X and Y are participants in its LCS. On the other hand, there are (non-derived) nouns such as *dog* or *stone* which do not imply any participants. Those are the concrete nouns.

- (26) The assignments were long.

While Grimshaw focuses mainly on derived (from verbs) nominals, D&D look at a much broader range of nouns. In the group of result nouns, for example, they include nominals such as *victory* or *triumph* that do not have arguments (e.g., can never be modified by *frequent*) but still always have participants. The LCS of *victory* always implies that X wins over Y, yet the noun itself does not have overt arguments, just implied ones that are actually participants.

As there are nominals such as *examination* that can be ambiguous between the CEN and the result group, there are also nouns that are ambiguous between the concrete and the result group. They can never take arguments, as they are towards the lower end of the event-concrete continuum. However, they can sometimes take participants. Such a noun is *book*, which can either be the concrete object that you put on your bookshelf, or the more abstract entity that is the byproduct of somebody's creativity as in *My book about WWII*.

The latter D&D call the ‘informational’ reading of those ambiguous nouns. The emerging classification of the nominal types is represented in Table 1 (= D&D (29)):

Table 1: The nominal typology in D&D (2003)

I. <i>complex event nominals</i> (have argument participants)	II. <i>result nominals</i> (have non-argument participants)	III. <i>concrete nominals</i> (have no participants)
<i>examining examination</i> (process reading)	<i>victory examination</i> (result reading) <i>book</i> (informational reading)	<i>dog book</i> (physical reading)

2.2 θ -roles in Bulgarian possessive NPs and the nominal typology

θ -roles are assumed to be an instance of direct mapping of semantically meaningful relations (LCS) over syntactic positions. The relation is actually bidirectional as at sentential level we talk about θ -positions and functional positions, the former being the ones in which entities can be θ -marked.

Despite the extensive literature dealing with argument structure in the nominal domain, very little attention has been paid to the issue of θ -role assignment. Among the group of researchers that look at the event structure of the nouns, the opinions are split. On one hand, Williams (1981) accepts direct realization of each θ -role to a specified position. On the other hand, Grimshaw defends the idea that nouns, as compared to verbs, are impaired in that they cannot directly θ -mark their arguments. According to her, nouns can take arguments only through the mediation of a preposition, thus they can θ -mark only indirectly, through that preposition. However, earlier in the chapter she admits that CENs can have subjects. To her, *John* in (27a) has a different syntactic role than *John* in (27b). The former is a pure modifier of the head result noun, while the latter can either be a modifier or have a subject-like role in relation to the head CEN:

- (27) a. John's examination was long.
 b. John's examination of the patients took a long time.

Generally, there are two questions to be asked when we deal with syntactic mapping of semantic relations: (i) where do the θ -roles come from, and (ii) what assigns them, and when? In the nominal domain, the emerging answer to the first question is that θ -roles come from the LCS of the head noun. When the noun is a CEN, the verb from which it was derived still has its θ -roles and needs to assign them. With concrete nouns there is no embedded verb, so there are no θ -roles to be distributed. The intermediate case of result and representational nouns (in their informational sense) is more complicated. As we will see shortly, there are θ -relations in their LCS, but those θ -relations cannot be syntactically mapped to argument positions and remain purely semantic relations up until the level of conceptual-pragmatic structure.

To test the proposed distinction I will turn back to Bulgarian. As we saw in Section 1, all Bulgarian possessive structures can in principle play any of the three thematic roles: <possessor>, <agent>, or <theme>. Some (e.g., the dative clitic) have stronger preferences in structures with two or three possessives, but still all three θ -roles are available. The next question to ask is if there will be any differences in the availability of the three thematic roles relative to the nominal typology sketched in Section 2.1.

Consider first the ends of the nominal typology continuum in respect to the θ -roles in possessive NPs. In (28) we see a concrete nominal:

- (28) *negoviyat kamâk*
 <poss>/*<agent>/*<theme>
 'his stone'

Note that the only possible θ -role is that of a <possessor>; both <agent> and <theme> are disallowed. This behavior is expected if we subscribe to the theory of nominal typology outlined in Section 2.1. The pure non-derived nouns have only a physical reading. With no verb involved in the derivation or implied in the LCS, they lack the source for verbal θ -roles such as <agent> or <theme>. <Possessor>, however, is not a verbal semantic relation, nor is it an NP internal relation. The possessive θ -

Note also the thematic roles that the possessive phrases can play in those examples. As we subscribe to the nominal typology in Section 2.1, we should expect that the <possessor> θ -role will be unavailable in a possessive structure headed by a CEN. CENs, as it was shown, have verbal properties and true argument structure. The verbal properties imply that the <possessor> role will be unavailable, as an action (and thus an activity too) cannot have an owner. The argument structure will predict overtly expressed verbal θ -roles such as <agent> or <theme>¹¹. As we see in (30), the <possessor> θ -role is unavailable. The <theme> complement is obligatory with CENs so the genitival adjective cannot take the <theme> role either.

On the other hand, result nouns (31), according to Grimshaw, do not have argument structure. Thus, they should not project arguments in thematic positions and we should not see neither <agents> or <themes>. The situation is not so puzzling if we take in account D&D's proposal that result and representational nouns (in their informational reading) do not have true arguments but do have participants. To extend what D&D say, those participants still have some semantic θ -relations in their LCS, but as they are not arguments, they cannot map directly to the syntactic structure.

If we are on the right track positing that semantics-over-syntax mapping of θ -roles is different from semantics-only existence of θ -relations, then we should be able to find some syntactic distinction between the realizations of the former versus the latter. As semantics-over-syntax mapping implies transferal of a semantic θ -role to a particular syntactic position, any variability in the assignment of thematic roles to this position should be disallowed. On the same track, if θ -relations are purely semantic, they should not be tied to particular syntactic positions and we should see variation in the semantic interpretation. This is exactly what we observe when we compare (30) and (31). The CEN in (30) has a thematic argument which maps onto a particular syntactic argument. Thus, the <theme> can appear in complement position only and the <agent> in subject position only. Compare the grammaticality of (30) to the un-

¹¹ The availability of the <theme> θ -role depends on the transitivity of the base verb. If the base verb has internal arguments then the <theme> may be present; if it only has an external argument then that θ -role will be unavailable.

grammaticality of (32) and recall that nothing in principle prevents any of the types from playing any of the roles.

- (32) Ivanovoto mi izpitvane (stavaše često)
 **<theme>* <*agent*>
 Ivan's-the my examination (happened frequently)

With result nouns we see quite the opposite. The example in (33) is equally grammatical with the possessive being the <*agent*> or the <*theme*>. Similarly, in (33) where we see possessive structures with two possessors the thematic relations are interchangeable regardless of the syntactic position:

- (33) a. Ivanoviyat j izpit
 <*agent*> <*theme*>
 <*theme*> <*agent*>
 Ivan's-the her examination
- b. Ivanoviyat izpit na Mariya
 <*agent*> <*theme*>
 <*theme*> <*agent*>
 Ivan's-the examination of Maria

Note that this was not the case in (30) where the CEN had to assign the θ -roles to particular syntactic positions. We can conclude then that we have syntactic reasons for positing the θ -role/ θ -relation distinction: θ -roles are the thematic relations which are mapped to syntactic argument positions and θ -relations are the thematic relations which remain visible throughout the derivation up until the conceptual-pragmatic level but are not mapped to syntactic argument positions.

If we go back to the syntactic analysis of Bulgarian possessive DPs offered in Section 1.3, the following proposition emerges. When a morphologically possessive construction with a concrete or a result noun enters the Numeration no θ -roles are assigned NP-internally. The verbal thematic roles <*agent*> and <*theme*> remain at the conceptual-pragmatic level. Otherwise, when a CEN enters the Numeration with a possessive structure, the head noun assigns the verbal θ -roles NP-internally. In this case PossP cannot be enumerated. If the LCS suggests a possessive reading, a PossP is projected and it assigns the <*possessor*> θ -relation to the dative clitic generated in Poss0 or to the genitive adjective when it raises from [Spec, NP] to [Spec, PossP].

3. Conclusion

Data in the foregoing discussion have shown evidence for the existence of a functional projection between NP and DP, namely a Possessor Phrase. We saw both syntactic and semantic reasons to conclude that the possessive clitic is unique in the sense that it shows properties of a strong syntactic possessor under head of PossP. While the adjectival and PP possessors have a freer distribution, do not require a definite environment, and can serve as possessor, agent or theme within the DP, the dative clitic requires a definite environment, occurs in DP-second position only, plays only the possessor role in constructions with two or three occurrences of possessives, and can express agentivity only in structures where it is the single possessor.

On the other hand, in the discussion of the thematic role assignment in the nominal domain the tentative conclusion was bi-polar: complex event nominals have true syntactic arguments, thus the thematic relations they show can be mapped to syntax as θ -roles; result and concrete nouns do not have true syntactic arguments, but rather participants in their lexical semantic structure. Participants remain at the level of semantics and can never map to syntactic positions. The thematic relations which are visible at conceptual-pragmatic level are θ -relations rather than θ -roles.

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V(P)-Fronting and V-Raising in Bulgarian*

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1. Introduction

I discuss reordering patterns within complex predicates, a phenomenon associated with the left periphery in Bulgarian (BG), and its implications for head movement. In particular, I argue that the constructions under investigation involve predicate fronting for discourse reasons which is of two kinds — phrasal and sub-phrasal; henceforth, VP- and V-fronting respectively. The fact that BG has limited VP-fronting with modal predicates has not been discussed previously in the literature. The restrictions on the availability of phrasal predicate fronting are argued to be a consequence of V-raising. V-fronting receives two analyses, as either remnant phrasal movement or head movement. The latter will be shown to provide evidence that head movement cannot be a PF phenomenon as recently suggested (Chomsky 2000).

2. Predicate fronting in BG

Predicate fronting refers to some unexpected ordering of the main verb with respect to the auxiliary in periphrastic predicates. A case in point is the long head movement (LHM) construction in BG (1a). Note that the

* My interest in Part Aux orders dates back to my initiation in generative linguistics at Temple University. In addition to FASL 12, versions of this analysis were presented at HUMIT 2001, the Tilburg Workshop on Triggers 2002, and the First UConn/UMD/UMass/MIT Syntax Workshop, held on 8 February, 2003. Thanks to two anonymous reviewers of this volume and to my advisors, Željko Bošković and Howard Lasnik. The usual disclaimer applies.

normal word order is Aux Part (1b), and the reordering appears to be optional.

- (1) a. *Pročeli bjaxa* statijata.
 read AUX_{PT. 3PL} paper-the
 'They had READ the paper.'
 b. *Bjaxa pročeli* statijata.
 AUX_{PT. 3PL} read paper-the

The verbal form consists of an aspectual auxiliary (Aux) and the participle of a main verb (Part), and Part gets fronted to the left of Aux. The reordered predicate is perceived as 'marked' or non-neutral; note the accompanying translation.¹ I will show that there is no syntactic optionality, the word order change being discourse motivated and involving syntactic movement.

As noted in Embick and Izvorski 1995, there are restrictions on the word order permutations. First, Part Aux orders are associated with the left periphery. Traditional grammars note that Part Aux orders occur at the beginning of the clause and/or after a pause (2). The correct generalization is that they are found in both matrix and embedded contexts (3):

- (2) a. *Privâršili bjaxme* rabotata, kogato zavalja.
 finished AUX_{PT. 1PL} work-the when rain_{PT. 3SG}
 b. *Kogato zavalja, # privâršili bjaxme* rabotata.
 when rain_{PT. 3SG} finished AUX_{PT. 1PL} work-the
- (3) (Kazax, če) *privâršili bjaxme* rabotata.
 say_{PT. 1SG} that finished AUX_{PT. 1PL} work-the

Second, while the presence or absence of a lexical subject makes no difference to a normal Aux Part order (4a), it is not possible to have it precede a Part Aux sequence, a fact noted in traditional grammars. Neither can it intervene between Part and Aux, a possibility arising on the assumption that Part fronting is syntactic:

¹ In Lambova 2002, I claimed that the main verb is contrastively focused pointing out prosodic evidence; namely, the Part Aux order can be associated with the high fall tonal contour of contrastive focalization in BG. In fact, I came to realize that the main verb can be either focused or topicalized (cf. Embick and Izvorski 1995). Thus, (1a) has an alternative interpretation 'Read the paper, they had.'

- (4) a. (Studentite) *bjaxa pročeli* statijata.
 students-the AUX PT.3PL read paper-the
- b. (*Studentite) *pročeli* (*studentite) *bjaxa* statijata.
 students-the read AUX PT.3PL paper-the

What has not been noticed before is that a similar reordering arises with modal predicates, which consist of a modal Aux and the DA-infinitival (5), where the split by a subject is not prevented:

- (5) a. *Trjabva da pročetat* statijata.²
 AUX MOD.PRES DA read 3PL paper-the
 ‘They must read the paper.’
- b. *Da pročetat trjabva* statijata.
 DA read 3PL AUX MOD.PRES paper-the
- (6) a. (Studentite) *trjabva da pročetat* statijata.
 students-the AUX MOD.PRES DA read 3PL paper
- b. (*Studentite) *da pročetat* (studentite)
 students-the DA read 3PL students-the
trjabva statijata.
 AUX MOD.PRES paper-the

I will argue that predicate fronting results from either focalization or topicalization of the main verb (see fn.1), and more generally that encoding of information-theoretic matters, is syntactic. If this is so, effects at the interfaces in terms of semantic import and intonation are expected. The diverging restrictions on the subject position will be explained away as a consequence of sub-phrasal fronting (which can involve either remnant or head movement).

3. Part Aux Orders in BG

In this section I point out that there are two kinds of Part Aux orders (Lambova 2002, 2003), one neutral and one non-neutral. They differ in terms of motivation, but also syntactically, semantically, and

² BG doesn't have true infinitives and uses a reanalyzed subjunctive instead: DA-infinitival; traditionally, it is an agreeing tenseless verbal form.

prosodically.

3.1 The LHM hypothesis

Part fronting was first discussed in the Part Aux construction with the present clitic Aux in the absence of an overt subject:

- (7) a. *Pročeli sa statijata.*
 read AUX_{PRES. 3PL} paper-the
- b. * (Students) *sa pročeli statijata.*
 students-the AUX_{PRES. 3PL} read paper-the

The present Aux is a clitic which requires support on the left, and the standard analysis, due to Rivero (1991), is that Part undergoes movement to C⁰ across Aux to provide the clitic with a host:

- (8) [_{CP} *pročeli*_i [_{IP} *sa* [_{XP} *t*_i [_{VP} *statijata*]]]]

The operation was dubbed ‘Long head movement’ (LHM) because it violates the head movement constraint (HMC), which requires heads to move successive cyclically through every head position.³ Importantly, Rivero observes that BG disallows VP fronting (9). Given that, Part fronting cannot possibly result from remnant VP-fronting, similarly to German (10). From this she correctly concludes that the process involves head movement.

- (9) * [_{VP} *Pročeli statijata*] *sa.*
 read paper-the AUX_{PRES. 3PL}
 ‘Read the paper, the students have.’
- (10) a. [_t_i *Gestohlen*] *hat Fritz das Buch*_i.
 stolen has Fritz the book
- b. [_{VP} *Das Buch gestohlen*] *hat Fritz sicher.*
 the book stolen has Fritz certainly

As shown conclusively by Embick and Izvorski (1995), the LHM hypothesis is untenable. First, given that Part Aux orders occur in the

³ There are several versions of the analysis, the details of which are not immediately relevant. Most recently, Rivero (2000) has argued that the relevant process involves stylistic movement in PF exempted from HMC.

embedded context (3), it couldn't be that Part moves to C^0 , which is filled by the complementizer. Second, the complementizer provides enough support for the clitic present Aux in the absence of a lexical subject (11a). Hence, the reordering in (11b) could not be motivated by the need for a host; it is thus parallel to (1), where the motivation for LHM as a host providing operation is mis-sing, since the past Aux is not a clitic

- (11) a. Kazax, če *sme* *privâršili* ...
 say PT.1SG that AUX PRES.1PL finished
 b. Kazax, če *privâršili* *bjaxme* ...
 say PT.1SG that finished AUX PT.1PL

3.2 Two kinds of part aux orders

In Lambova 2002, I argued that there are two kinds of Part Aux orders, and these are not contextually restricted. One is motivated by the phonological deficiency of the clitic Aux and is normally perceived as neutral; the other is usually perceived as non-neutral and is considered appropriate in certain discourse contexts only. In particular, I treated the reordering with the present Aux in the matrix context (7a) as ambiguous between a neutral and non-neutral reading, which is obscured by the phonological properties of the clitic Aux. There is evidence for two orders which differ syntactically: a sentential adverb can follow the Part Aux complex only on the non-neutral reading (12a). Note that the sentential adverb normally precedes the (complex) predicate:

- (12) a. *Pročeli sa* (nesâmneno) statijata.
 read AUX PRES.3PL undoubtedly paper-the
 'They have undoubtedly READ/*read the paper.'
 b. (Te) nesâmneno *sa* *pročeli* ...
 they undoubtedly AUX PRES.3PL read

Thus even in the absence of an overt subject the adverb provides sufficient support for the clitic Aux; hence, there is no need for reordering; the restriction in (12a) follows. Assuming that sentential adverbs are TP adjoined (cf. Watanabe 1993), I take the available reading in (12) to entail that only the non-neutral case involves syntactic

movement beyond TP.⁴ Returning to the apparent optionality of the reordering in (1) and (11b), which is undesirable on Minimalist assumptions, it cannot be syntactic optionality since these Part Aux orders have semantic import which I attribute to the presence of a relevant feature.

In what follows I will put aside the neutral Part Aux order.⁵

4. The Non-Neutral Part Aux Order

In this section, I argue that the non-neutral Part Aux order involves syntactic fronting of the verbal complex as a whole, but the reordering arises in PF as a result of interaction with prosody.

The fact that a lexical subject cannot intervene between Part and Aux is the strongest argument against the LHM hypothesis. Embick and Izvorski (1995) are certainly right to conclude that Part cannot move alone:

- (14) a. *Pročeli* (*studentite) *sa/bjaxa* *statijata*.
 read students-the AUX PRES./PT. 3PL paper-the
 b.* [C' pročeli_i [_{IP} subject [_{I'} sa/bjaxa [_{VP} t_i statijata]]]]

However, this restriction on the overt subject does not provide an argument against the fronting of the complex predicate as a whole. It is crucial that sentential adverbs normally precede the predicate (12b) but surface below the reordered predicate (12a). If Watanabe (1993) is right that such adverbs are TP adjoined, then in (12b) the verb is below Agr_SP, where the subject is. The reordered predicate is much higher, from which we expect the subject to be able to follow the Part Aux sequence. This is indeed so, see Wilder and Ćavar 1994:

- (15) *Pročeli* *sa/bjaxa* (studentite) *statijata*.
 read AUX PRES./PT. 3PL students-the paper-the

Yet, their suggestion that Aux is in C⁰ and Part adjoins is not convincing

⁴ In this respect, recall that an overt subject cannot precede the non-neutral Part Aux order (4b) and that such orders are possible in the embedded context; hence the fronted predicate must be higher than T⁰ but lower than C⁰.

⁵ Given Bošković's (2001) book-long argument against PF movement, the phonologically motivated neutral Part Aux order arises through activation of lower copies of movement (see Lambova 2002, 2003, for details).

for two reasons. First, recall that an embedded C^0 is filled. Second, they assume that the subject in (15) has moved out of its base generated VP-internal position. This predicts incorrectly that a sentential adverb should surface below the subject:

- (16) a. *Pročeli sa/bjaxa (nesâmneno)*
 read AUX PRES./PT. 3PL undoubtedly
 studentite (**nesâmneno*) statijata.
 students-the undoubtedly paper-the
- b. Part Aux [_{AGR} studentite [_{TP} nesâmneno [_{TP} sa/bjaxa pročeli [_{VP} studentite sa/bjaxa pročeli statijata]]]]]

Thus the question is where the reordered predicate is exactly?

4.1 Part Aux I: adjunction plus raising

Following Bošković 1997 (for Serbian/Croatian), I assume that Part in BG adjoins obligatorily to Aux, and the complex verb moves further up (17)⁶. The reason is that nothing can split Aux and Part, which would be surprising if the two were in separate projections:

- (17) [_{TP} bjaxa+ pročeli [_{VP} bjaxa+ pročeli [_{VP} pročeli statijata]]]
- (18) a. Studentite bjaxa (**vnimatelno*) pročeli
 students-the AUX PT. 3PL carefully read
vnimatelno statijata.
 carefully paper-the
- b. Studentite opredeleno *bjaxa* (**opredeleno*)
 students-the definitely AUX PT. 3PL definitely
pročeli statijata.
 read paper-the

Assuming, as is standard, that manner adverbs are VP-adjoined, (18a) shows that Part moves obligatorily out of VP. On the other hand, (18b)

⁶ For Bošković, the driving force is a strong [+Aux] feature (cf. Wilder and Čavar 1994). In BG at least, it may be a strong [+tense] feature on Part. The L-Part is morphologically specified for tense: $V_{STEM} + L_{ACTIVE/PAST} + AGR$; compare to the passive N-Part: $V_{STEM} + N_{PASSIVE} + AGR$. Crucially, the L-Part is the only non-finite verbal form that undergoes raising (see Lambova 2003).

suggests that Aux+Part move together, presumably to T⁰, if sentential adverbs are TP-adjoined. Note, in this respect, that Aux in Serbian/Croatian obviously moves on alone:

- (19) Jovan je nesumnjivo istukao Petra.
 Jovan_{NOM} AUX_{PRES. 3SG} undoubtedly beaten Petar_{ACC}

4.2 Part Aux II: fronting to DP

If Part is pulled out of the lexicon with a strong discourse feature, either [+Top] or [+Foc], the whole verbal complex will move out of TP to check it. Recall that Part cannot move alone, otherwise a subject should be able to follow it, contrary to fact (14a).

In BG, topics and contrastively focused phrases move to the left periphery:

- (20) a. Statijata sa/bjaxa pročeli.⁷
 paper-the (top) AUX_{PRES./PT. 3PL} read
 'The paper, they have/had read.'
 b. STATIJATA sa/bjaxa pročeli.
 paper-the (foc) AUX_{PRES./PT. 3PL} read
 'They have/had read the PAPER.'

In Lambova 2003, I have argued that they are licensed in the same discourse-related projection DP, a complement of C.⁸ Assuming that heads undergo parallel fronting for discourse reasons, the verbal complex Aux+Part ends up in D⁰. In the absence of such a feature, fronting will not occur.

4.3 Part Aux III: motivating 'scattered deletion'

Although syntactically Aux precedes Part,⁹ I suggest that Aux surfaces following Part, as I show in (21).¹⁰ Specifically, Part is pronounced in D⁰

⁷ Topics are underlined, FOCUSED elements appear in small capitals.

⁸ The argument is based on the interaction of topicalization with multiple wh-fronting. In fact, topics and fronted focused phrases can co-occur displaying a rigid surface order, which I account for there.

⁹ The reason is that Aux normally precedes Part (12b). I assume that the direction of adjunction in BG is to the right, contra Kayne (1994) but following Chomsky (1995), who leaves room for rightward adjunction for heads. See Lambova (2003) on rightward adjunction as a parametric option.

and Aux in T^0 via a mapping procedure ‘scattered deletion’ (cf. Bošković 2001). I assume that head adjunction maps onto a single prosodic constituent, labelled ‘ ω ’ for ease of exposition:

- (21) a. [_{DP} *bjaxa*+ *pročeli* [_{TP} *bjaxa*+ *pročeli* [_{VP} *bjaxa*+ *pročeli* [_{VP} *pročeli* *statijata*]]]]¹¹ =>
 b. [~~*bjaxa*~~ *pročeli* [~~*bjaxa*~~ *pročeli*] ω] .

The assumption is standard for affixation, as Howard Lasnik (p.c.) reminds me. I now propose to extend it to adjunction structures in general. This has the effect of Aux+Part and Part+Aux being possible mappings from syntax onto PF. However, only the Part+Aux sequence meets the additional requirement on topics/fronted foci in BG that they be at the left edge of their phonological phrase ϕ .¹²

When an XP gets displaced,¹³ it lands in SpecDP. On the assumption that a top-down hierarchy translates as a left-to-right order in mapping a right-branching tree, the fronted element is linearized as the leftmost element in its prosodic constituent. For fronted heads, this is less obvious because of the reordering:¹⁴

¹⁰ It has been known since Chomsky and Halle 1968 that syntactic and prosodic boundaries do not have to coincide.

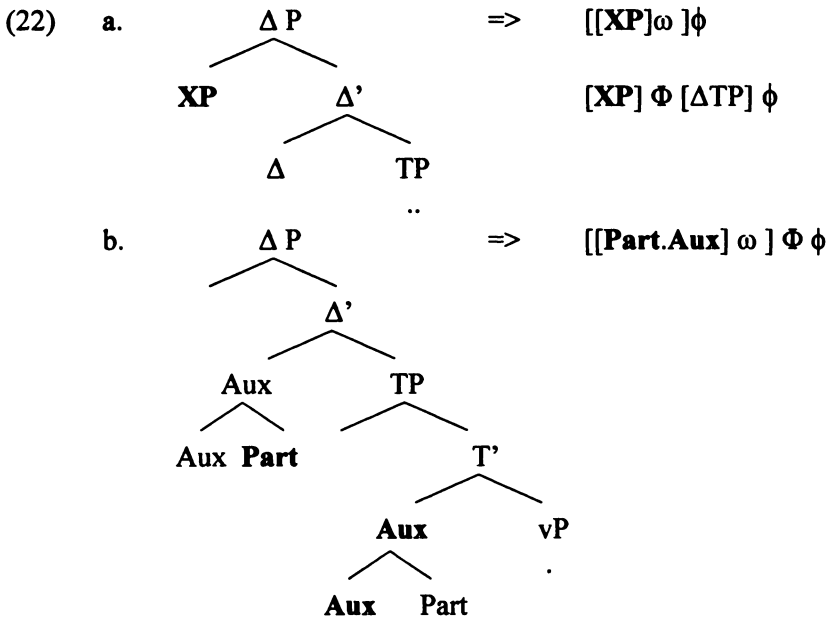
¹¹ For ease of exposition, I omit Agr projections where not crucial (cf. Chomsky 2000 on impoverished clausal structure without Agr projections).

¹² This suggestion needs further (especially experimental) research but seems plausible as a language specific property in a tune text model of prosody (cf. Pierrehumbert 1980).

¹³ Focus fronting in BG is obligatory:

(i) **Te sa/bjaxa pročeli STATIJATA.*
 they AUX PRES./PT. 3PL read paper-the (foc)

¹⁴ I abstract here from the case of co-occurring topics and foci. It is not a problem since a topic and a focused element map on their own phonological phrases.



At the left edge, the element in question is presumably aligned with the pitch accent or phrasal tone, responsible for word and/or phrasal stress. There is further language specific interaction of pitch accents with boundary tones delimiting prosodic constituents, which in BG concerns alignment of the phrasal tone with the initial boundary tone (i.e., the left clausal edge). Thus, I suggest that the reordering is prosodically motivated.¹⁵ In some sense, ‘scattered deletion’ seems to be in essence a PF ‘filtering’ effect similar, and probably parallel, to the activation of lower copies of movement (Franks 1998, Bošković 2001) that awaits further research.

Significantly, the procedure underlies both the topicalization and the contrastive focalization of the main verb in a complex predicate. The difference is in semantic import and prosodic characteristics. A topic in BG correlates with a fall-rise-fall tonal contour while a contrastively

¹⁵ In Lambova (in press), I attempted to explain the reordering as an interaction of contrastive stress assignment and intonation in cross-linguistic perspective somewhat prematurely in the absence of experimental work on BG intonational phrasing.

focused element correlates with a high fall. I thus endorse a division of labor between syntax, on the one hand, and semantics/phonology on the other to uphold the standard view of discourse as being encoded in syntax but interpreted at the interfaces.

A note on cross-linguistic variation is in order. Focus-in-situ languages like English allow ‘stress shift’,¹⁶ i.e., a contrastively focused phrase remains in place, and the pitch accent is aligned with the left edge of its prosodic constituent. As a result, in these languages there can be multiple contrastive foci per clause since pitch accents have to align only with the respective prosodic constituents.

To the extent that this analysis is correct, it sheds some light on the, well-known but ill understood, fact that focus fronting languages disallow in principle multiple contrastive clause-mate foci (see Kiss 1995). Being one such language, BG requires additional alignment of the pitch accent(s) with the left edge of the intonational phrase; hence a single pitch accent.¹⁷ This, in turn, implies that it is not possible to focus both Aux and Part; nor is shifting the accent to Aux, hence the re-ordering:

- (23) a. **BJAXA* *PROCELI* statijata.
 AUX_{PT. 3PL} (foc) read (foc) paper-the
- b. **BJAXA* pročeli statijata.
 AUX_{PT. 3PL} (foc) read paper-the
 ‘They had READ the paper.’

¹⁶ Compare the two focalization strategies:

- (i) *ZA MARIA*_i kupi Ivan cvetja t_i.
 for Maria (foc) buy_{PT. 3SG} Ivan flowers
 cf. John bought flowers for *MARY*.
- (ii) *CVETJA*_i kupi Ivan t_i za Maria.
 flowers (foc) buy_{PT. 3SG} Ivan za Maria
 cf. John bought *FLOWERS* for Mary.

¹⁷ Compare; the full paradigm for BG includes different orders of the fronted phrases as well as leaving one in situ, but I leave it out for reasons of space.

- (i) *JOHN* bought *FLOWERS* for Mary.
- (ii) **IVAN* *CVETJA* kupi za Maria.
 Ivan (foc) flowers (foc) buy_{PT. 3SG} for Maria

4.4 More on 'scattered deletion'

From the perspective of syntax, 'scattered deletion' (whereby Part and Aux are pronounced as parts of different syntactic constituents) can explain the most puzzling property of the Part Aux construction, namely the restriction on the lexical subject:

- (24) [_{DP} **bjaxa**+ pročeli [_{TP} *subject* [_{T'} **bjaxa**+**pročeli**]] =>
 [pročeli.(* []_ω . **bjaxa**]_ω

This is so since the prosodic constituent of the subject, which I show in outline font, cannot intervene into the prosodic constituent of the verbal complex. The correct generalization is not that the subject must be null in that construction but that it cannot be realized in its canonical SpecTP position.

It follows immediately that a lexical subject should be able to surface below the verbal complex, i.e., in its base generated VP internal position (15). This is yet another instance of activation of lower copies of movement.¹⁸

Returning to 'scattered deletion', at issue is what makes it possible. It is not a free option in the grammar but applies as a last resort. Nunes (1995) shows that 'scattered deletion' is dispreferred as less economical (two versus one deletions):

¹⁸ As argued by Franks (1998), while it is heads of non-trivial chains that are normally pronounced a lower copy of movement may be activated instead to avoid a PF violation. Bošković (2001) provides robust evidence for the pronounce-a-copy hypothesis concluding that there is no need for PF movement since PF can affect word order but without actual movement.

- (25) a. * [The ~~students~~] were arrested [the students].
 b. [The students] were arrested [~~the students~~].

Bošković (2001) introduces the procedure to account for Slavic clitic clusters which may be ‘reordered’ in PF by pronouncing part in one position and part in another in order to satisfy their phonological requirements. In all cases, he has adjacent copies of clitic clusters but he does not impose adjacency as an explicit condition. I suggest that the condition is crucial, given (25). Finally, the effect should not be restricted to heads. Indeed, reordering is observable with XP-fronting as well. It is possible to either contrastively focus or topicalize the modifier of a noun (26).¹⁹

When such an element, e.g., an indefinite adjective, cannot be focused or topicalized independently, it is possible for the modified noun to surface first:

- (26) a. VISOKA žena go vze.
 tall (foc) woman it_{CL} take_{PT. 3SG}
 ‘A TALL woman took it.’
 b. Visoka žena go vze.
 tall (top) woman it_{CL} take_{PT. 3SG}
 ‘A tall woman took it.’
- (27) a. *NJAKAKVA/njakakva žena go vze.
 some (foc/top) woman it_{CL} take_{PT. 3SG}
 b. ŽENA /žena njakakva go vze.
 woman (foc/top) some it_{CL} take_{PT. 3SG}

I suggest that ‘scattered deletion’ applies to make the fronted noun leftmost in its phonological phrase. Not only is the procedure generally available in the grammar, but the phrasal case shows that ‘scattered deletion’ is not restricted to adjunction structures; what matters is the prosodic constraints.

¹⁹ BG modifiers are typically prenominal.

5. VP-fronting, V-raising and adjunction

Recall that VP-fronting is disallowed (9). This fact, which Rivero (1991) left unexplained, is a consequence of the present analysis. If Part moves out of VP, it follows that there is no constituent containing Part but not Aux which fronting could target.²⁰

If the unacceptability of (9) is due to the raising of Part, we are dealing with a restriction, not with an absolute ban. In particular, VP-fronting should be allowed in the absence of V-raising.²¹ Indeed, VP-fronting is possible in the modal construction (28).²² An immediate question arises: does DA-infinitival remain in VP?

- (28) [_{VP} *Da pročetat statijata*] (studentite) *trjabva*.
 DA read _{3PL} paper-the students-the AUX _{MOD. PRES}
 ‘Read/READ the paper, the students must.’

According to standard adverb tests, it doesn’t have to leave the VP, whose left edge is marked by a manner adverb:

- (29) Studentite *trjabva* *vnimatelno*
 students-the AUX _{MOD. PRES} carefully
 [da pročetat statijata].
 DA read _{3PL} paper-the

I conclude that the DA-infinitival is not subject to raising, as expected.²³ Thus the availability of VP-fronting has nothing to do with the type of

²⁰ Somewhat surprisingly, (i) with a simplex verb (subject to V-raising) is good. Thanks to an anonymous reviewer for bringing this fact to my attention. On the assumed analysis, the example cannot be grammatical; however, there is an alternative derivation. What appears to be VP-fronting, is actually V-fronting for discourse reasons plus object scrambling.

(i) [*Pročetoxa*] [statijata] studentite.
 read _{PT. 3PL} paper-the students-the

²¹ A related prediction concerns the availability of VP-ellipsis as contingent on V-raising. I leave this for further research.

²² This fact was first discussed in Lambova 2003; but see Suñer (1994) for a similar remark about Spanish.

²³ The DA-infinitival does not have to always follow such an adverb, e.g., when it is scrambled or undergoes fronting for discourse reasons (see below).

auxiliary, modal versus aspectual.²⁴ Rather, it is the property of the non-finite verb, namely whether it raises or not.

A note on terminology is in order. V-raising standardly refers to raising of finite verbs. While keeping the term, I suggest that a distinction is made between *finite* and *non-finite* V-raising. The former concerns the raising of the first verb in a multi-verb complex, as in *has been read*; the latter, Part raising in BG. Presumably, finite V-raising is driven by a strong [+tense] feature on the target while non-finite V-raising is triggered by a strong feature on the moved element.

Earlier I suggested that Part raising in BG is due to its strong [+tense] feature (see fn. 6). That seems to be correct in view of the fact that the DA-infinitival shows explicit agreement but picks up its tense from the modal; hence, no raising.²⁵ Positing a weak/lack of [+Aux] feature seems *ad hoc*.

In turn, adjunction of Part to Aux may simply be a consequence of HMC: the complex verb results from successive cyclic adjunction of the moving verb into every head on the way to its landing site.

6. Predicate fronting: remnant or head movement

Returning to the case in (5b), given the limited availability of VP-fronting with the modal construction, a remnant movement analysis cannot be excluded, notwithstanding the details:

²⁴ As an anonymous reviewer points out, the type of modal may matter. Root modals agree with the DA-infinitival (i) while epistemic ones, as in (29) and (ii), do not. The latter allow overt subjects of the DA-infinitival (ii); therefore, whenever the subject precedes a modal, as in (29), it is always dislocated.

- (i) Studentite mogat vnimatelno [da pročetat .
students-the AUX MOD. PRES. 3PL carefully DA read 3PL
- (ii) Može/trjabva studentite (*vnimatelno) [da pročetat .
AUX MOD. PRES students-the carefully DA read 3PL

Crucially, a manner adverb cannot precede the DA-infinitival in (ii) but not because the verb moves out of VP; rather, there is no space between the subject in SpecvP and DA in v°. In (29), the adverb is presumably scrambled. Still, the point that the DA-infinitival remains in VP remains valid.

²⁵ I assume that DA spells out little 'v' which takes VP as a complement. Being an agreeing form makes the DA-infinitival finite unless I assume with Chomsky (2000) that agreement does not involve movement.

- (30) a. [_{VP} Da pročetat statijata] trjabva.
 DA read_{3PL} paper-the AUX_{MOD.PRES}
- b. [Da pročetat t_i] trjabva statijata_i.
 DA read_{3PL} AUX_{MOD.PRES} paper-the

The question is whether (5b) can involve head movement as well.

6.1 *V(P)-Fronting as remnant movement*

Remnant VP-movement is contingent not only on the availability of full VP-fronting but also on the displacement of the object prior to the operation. I claim that BG objects can scramble out of VP:

- (31) Studentite trjabva [_{TP} statijata] [_{VP} da pročetat t_i].
 students-the AUX_{MOD.PRES} paper-the DA read_{3PL}

I will tentatively label the process in question ‘object shift’ leaving open the position to which the object moves and the motivation for that movement.²⁶ The operation is apparently optional since the object does not have to be displaced; when it occurs, remnant V(P)-fronting becomes possible.

I suggest that syntactic optionality is not involved in ‘object shift’. What underlies object displacement is feature driven movement. In other words, the object is drawn with a feature X from the lexicon; it must be strong since the displacement is overt. Furthermore, given that ‘object shift’ must precede topicalization, standardly a syntactic operation, it must be syntactic too.²⁷ A related question is what constituent exactly is being fronted.

- (32) [Da pročetat t_i za utre] trjabva statijata_i.
 DA read_{3PL} for tomorrow AUX_{MOD.PRES} paper-the

Note that the fronted verb can be accompanied by an adverb. With DA in little ‘v’, fronting could possibly affect either the whole vP [_{vP} DA [_{VP} [_{VP} pročetat t_i] za utre]]] or separately vP [_{vP} DA [_{VP} pročetat t_i]] and

²⁶ The object is ‘destressed’, and the landing site is between TP and vP (for a similar phenomenon in Hindi, see Jayaseelan 2001).

²⁷ See Arnaudova (2001), who claims that this kind of object displacement involves *p*-movement in the sense of Zubizarreta (1998).

the adverb [_{AdvP} za utre]. At least the possibilities cannot be ruled out. But it is difficult to distinguish between them since the result is the same.²⁸

6.2 The syntax and interpretation of V(P)-fronting

Semantically, a fronted V(P) is interpreted as either a topic or a contrastively focused phrase, similarly to German. Accordingly, they are prosodically realized on a fall-rise-fall contour for topics and a high fall contour for focused phrases.

- (33) a. [Da pročetat statijata] trjabva.
 DA read_{3PL} paper-the (top) AUX_{MOD. PRES}
- b. [Da pročetat t_i] trjabva statijata_i.
 DA read_{3PL} (top) AUX_{MOD. PRES} paper-the
 ‘Read the paper, they must.’
- (34) a. [DA PROČETAT statijata] trjabva.
 DA read_{3PL} paper-the (foc) AUX_{MOD. PRES}
- b. [DA PROČETAT t_i] trjabva statijata_i.
 DA read_{3PL} (foc) AUX_{MOD. PRES} paper-the
 ‘READ the paper, they must.’

Note the following contrast: topics and fronted foci diverge with respect to the requirement for subject auxiliary inversion.

- (35) a. Statijata studentite trjabva
 paper-the (top) students-the AUX_{MOD. PRES}
 (?? *studentite*) da pročetat.
 students-the DA read_{3PL}
 ‘The paper, the students must read.’

²⁸ This is so because BG allows multiple topics which show Superiority effects (see Lambova 2003 for details).

- b. STATIJATA (??*studentite*) trjabva
 paper-the (foc) students-the AUX.MOD. PRES
 studentite da pročetat.
 students-the DA read_{3PL}
 ‘The students must read the PAPER.’

As previously argued in Izvorski 1995, (35b) is not an instance of I-to-C movement. Based on adverb placement tests, the verb is shown to be much lower in the tree. I suggest that it remains in T⁰. The correct generalization, then, is that in BG a contrastively focused phrase must be in preverbal position.

In Lambova 2003, I have argued that the adjacency between the verb and the fronted foci obtains in PF as a result of a morphological requirement on the fronted XP: it carries a null focal marker, which happens to be a phrasal affix.²⁹

- (36) [DP [*STATIJATA*]+ \emptyset [+Foc] [TP studentite trjabva [vP studentite
 _____]
 [v' DA [VP studentite pročetat statijata]]]]

An overt subject will create an intervention effect, if realized in its canonical SpecTP position, but nothing prevents it from surfacing below. This is possible on pronounce-a-copy hypothesis. There is no topic marker in BG.

6.3 *V-Fronting and the non-neutral part aux order*

Given remnant fronting, I can now explain why a lexical subject may surface within the reordered modal predicate (6b). The subject is allowed to split the fronted DA-infinitival and the modal on the topicalized reading but not on the focus reading:

- (37) a. [DP [DA pročetat] [TP (*studentite*) trjabva [_{TP} statijata
 [_{VP} ~~studentite~~ DA pročetat statijata-]]]]]

²⁹ The argument is based on a parallel with the overt focalizer *li* (see Lambova 2003 for details).

- b. [DP [DA PROČETAT]_{+∅} [+FOC] [TP studentite trjabva
 [7P statijata [VP (studentite) DA pročetat statijata-]]]]

This is in contrast to the non-neutral Part Aux orders, which involve scattered deletion, where the subject surfacing in SpecTP would have to split the prosodic constituent of the fronted complex verb.

That said, I will look into an alternative derivation for V-fronting in the modal construction. Recall that V(P)-fronting is excluded for the Part Aux construction because VP-fronting is not available. At issue is whether head movement can underlie for V-fronting in the modal construction, given that the DA-infinitival does not have to raise out of VP.

First, note that it is possible for the DA-infinitival to precede a VP-adjoined adverb; compare to (29):³⁰

- (38) Studentite trjabva [da pročetat];
 students-the AUX.MOD.PRES DA read 3PL
vnimatelno [t_i statijata].
 carefully paper-the

I suggest that here the DA-infinitival is scrambled, similarly to the object in (31). Then the structure is as in (39). Note that multiple elements can scramble.³¹

- (39) Studentite trjabva [7P [DA pročetat t_i] vnimatelno]]
 [VP studentite DA [VP [VP pročetat statijata_i] vnimatelno]].

However, I seem to allow movement of a non-constituent, shown in italics. Assuming HMC, the problem goes away: the verb scrambles moving successive cyclically through every head.³²

³⁰ In both (29) and (38) *vnimatelno* 'carefully' appears before DA, i.e., to the left of vP. I suggest that the adverb is itself scrambled since I posit more structure between vP and TP. Recall from the structures for (32) that I assume manner adverbs are right-adjoined to the main verb VP.

³¹ Compare Jayaseelan 2001.

³² I assume that the modal is base-generated in 7P.

- (40) a. [_{VP} [_{VP} *pročetat* *statijata*_i] .]
 b. [_{VP} . *DA+pročetat* [_{VP} [_{VP} *pročetat* *statijata*_i] .]]
 c. [_{7P} *trjabva+DA+ DA pročetat* .]

Suppose the verb is pulled out of the lexicon with a strong [+Top] or [+Foc] feature. In this construction, ordinarily the verb will not leave its VP but now it must check its discourse feature against D. Moving successive cyclically through every head, at the final landing site the verb complex will look like:

- (41) [D+[T+[trjabva+[DA+[pročetat]]]]]

Reordering will proceed as in the case of Part Aux complex. Accordingly, I extend the 'scattered deletion' analysis:

- (42) [_{DP} *trjabva+DA+pročetat* [_{TP} SUBJECT *trjabva+DA+pročetat*
 [_{VP} *studentite DA+pročetat* [_{VP} *studentite pročetat statijata*]]]]

Significantly, I assume the neither Part nor the DA-infinitival can move alone to D⁰, contra Roberts (1991) who allows for the incorporee to excorporate. I leave the question of why it is so open. By way of summary, V-fronting in the modal construction can arise either by remnant movement or via head movement. Only in the former case, it would be possible for a lexical subject to intervene within the reordered fronted predicate and only on one reading, the topicalized one.³³

7. V-raising and head movement

The fact that V-fronting can arise in two different ways allows us to compare the properties of XP and head movement, and resolve some recent controversy regarding the latter.

Within the Principles and Parameters framework head movement is standardly considered to be syntactic, on a par with phrasal movement. The idea that it is best viewed as a PF phenomenon is more recent and hardly more than a speculative suggestion relegated to footnotes

³³ As Gereon Müller (p. c.) alerts me, in the German tradition of remnant movement, VP-fronting is a single operation which moves the verb to SpecCP where it is interpreted as either a topic or a focus. The BG facts point in the same direction. However, interpretation is not free: I attribute the different readings to the presence of a relevant discourse-related feature, and motivate fronting as a feature-driven syntactic movement.

(Chomsky 2000). One reason in favor of that is that head adjunction is an exception to the Extension Condition (Chomsky 1993) which requires every operation to expand the tree.

However, Bošković and Lasnik (1999) argue that this condition should be eliminated from the grammar since its empirically important effects are captured by the strength-based notion of the cycle (Chomsky 1995). They show that late insertion, which is possible in certain well defined contexts, is correctly let in only on the strength-based definition(s). If the Extension Condition is redundant, head movement does not need to be treated as special in this respect.

Of more interest is Chomsky's reasoning that, unlike phrasal movement, head movement does not have semantic import (as cited in Boeckx and Stjepanović 2001). I have shown that head movement can and, in fact, does have a semantic effect. As I have argued here, heads in BG undergo fronting, which is either topicalization or overt focalization, and the interpretation of the fronted heads clearly reflect the semantic import of the operations. In this respect, head movement is no different from XP movement. I conclude that it belongs to syntax proper, as standardly assumed.

One difference between head and phrasal movement concerns locality. Head movement is much local than phrasal movement. To the extent the present analysis is correct, the head movement derivation of V-fronting in the modal construction demonstrated that. That, too, is standardly assumed. But the BG evidence is important since only in focus fronting languages heads undergo overt A-bar movement, and crucially this is strictly local.

8. Conclusion

In conclusion, I presented new data on the limited availability of V(P)-fronting and correlated these facts with V-raising. Remnant movement was shown to correlate with object shift in BG.

I argued that VP-fronting in BG is discourse motivated, and appealed to syntactic, semantic and prosodic evidence to show that it is actually topicalization or focus fronting. V-fronting may involve head movement, but I rejected the LHM hypothesis. Comparing the properties of the reordered modal predicate resulting from (remnant) XP movement

and head movement, I concluded that head movement is syntactic and more local than phrasal movement.

On a number of occasions, I have appealed to Franks' (1998) and Bosković's (2001) pronounce-a-copy hypothesis providing new evidence against PF movement.

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A Reanalysis of the FEEL-LIKE Dative-Reflexive Construction in Slovenian*

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1. Introduction

This paper proposes a biclausal analysis of the Slovenian construction exemplified in (1).¹

- (1) Janezu se hribolazi.
Janez_{DAT} REFL mountain-climb_{3SG.NEU}
'Janez feels like mountain-climbing.'

The interesting aspect of the construction is that its meaning corresponds to a gloss with two verbal forms, i.e., *feel like* and *mountain-climb*, while its surface form only exhibits one verbal form, i.e., *mountain-climb*. The construction has been treated under labels such as the feel-like construction (Dimitrova-Vulchanova 1999), dispositional reflexive construction (Franks 1995), Dative Existential Disclosure construction (Rivero and Milojević Sheppard [R&MS] 2003). We will call it the FEEL-LIKE construction.

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¹ Many of the examples come from colloquial rather than standard Slovenian. Neutral intonation is assumed on examples throughout the paper.

R&MS (2003) also discuss a semantically different but syntactically superficially similar Polish construction, (2).

- (2) Jankowi czytało się tę książkę z przyjemnością
 Janek_{DAT} read_{3SG.NEU} REFL this book_{ACC} with pleasure
 'Janek read this book with pleasure.'

R&MS assign (2) and the Slovenian FEEL-LIKE construction the same syntax. The difference in meaning, on their account, stems only from a different semantic operation at LF. We will argue against a syntactic unification of the two constructions.

In Section 2, we show that the FEEL-LIKE construction creates an intensional context, and — in the sententialist spirit — suggest a biclausal structure. In Section 3, we complement this semantic evidence with syntactic evidence such as non-agreeing adverbials (3.1), apparent violations of adverbial hierarchy (3.2), and double depictives (3.3). In Section 4, we develop our proposal and argue that the FEEL-LIKE construction has a biclausal syntax with two verbs, a covert matrix verb FEEL-LIKE and an overt embedded verb.²

2. Intensional semantics

Intensional contexts are standardly attributed three distinguishing characteristics (e.g. Larson 2002). One, substitution of co-referring terms in clausal complements need not preserve truth, so that the truth of (3a)

² The FEEL-LIKE reading is available in Slovenian in two distinct dative-reflexive constructions, which R&MS (2003) label the impersonal dative disclosure construction, as in (i) (and (1) above), and the passive dative disclosure construction, (ii). While the former contains an accusative object and default agreement on the verb, the latter contains a nominative object and object agreement on the verb. Not all Slavic languages with the FEEL-LIKE construction have the impersonal variant, e.g., Bulgarian.

- (i) Janezu se je pilo slivovko.
 Janez_{DAT} REFL AUX drink_{3SG.NEU} brandy_{ACC, SG.FEM}
 'Janez feels like drinking plum brandy.'
- (ii) Janez se je pila slivovka.
 Janez_{DAT} REFL AUX drink_{3SG.FEM} brandy_{NOM, SG.FEM}
 'Janez feels like drinking plum brandy.'

Here we only address the impersonal variant, though the general line of reasoning should extend to the passive variant as well (see Marušič & Žaucer (in prep.) for discussion).

of clausal complementation, a uniform semantic analysis — e.g., the Interpreted Logical Forms algorithm of Larson and Ludlow (1993)—can be used for all of them.

In the sententialist spirit, biclausal analyses with a covert clausal complement have been proposed for intensional transitive verbs such as *want* or *need* (McCawley 1979, den Dikken *et al.* 1996, Larson *et al.* 1997). A basic structure for intensional transitive verbs is in (8), where the covert embedded verb is *have*.

(8) John will need [PRO TO-HAVE a bicycle]

2.1 *Intensionality of the FEEL-LIKE construction and a preliminary biclausal structure*

The diagnostics from above show that the FEEL-LIKE construction exhibits intensionality effects. (9) shows that substitution of co-referring terms need not preserve truth (*M. Bor* was the pseudonym of *V. Pavšič*), the truth of (9a) does not entail the truth of (9b).

(9) a. Črtu se bere Mateja Bora.
 Črt_{DAT} REFL read Matej_{ACC} Bor_{ACC}
 ‘Črt feels like reading (poetry by) Matej Bor.’

b. Črtu se bere Vladimirja Pavšiča.
 Črt_{DAT} REFL read Vladimir_{ACC} Pavšič_{ACC}
 ‘Črt feels like reading (poetry by) Vladimir Pavšič.’

Further, (10) shows that non-referring terms in the FEEL-LIKE construction do not yield falsity. Sentence (10) can be true even though the name *Zeus* does not have a referent in our world.

(10) Maši se objema Zevsa.
 Maša_{DAT} REFL hug Zeus_{ACC}
 ‘Maša feels like hugging Zeus.’

Finally, (11) clearly allows a nonspecific reading of the indefinite.

(14) * Tomorrow Jim will play basketball in two weeks.

However, McCawley (1979) shows that sentences with intensional transitive verbs, e.g. *want*, do allow non-agreeing adverbials, (15).

(15) Yesterday Jim wanted a new bike tomorrow.

This is attributed to the fact that such sentences contain a covert predicate, HAVE, and so one adverbial modifies the 'wanting' and the other the 'having', (16). A very close parallel is thus drawn between sentences such as (15), with the structure in (16), and sentences with an overt verb *have* in the clausal complement, (17).

(16) Yesterday Jim wanted [PRO TO-HAVE a new bike tomorrow]

(17) Yesterday Jim wanted [PRO to have a new bike tomorrow]

Now, a paraphrase containing an overt verb meaning 'feel-like' easily admits non-agreeing adverbials, (18). One modifies the 'feel-like' event, the other modifies the event of 'going home'.

(18) V petek se mi ni ljubilo [iti v torek domov]
 on Friday REFL I_{DAT} neg AUX feel-like_{PAST} go INF on Tues. home
 'On Friday, I didn't feel like going home on Tuesday.'

In the same manner, non-agreeing adverbials/adverbs can co-occur in the FEEL-LIKE construction. (19) contains two non-agreeing temporal adverbials, (20) two non-agreeing adverbs.

(19) V petek se mi ni šlo v torek domov.
 on Friday REFL I_{DAT} neg AUX go_{PAST} on Tuesday home
 'On Friday, I didn't feel like going home on Tuesday.'

Note further that we can paraphrase such sentences as in (ii), suggesting that (i) might involve a hidden predicate IT-APPEARS-THAT. A longer discussion of these constructions is taken up in Marušič and Žaucer (in preparation).

- (20) Zdajle se mi ne gre jutri domov.
 now REFL I_{DAT} not g_{OPres} tomorrow home
 ‘Right now, I don’t feel like going home tomorrow.’

This shows that the FEEL-LIKE construction contains two predicates related to two different event times.⁶

R&MS propose that in sentences such as (20), *se* is an indefinite pronoun combining an existential quantifier and a variable. The dative has two effects on this quantificational pronoun. It deletes the quantifier, which R&MS dub ‘existential disclosure’, and it binds the variable. Note that R&MS (2003) state that the binding procedure between the dative NP and the clitic *se* that follows the existential disclosure of their indefinite pronoun *se* in the Slovenian FEEL-LIKE construction adds “a modal meaning reminiscent of control” (2003:133), as in *John_i wished PRO_i to leave*, where the clitic *se* is comparable to the controlled PRO and the dative NP to the controller, i.e., *John*. Recall that a sententialist account may well postulate an abstract clausal complement containing precisely this, a control relation between the external arguments of the matrix and the embedded clause. An important difference between *John_i wished PRO_i to leave* and a structure with a Modal Phrase as in [_{MP} [_{CIP} [_{TP} [_{VP}]]]], however, is in the richness of structure. Restrictive theories of adverbial placement explain the unacceptability of non-agreeing adverbs with the claim that there can be only one adverb of a certain type per clause (Cinque 1999, Alexiadou 1997). Assuming such a theory, it follows that if non-agreeing adverbs are possible, they must be in two clauses, providing room for two sets of functional projections. The mono-clausal structure with a ModalP on top, however, will be predicted not to allow non-agreeing adverbials, given that it only has one set of functional projections, including various slots for adverbials.

Note further that examples like (19)-(20) cannot be dismissed with Parsons’ (1990) distinction between temporal and frame adverbials, as in (21), where frame adverbials are defined as setting the context within which the rest of the sentence is interpreted.

⁶ Note that examples containing a past or future FEEL-LIKE predicate (e.g., (19) and (33), respectively) clearly show that one cannot dismiss the FEEL-LIKE dispositional event as being merely a pragmatically derived attitude with contextual anchoring to speech time.

(21) During the war I ran every day in the afternoon.

The FEEL-LIKE construction allows both two distinct frame adverbials, (22a), and one frame adverbial with two temporal adverbials in its scope, (22b).

(22) a. Med vojno se mi je po vojni hodilo
 during war REFL I_{DAT} AUX after war go
 vsak dan na Rž.
 every day onto Rž

'During the war I felt like climbing Rž after the war every day.'

b. Med vojno se mi je vsako dopoldne
 during war REFL I_{DAT} AUX every morning
 šlo naslednji dan na Rž.
 go followingday onto Rž

'During the war I felt every day like climbing Rž the next day.'⁷

More generally, the acceptability of non-agreeing adverbials is not restricted to temporal (and/or frame) adverbials but rather extends to several types of adjuncts, such as location or manner adjuncts, as well as to frequency adverbs (event quantifiers), as in (23).

(23) Pogosto se mi teče bolj redko.
 frequently REFL I_{DAT} run more rarely
 'I often feel like running more rarely.'

Observe finally that the placement of adverbials is restricted. In (24), the adverbial following the overt verb is necessarily associated with the event of 'going to Vienna'. Consequently, (24) is ruled out because of a clash between the time of 'going to Vienna', the event of the overt verb,

⁷ We split the 'feel like' predicate in the translation line with the temporal adverbial in order to disambiguate the association of the adverbial.

and the adverbial *on Tuesday*, which modifies the FEEL-LIKE predicate. One cannot have a future disposition about a present event.

- (24) *Kok se mi v torek ne [gre ta moment na Dunaj].
 how REFL I_{DAT} on Tues. not go_{PRES} this moment to Vienna
 ‘I so don’t feel on Tuesday like going to Vienna right now!’

Assuming that temporal adverbials originate inside VP (Larson 1988, Giorgi and Pianesi 1997, Cinque 1999), a monoclausal analysis cannot explain this placement restriction. There seems to be no principled reason why the two temporal adverbials inside the same VP shell should be positioned in a specific order. The restriction on the relative placement in (24) thus suggests that there are two different VPs (in two different clauses).

To summarize, if there can be only one adverb of a certain type per clause (Cinque 1999, Alexiadou 1997), non-agreeing adverb doubling should be ruled out if the FEEL-LIKE construction only contains one syntactic clause. The data from this section thus suggest that there are two clauses with two sets of functional projections, which can host two sets of non-agreeing adverbials.

3.1.1 Polish

The Polish impersonal dative-reflexive construction, (25) (= (2) above), has a superficially identical syntax to the FEEL-LIKE construction, but a crucially different interpretation. It denotes a past event with an ‘involuntary agent’, not a past disposition.

- (25) Jankowi czytało się tę książkę z przyjemnością.
 Janek_{DAT} read_{3SG.NEU} REFL this book_{ACC} with pleasure
 ‘Janek read this book with pleasure.’

R&MS (2003) unifyingly assign (25) and the FEEL-LIKE construction a common (monoclausal) syntax (under the cover term ‘involuntary state constructions’). The (non-intensional) semantics of the Polish dative-reflexive construction does not seem to offer a principled reason for positing a biclausal structure. And indeed, Polish does not allow double non-agreeing adverbs (Magda Gołędzinowska, p.c.), which suggests that

the structure of (25) is different from the Slovenian FEEL-LIKE construction, in particular, it does not exhibit evidence for a hidden matrix predicate.⁸

3.2 *Apparent violations of Cinque's (1999) adverbial hierarchy*

Alexiadou (1997) and Cinque (1999) argue that adverbs follow a strict linear order. Cinque locates adverbs in the specifier positions of various functional projections, which follow an inviolable (universal) hierarchy. This explains why adverbs can only appear in one linear order. Indeed, the Slovenian *običajno* 'usually' and *še vedno* 'still' can only appear in the order in (26a) and not in the reverse order of (26b). On Cinque's account, this is because the functional projection $Asp_{habitual}P$, where adverb *usually* sits, dominates $Asp_{continuative}P$, the functional projection of *still*.

- (26) a. Ob tej uri Črt *običajno še vedno* raznaša pošto.
 At this time Črt usually still delivers mail
 'At this time, Črt is usually still delivering mail.'
- b. *Ob tej uri Črt *še vedno običajno* raznaša pošto.
 At this time Črt still usually delivers mail
 'At this time, Črt is still usually delivering mail.'

Since the adverbial hierarchy is inviolable, the only way to get the reverse order of adverbs would be to have two sets of functional projections, i.e., two clauses. Interestingly, the strict linear order can, in fact, be violated in the FEEL-LIKE construction, (27a-b).

- (27) a. Janezu se *običajno še vedno* kupuje na tržnici.
 J_{DAT} REFL usually still buy on market
 'Janez usually still feels like shopping at the market.'
- b. Janezu se *še vedno običajno* kupuje na tržnici.
 J_{DAT} REFL still usually buy on market
 'Janez still feels like usually shopping at the market.'

⁸ See Rivero (2003) for a possible account of (25) (but not, in our view, of the FEEL-LIKE construction), where the dative is seen as a very high (clause-external) applicative that takes the finite TP as its complement.

Since the hierarchy is inviolable but the reversed order of *usually* and *still* is nonetheless possible, the two adverbs in (27b) must be in separate clauses, each with its own set of functional projections.⁹

An analysis with two clauses is also suggested by the three-way ambiguity of (27a). The two sets of functional projections allow three different positionings of the two adverbs, while still respecting the inviolable linear order. The two adverbs can both be associated with either the matrix clause, (28a), the embedded clause, (28b), or they can be associated with distinct clauses, (28c).

- (28) a. Janezu se *običajno še vedno* FEEL-LIKE [kupuje na tržnici]
 ‘Janez usually still feels-like [buying in the market]’
- b. Janezu se FEEL-LIKE [*običajno še vedno* kupuje na tržnici]
 ‘Janez feels-like [usually still buying in the market]’
- c. Janezu se *običajno* FEEL-LIKE [*še vedno* kupuje na tržnici]
 ‘Janez usually feels-like [still buying in the market]’

No such ambiguity is exhibited in (27b). This is predicted; the only way to get the otherwise unacceptable order is to have the adverbs in two distinct clauses, where they refer to two separate events.

Adopting Cinque’s (1999) strict linear order of adverbial placement, evidenced by (26), the data in (27) suggest a biclausal analysis rather than a monoclausal one.

3.3 Double depictive secondary predication

Further evidence for a biclausal syntax for the FEEL-LIKE construction comes from depictive secondary predicates. The FEEL-LIKE construction allows two depictives associated with two different events occurring at two different times, as in (29). Note that depictives in Slovenian always agree with their host in number, gender, and case (see Marušič *et al.*

⁹ There is disagreement in the literature whether Cinque’s hierarchy is indeed universal. Note, though, that this does not affect the status of our argument. Crucially, the Slovenian *običajno* ‘usually’ and *še vedno* ‘still’ are not reversible in ordinary constructions, as shown in (26), while they are reversible in the FEEL-LIKE construction, as shown in (27). (Marušič & Žaucer (in preparation) defend the validity of this argument in more detail.)

2003), and given that the two depictives carry different case markings, sentences like (29) cannot be cases of depictive-stacking.

- (29) Vidu se treznemu ne gre v šolo gol,
 Vid_{DAT} REFL sober_{DAT} not go to school naked_{NOM},
 (pijanemu pa že mogoče).
 drunk_{DAT} but PTCL maybe

'When sober, Vid doesn't feel like [going to school naked] (but when drunk, he just might feel like it).'

The depictive that modifies the matrix, FEEL-LIKE predicate is thus in the dative, agreeing with the experiencer of the FEEL-LIKE predicate, and the depictive that modifies the embedded, 'going to school' predicate is in the nominative, agreeing with the covert subject of the embedded clause. Since depictives are temporally dependent on the main predicate, the property they express must hold of the denotation of their subject throughout the extent of the main event (Rothstein 2000). The availability of two non-stacked depictives, making reference to two different times, suggests that there must also be two main events with distinct time references.

Furthermore, assuming the standard syntactic analysis of depictives, where the depictive placed in a small clause adjoined to the VP (e.g. Bowers 2001), we can only explain the two depictives in (29) with two VP layers, that is, with two clauses. Even if one analyzes depictives differently, e.g. with a movement analysis as in Marušič *et al.* (2003), where the depictive is interpreted depending on the verb into whose argument position it is moved, one still needs two verbs with distinct argument positions.

As with non-agreeing adverbials, the data given in (29) above lead us naturally into drawing a parallel between the FEEL-LIKE construction and cases of two depictives in other types of clausal complementation, e.g. control sentences like (30), which involves two events overtly, with two overt verbs in two clauses.

- (30) Vid je pijan sklenil zadevo Joni razložiti trezen
 V_{NOM} AUX drunk_{NOM} decided matter J_{DAT} explain_{INF} sober_{NOM}
 'Vid_i decided, when drunk_i, to explain the matter to Jona sober_i.'

Finally, for the depictive to modify the event of the embedded clause of the FEEL-LIKE construction, the depictive must follow the overt verb. The reverse order of depictives of (30) is ruled out, as shown in (31) (cf. (24) above for the same effect with adverbs).

- (31) *Meni se gol ne gre v šolo treznemu.
 I_{DAT} REFL naked_{NOM} not go to school sober_{DAT}

To summarize, our data from depictive modification of the FEEL-LIKE construction argue for a biclausal analysis and pose a problem for a monoclausal account with a single verb.

4. The derivation of the construction

We want to take the comparison between the FEEL-LIKE construction and its closest paraphrase, (32), seriously, and argue that (32b) has essentially the same structure as the FEEL-LIKE construction in (32a), but with an overt matrix predicate.

- (32) a. Vidu se pleše FEEL-LIKE construction
 Vid_{DAT} REFL dance_{3SG.NEU}
 ‘Vid feels like dancing.’
- b. Vidu se hoče/ljubi/lušta plesati ‘paraphrase’
 Vid_{DAT} REFL want/desire_{3SG.NEU} dance_{INF}
 ‘Vid feels like dancing.’

Like the FEEL-LIKE construction in (32a), the construction in (32b) has a dative experiencer subject. Note that it is far from unusual for an experiencer to be realized as a dative. So, the element that licenses the dative in (32b) can also act as the licenser for the dative of (32a). A similar parallel holds with respect to the gender/ person/number inflection on the verb. The FEEL-LIKE construction, (32a), has non-agreeing morphology: neuter, 3rd person, singular. R&MS (2003) see it as default verbal morphology. Similarly, the default pattern is—on the overt matrix

verb—also found in (33b). (As the FEEL-LIKE construction contains no overt matrix verb, its inflection gets realized on the only possible host, the lower verb; cf. below.)

Moreover, the REFLEXIVE clitic from the FEEL-LIKE construction also occurs in the construction with the overt matrix verb, (32b). We claim that the REFLEXIVE clitic in both (32a) and (32b) belongs to the matrix verb, be it covert or overt, which has no agent θ -role and no accusative case to assign.^{10,11}

Unlike the affixal default morphology of the FEEL-LIKE construction, which is realized on the verb (cf. above), the REFLEXIVE morpheme is a clitic and thus does not need a verbal host. It gets realized in the usual position of the clitic cluster.

In a similar vein, the tense inflection realized on the lower verb in the FEEL-LIKE construction belongs to the FEEL-LIKE predicate, not to the overt verb. That is, future morphology on the verb in (33) signifies a future disposition (FEEL-LIKE event), not a present disposition towards a future 'coming out' event.

- (33) Lini se še ne bo šlo ven.
 Lina_{DAT} REFL still NEG_{AUX} FUT come out
 'Lina will still not feel like coming out.'
 # 'Lina still doesn't feel like coming out in the future.'

The interpretation of tense morphology thus constitutes a further difference between the Slovenian FEEL-LIKE and Polish 'involuntary agent' construction. In the FEEL-LIKE construction, (33), the tense on the verb modifies the covert matrix (FEEL-LIKE) predicate, while in Polish, (25), it modifies the only predicate, i.e., the one denoted by the verb where tense is actually realized. Again, this suggests different structures for the two constructions.

¹⁰ Note also that the FEEL-LIKE construction and the paraphrase with an overt matrix verb behave on a par in terms of allowing non-agreeing adverbials.

¹¹ In the absence of the FEEL-LIKE construction, a construction like the Slovenian (32b) is the only way to express this meaning in Polish (R&MS 2003). Note that such a construction in Polish also allows non-agreeing adverbs (Magda Gołędzinowska, p.c.):

(i) Ojej, jak mi się nie chce teraz jechać jutro do Rzymu.
 gee, how I_{DAT} REFL not want now go tomorrow to Rome
 'Gee, how I don't feel right now like going to Rome tomorrow.'

On the other hand, unlike tense inflection, aspect inflection in the FEEL-LIKE construction actually belongs to the overt verb, not to the FEEL-LIKE predicate. As shown in (34), the im-/perfective aspect inflection on the overt verb (in this case realized as vowel alternation) modifies the ‘hugging’ rather than the FEEL-LIKE event, so that (34a-b) differ in whether Maša feels like giving Peter a hug (perfective) or like holding him (imperfective).

- (34) a. Maši se ful obj_{ame} Petra.
 Maša_{DAT} REFL very hug_{PF} Peter_{ACC}
 ‘Maša so feels like giving Peter a hug.’
- b. Maši se ful obj_{ema} Petra.
 Maša_{DAT} REFL very hug_{IMPF} Peter_{ACC}
 ‘Maša so feels like holding Peter.’

Aspect is standardly placed below TP (e.g. Giorgi and Pianesi 1997, Dimitrova-Vulchanova 1999). With Tense morphology on the overt verb actually belonging to the FEEL-LIKE predicate, AspP thus represents the highest functional projection of the lower verb for which there is overt morphological evidence.

Based on the above, we propose the structure given in (35). Note that both the matrix and the embedded clause are in a way deficient. The matrix clause is deficient at the bottom, it has no active vP (it does not assign accusative); the embedded clause has no realized tense morphology and is deficient at the top, it has no CP and no TP.¹²

- (35) [CP_{[TP NP_{DAT} [vP REFL FEEL-LIKE [AspP_{[vP [VP V NP_{ACC}]]]]]]]}}

¹² In Marušič & Žaucer (in preparation), we follow Rivero (to appear) and analyze the REFLEXIVE clitic in the FEEL-LIKE construction as non-active morphology. Note that in a similar FEEL-LIKE construction in Albanian, the correspondent of the Slovenian REFLEXIVE is the non-active affix on the verb, (i) (Rivero, to appear).

- (i) Më puno-het.
 I_{DAT} work_{NON-ACT, 3SG.}
 ‘I feel like working.’ (Kallulli 1999: 269)

The Albanian non-active affix, which belongs to the covert FEEL-LIKE predicate, is realized on the overt verb just as the affixal default morphology in the Slovenian FEEL-LIKE construction (while the Slovenian non-active clitic does not need a verbal host).

Since the upper clause lacks an active vP and the lower one a CP, both of which represent strong phases (Chomsky 2001), there are no phases intervening between the lower V and the upper T. Consequently, given that the FEEL-LIKE construction has no upper verb available for affix attachment, the overt lower-clause verb is as accessible to the upper T as any verb in any ordinary construction. But if the matrix predicate is overt, as in (32b), then the verbal morphology surfaces on the matrix verb.

5. Conclusion

We discussed an apparently monoclausal construction whose intensional semantics suggests a possible biclausal structure (cf. the sententialist program as in Larson 2002). Rivero (2003: 485) actually raises the idea of a biclausal structure, but discards it with the claim that there is no evidence for it and instead provides a syntactically unifying account of the Polish and Slovenian 'involuntary state constructions'. However, we presented semantic and syntactic evidence for biclausality of the Slovenian FEEL-LIKE construction and proposed that it is best analyzed as containing a concealed matrix predicate. This allows us to preserve the stricter, sententialist view of intensionality. Our biclausal analysis comes close in spirit to the familiar sententialist account of intensional transitive verbs, for which we thus provided a previously unattested logical possibility: a covert matrix-clause verb.

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On Russian ‘Expletive’: *Èto* and Post-Verbal Clauses*

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1. Introduction

This paper discusses constructions in which the pronoun *èto* in the subject position may co-occur with a post-verbal clause.^{1,2} In particular, it explores the intuitive idea that *èto* and the post-verbal clause have the same referent, which is indicated by co-indexing:

- (1) (*Èto*_i) *udivljaet* / *bylo očevidno* [_{CP} *čto* *Max* – *špion*]_i.
this surprises / was obvious that Max spy
‘It’s surprising / was obvious that Max is a spy.’³

In the past it was suggested that such a pronoun is an expletive that together with the co-indexed clause forms a chain — a single argument assigned one theta-role but realized by more than one phonologically overt element (Chomsky 1981, and others). The clause originates in the subject position and then extraposes, as it may not remain in a Case-

* I am grateful to Betsy Ritter for her comments on earlier versions of this paper. I would also like to thank two anonymous FASL referees, who provided me with most helpful comments and suggestions. Needless to say, all remaining errors are mine.

¹ Here I use the term ‘post-verbal’ to refer to clauses that follow both lexical verbs and the copula *byť* ‘be’ + adverb, as shown in (1). I use the term ‘subject position’ to refer to a pre-verbal position in general without assuming any particular analysis of the notion ‘subject’.

² For reasons of space, optional constituents are given in parenthesis.

³ Verbs in Russian agree with their subjects in number and person in the present tense, and in number and gender in the past tense. Since this is not crucial for the present analysis, I gloss inflection only when it is relevant for the discussion.

marked position in S-structure (Stowell's 1981 Case Resistance Principle). One way for a clausal argument to receive Case is to be in a chain with another element that can be Case-marked. A chain is theta- and Case-marked iff one of its positions is theta-marked and one position is case-marked. In a chain formed by a clausal argument and an expletive the former is theta-marked, and the latter is Case-marked.

Authier (1991), McClosky (1991), Safir (1985) among others questioned this analysis. As argued by Belletti (1988), there is no such thing as 'case transmission', and every DP must be assigned Case independently.⁴ Furthermore, Safir (1985) shows that clausal arguments do not need Case.

This paper further supports the view that constructions such as in (1) do not contain a chain. I show that, contrary to previous analyses (Franks 1990, 1995), Russian *èto* that can be translated into English as either 'this' or 'it' is a referential pronoun and must be theta-marked. For this reason, I gloss *èto* as 'this', and not 'it', to contrast it with the English expletive. I argue that sentences such as in (1) are associated with two distinct structures, depending on whether or not the subject position of the matrix clause is occupied by *èto*. In particular, when *èto* is present, the construction contains a right-dislocated clause.

This paper is organized as follows: In section 2, I briefly outline the 'chain' analysis and show that it is unable to account for certain Russian facts. In section 3, I develop an alternative proposal that captures the syntactic distribution of *èto*. Section 4 contains some concluding remarks.

2. *Èto* and post-verbal clauses in Russian

2.1 *The 'chain' analysis*

As shown above, *èto* appears optionally in the subject position of sentences with post-verbal clauses. Furthermore, sometimes, *èto* is not allowed:

⁴ I assume the DP Hypothesis (Abney 1987). However, in this paper nothing crucially depends on this, and the same constituent can be referred to as NP.

- (2) a. (*Èto) bylo prijatno [_{CP} PRO ležat' na gazone].
 this was nicely lie_{INF} on lawn
 'It was nice to lie on the lawn.'
- b. (*Èto) bylo xorošo [PP na pljaže].
 this was well on beach
 'It was nice on the beach.'
- (3) (*Èto) temnelo.
 this darkened
 'It was getting dark.'

The examples above suggest that *èto* may not be co-indexed with a non-finite CP (2a) or PP (2b). In (3) *èto* is the subject of an *impersonal* verb. Such verbs in Russian are incompatible with any subject in nominative case. In particular, 'nature' predicates such as in (3) are incompatible with any subject since they do not assign any theta-roles (Preslar 1998; Šaxmatov 1941).^{5,6}

⁵ Although the subject position of these verbs may not be filled they show agreement morphology: 3rd singular-neuter. See Bar-Shalom (1986), Franks (1995), Lavine (1998, among others for different accounts.

⁶ *Èto* may also appear in other contexts which I am not considering in this paper. For example, it may be co-indexed with a CP in the subject position:

- (i) [_{CP} Čto Max špion]_i èto_i očevidno.
 that Max spy this obvious
 'That Mas is a spy is obvious.'

Although I believe that these constructions are related to the ones addressed in this paper, I don't explore this issue here.

Furthermore, *èto* appears in so-called *èto*-cleft constructions (King 1993, 1995):

- (ii) a. Èto BORIS vypil vodu.
 it Boris drank vodka
 'It is Boris-FOC (who) drank the vodka.' (King 1995: 80 (17c))
- b. Chto èto vy tam delaete?
 what it you there do
 'What is it that you are doing out there?' (What are you doing out there?)

In *èto*-clefts, the element immediately following *èto* is focused. King argues that *èto* is base-generated in Spec,FP, and the head of this projection contains a focus feature [+F]. I assume that this is a different phenomenon. For example, in *èto*-clefts there is no copula after *èto*, and it can appear in *wh*-questions (the issue I address below). Although I do not address constructions such as in (ii) in this paper, nothing in my proposal excludes a unified analysis of the two instances of *èto*.

To account for these facts Franks (1990, 1995) proposes that *èto* is an expletive licensed only when co-indexed with a finite clause. Following Belletti (1988) and others, he assumes that an LF-visibility requirement exists independently of a PF-visibility requirement, and is applicable to argument chains (whereas the PF-visibility requirement holds of words). Thus, although only DPs require Case in order to be assigned a phonological representation at PF (the Case Filter: Chomsky 1981; Rouveret and Vergnaud 1980), every argument must receive Case for its theta-role to be visible at LF, including clausal and prepositional arguments. In (4), *èto* in the subject position is co-indexed with the finite CP assigned a theta-role. Being the head of a theta-marked chain it receives Case and this way the chain is Case-marked:

- (4) Èto_i prijatno, [_{CP} čto my guljaem v parke]_i.
 it nicely that we walk in park
 'It is nice that we are walking in the park.'

(Franks 1995:319 (67a))

The ungrammatical examples are ruled out due to the Case Filter. Franks assumes that infinitival clauses and PPs, such as in (2) have intrinsic Case and thus satisfy the Case requirement at LF. Impersonal verbs, such as in (3) do not take arguments and the LF-visibility requirement is not applicable. In both cases, there is no motivation for the subject position of the matrix clause to be assigned Case. Therefore, it may not be occupied by an overt DP.

To account for the fact that *èto* may be omitted Franks (1995) proposes that being an expletive it carries no semantic burden and is easily recoverable. Therefore it is frequently omitted even though syntactically it is present.⁷

2.2 Problems with the 'chain' analysis

Franks' proposal appears to be both too strong and too weak. It is too strong in that it predicts the sentences in (5) to be grammatical:

⁷ In Russian, thematic elements may be omitted if they are recoverable from context. Franks 1995 refers to this phenomenon as 'discourse ellipsis.'

- (5) a. (**Èto*) napisano, [_{CP} čto rejs zaderživaetsja].
 this written that flight is-late
 'It is written that the flight is late.'
- b. (**Èto*) okazyvaetsja, [_{CP} čto Zemlja kruglaja].
 this turns-out that Earth round
 'It turns out that the Earth is round.'

Since both sentences contain a finite post-verbal CP *èto* should be required in the subject position. However, contrary to this prediction the presence of *èto* rules these sentences out. Note that the sentences in (5) contain the passive verb *napisano* 'written' and the unaccusative verb *okazyvajetsja* 'turns out'. Under the standard analysis of these verbs (Burzio 1986; Permuter 1978) their subject position is not theta-marked. If *èto* is an expletive it is not clear what prevents it from appearing as the subject of these verbs.

Furthermore, Franks' proposal is too weak because contrary to his observations, there exist contexts in which *èto* may co-occur with a non-finite post-verbal CP, especially, when this CP is long:

- (6) (*Èto*_i) prijatno, [_{CP} PRO ležat' na gazone v letnjuu žaru,
 this nicely lie_{INF} on lawn in summer heat
 sčitaja oblaka v nebe]_i.
 counting clouds in sky

'It is nice to lie on the lawn during the summer heat, counting the clouds in the sky.'

These examples suggest that the Russian data require a different account. In the following section I outline an alternative proposal.

3. An alternative account

3.1 *Èto* is referential

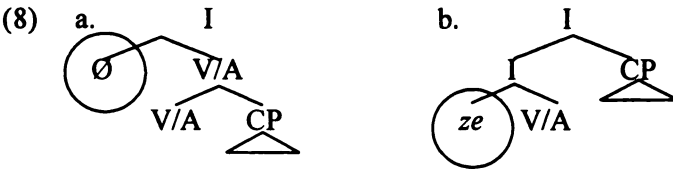
Since the expletive analysis of *èto* is unable to account for a number of facts, let us explore the possibility that *èto* is referential. I begin with Hazout's (undated) discussion of the referential status of the Hebrew pronoun *ze* 'it/this' that just like Russian *èto* has been previously

analyzed as an expletive (Borer 1981, 1986). Hazout argues that *ze* is a referential pronoun that must be assigned a theta-role. Hebrew *ze* has a syntactic distribution similar to Russian *èto*: it appears optionally in the subject position of sentences with post-verbal clauses, and may not occur in the subject position of passive and unaccusative verbs:

- (7) a. (ze) meanyen [CP še Dan kara et ha-sefer].
 this interesting that Dan read OM the book
 ‘It is interesting that Dan read the book.’
- b. (*ze) nimsar [CP še Dan hegia].
 this was communicated that Dan arrived
 ‘It was communicated that Dan arrived.’
- c. (*ze) haya kar.
 this was cold
 ‘It was cold.’

(Hazout : 1 (1a); 6 (5b, d))

Hazout suggests that in sentences such as (7a) *ze* may be absent if the predicate has the lexical option of assigning the internal theta-role to a sentential argument, in which case the CP to the right of the verb/adverb is interpreted as a complement. However, when *ze* is present it is assigned the external theta-role by the verb/adverb and the co-indexed CP is interpreted as an adjunct to I(nfl). The two structures are given in (8a) and (8b) respectively:



This contrasts with Franks’ analysis according to which sentences with and without *èto* have the same syntactic structure and differ only in whether or not the pronoun in the subject position is phonologically realized.

Hazout’s analysis captures the distribution of Hebrew *ze* in sentences with post-verbal clauses. Since Russian *èto* exhibits similar syntactic properties I consider it reasonable to conclude that it is referential as well. This approach gives rise to the following issues. First, we still have

to account for the distribution of *èto* in sentences with post-verbal clauses. Second, as a referential pronoun, *èto* is expected to have an antecedent. The next two sections deal with these issues.

3.2 *Èto* and right dislocation

Following Hazout (undated) and Zwart (2002) I assume that a clause to the right of a verb/adverb may be interpreted as either a complement or an adjunct. I propose that when *èto* is absent the sentence has the structure (8a) above, with the post-verbal CP being a complement. When *èto* is present the sentence has the structure (8b), with the CP being a right-dislocated adjunct.

The phenomenon of Right Dislocation (RD) has received relatively little attention in the literature. As suggested by Cecchetto (1999), this may be due to the fact that RD is often considered to be the mirror image of Left Dislocation (LD) – a phenomenon that has been a subject of a much thorough study (Anagnostopoulou, Van Riemsdijk and Zwarts 1997; Cinque 1990; Kayne 1994, and references there). It is often assumed that everything else being equal, RD involves adjunction of the dislocated XP to the right of the same node that hosts a left-dislocated XP. However, Cecchetto 1999 demonstrates that these are different phenomena that exhibit different properties. Most of the discussion of LD and RD is focused on left- and right-dislocated DPs. Following Zwart (2001, 2002), who examines Dutch sentences with post-verbal clauses I extend this analysis to Russian.

It has been observed that right-dislocated XPs exhibit a number of properties. In particular, they show a distinctive intonational pattern, obey the Right Roof Constraint, and create an island for extraction. My analysis predicts that the presence of *èto* should correlate with each of these properties. As the data below show this prediction is borne out.

The right-dislocated XP is preceded by an intonational break, and the immediately preceding element bears the main prominence (Bonet 1990; Cecchetto 1999; Zwart 2001, 2002). Examples in (9)-(11) demonstrate that when a post-verbal CP is co-indexed with *èto* the sentence sounds more natural if the former is preceded by an intonational break, and the

verb/adverb bears the main prominence (elements that bear the main prominence are capitalized):⁸

- (9) a. ??Èto_i očevidno [CP što my opazdyvaem]_i.
 this obvious that we are-late
- b. Èto_i OČEVIDNO, [CP što my opazdyvaem]_i.
 this OBVIOUS that we are-late
 ‘It is obvious that we are late.’
- (10) a. ??/*Èto ee udivilo [CP što Max – špion].
 this her_{ACC} surprised that Max spy
- b. Èto_i ee UDIVILO, [CP što Max – špion]_i.
 this her_{ACC} SURPRISED that Max spy
 ‘It surprised her that Max was a spy.’
- (11) a. *Èto prijatno [CP PRO ležat’ na gazone v letnjuu žaru].
 this nicely lie-INF on lawn in summer heat
- b. Èto_i PRIJATNO, [CP PRO ležat’ na gazone v letnjuu žaru]_i.
 this NICELY lie-INF on lawn in summer heat
 ‘It is nice to lie on the lawn during the summer heat.’

Furthermore, right-dislocated XPs obey the *Right Roof Constraint* (Ross 1967): a right-dislocated XP may not appear outside the right boundary of the clause in which it originates.¹⁰ Left-dislocated XPs do not obey this constraint. For ease of exposition let us first look at a left-dislocated DP:

⁸ According to the Russian punctuation rules, a complement clause and a right-dislocated clause are both preceded by a comma.

⁹ Some speakers do not detect any difference in intonational pattern between (9) and (10). In addition, this pattern seems to depend on the adverb: the difference in intonation is perceivable in (9) that contains *očevidno* ‘obvious’, but not in examples that contain adverbs such as *xorosh* ‘well’. The relevance of the adverb’s lexical properties is a topic on its own, and I am not going to explore it here. However, since this criterion gives inconsistent results these data should be considered together with the tests I discuss below.

¹⁰ Zwart (2002) argues that Right Dislocation, or *Backgrounding* as he refers to it, must be distinguished from extraposition, and shows that in Dutch, extraposed XPs, but not right-dislocated ones obey the Right Roof Constraint.

- (12) a. It is strange that Mary gave [her car] to John.
 b. [Her car]_i, it’s strange that Mary gave it_i to John.

(12a) is a standard transitive sentence in which the DP *her car* appears in its original position within the embedded clause. In (12b) *her car* is left-dislocated and it appears at the left periphery of the matrix clause, i.e., it escapes the boundaries of the clause within which it appears in (12a).¹¹

Now let us look at a left-dislocated CP in Russian:

- (13) a. Maša skazala [CP₁ čto ej očevidno,
 Masha said that her_{DAT} obvious
 [CP₂ čto Max – špion]].
 that Max spy
 ‘Masha said it was obvious to her that Max was a spy.’
 b. [CP₁ Čto Max – špion]_i, Maša skazala
 that Max spy Masha said
 [CP₁ čto ej eto_i očevidno]
 that her_{DAT} this obvious
 ‘That Max was a spy, Masha said it was obvious to her.’

In (13a), the 2nd embedded CP *that Max is a spy* appears within the 1st embedded CP *that it was obvious to her that Max is a spy*. In (13b), the 2nd embedded CP is left-dislocated; it appears at the left periphery of the matrix clause and is co-indexed with *èto* in the 1st embedded clause.

Now let us turn to RD. First, let us examine a right-dislocated DP:

- (14) a. That Mary gave [her car] to John is strange.
 b. * That Mary gave it_i to John, is strange, [her car]_i.

¹¹ A referee points out that LD and RD may or may not be analyzed as movement, and that under the movement analysis the account of *èto* can be reduced to saying that it is a resumptive pronoun, though still referential. Here I am not arguing in favor of either of these possibilities. Crucially for my purposes, the differences between LD and RD hold under either analysis.

In (14a), the DP *her car* appears within the subject clause. In (14b), *her car* is right-dislocated: it escapes the boundary of the subject clause and appears at the right periphery of the matrix clause. As a result, the sentence is ungrammatical. The same is true for right-dislocated CPs in Russian:

- (15) a. [1_{CP} Čto ej očevidno [2_{CP} čto Max – špion]],
 that her_{DAT} obvious that Max spy

Maša skazala uže včera.
 Masha said already yesterday

‘That it was obvious to her that Max was a spy, Masha said this yesterday.’

- b. * [1_{CP} Čto ej eto_i OČEVIDNO,]
 that her_{DAT} this OBVIOUS,

Maša skazala včera, [2_{CP} čto Max – špion].
 Masha said yesterday that Max spy

In (15b), the 2nd embedded CP *that Max is a spy* is right-dislocated. It appears at the right periphery of the matrix clause, i.e., outside the boundary of its original clause, and the sentence is ruled out.

Furthermore, as well known, extraction is possible out of complements but not out of adjuncts (Chomsky 1986; Cinque 1990; Rizzi 1990). As Zwart (2002) points out, RD creates an island for extraction. Examples (16)-(19) show that in Russian, extraction is only possible out of post-verbal CPs (finite or non-finite) in sentences without *èto*, i.e., CP complements. When *èto* is present, extraction out of post-verbal CPs renders the sentence ungrammatical:¹²

¹² I am grateful to an anonymous referee for suggesting these examples.

NO *ÈTO*, FINITE CP-COMPLEMENT

- (16) a. Bylo očevidno [_{CP} čto Max byl doma].
 was obvious that Max was home
 'It was obvious that Max was at home.'
- b. Gde_k bylo očevidno [_{CP} čto Max byl t_k]?
 what was obvious that Max was
 'Where was it obvious that Max was?'

ÈTO + FINITE CP-ADJUNCT

- (17) a. Èto_i bylo OČEVIDNO, [_{CP} čto Max byl doma]_i.
 it was OBVIOUS that Max was home
 'It was obvious that Max was at home.'
- b. *Gde_k èto_i bylo OČEVIDNO, [_{CP} čto Max byl t_k]_i?
 where this was OBVIOUS that Max was

NO *ÈTO*, NON-FINITE CP-COMPLEMENT

- (18) a. Prijatno [_{CP} PRO ležat' na gazone].
 nice lie_{INF} on lawn
 'It is nice to lie on the lawn.'
- b. Gde_k prijatno [_{CP} PRO ležat' t_k]?
 where nice lie_{INF}
 'Where is it nice to lie?'

ÈTO + NON-FINITE CP-ADJUNCT

- (19) a. Èto_i PRIJATNO, [_{CP} PRO ležat' na gazone v letnjuu žaru]_i.
 this NICELY lie_{INF} on lawn in summer heat]
 'It is nice to lie on the lawn during the summer heat.'
- b. #Gde_k èto_i PRIJATNO, [_{CP} PRO ležat' t_k v letnjuu žaru]_i?
 where this NICELY lie_{INF} in summer heat¹³

Finally, adjuncts, but not complements may be omitted. As the following examples demonstrate, post-verbal CPs may be omitted only when *èto* is present, which suggests that they are adjuncts:

¹³ (19b) is acceptable under the reading of *èto* mentioned in footnote 6 on *èto*-cleft constructions. However, this sentence cannot be interpreted as a *wh*-question derived from (19a).

ÈTO + FINITE CP-ADJUNCT

- (20) a. *Èto*_i bylo OČEVIDNO, [_{CP} *čto* Max – špion]_i.
 this was OBVIOUS, that Max spy
 ‘It was obvious that Max was a spy.’
- b. *Èto* bylo OČEVIDNO.
 this was OBVIOUS
 ‘It was obvious’

NO *ÈTO*, FINITE CP-COMPLEMENT

- (21) a. Bylo očividno [_{CP} *čto* Max – špion].
 was obvious that Max spy
 ‘It was obvious that Max was a spy.’
- b. * Byl očividno.
 was obvious

ÈTO + NON-FINITE CP-ADJUNCT

- (22) a. *Èto*_i PRIJATNO, [_{CP} PRO ležat’ na gazonu v letnjuu žaru].
 this NICELY lie_{INF} on lawn in summer heat
 ‘It is nice to lie on the lawn during the summer heat.’
- b. *Èto* PRIJATNO.
 it nice
 ‘It is nice.’

NO *ÈTO*, NON-FINITE CP-COMPLEMENT

- (23) a. Prijatno [_{CP} PRO ležat’ na gazonu v letnjuu žaru].
 nice lie_{INF} on lawn in summer heat
 ‘It is nice to lie on the lawn during the summer heat.’
- b. * Prijatno.
 nice

Note that sentences with and without *èto* also contrast with respect to the movement of post-verbal elements to a pre-verbal position.¹⁴ For example, when *èto* is present the movement of a post-verbal accusative DP to a pre-verbal position, either preceding or following *èto*, renders the

¹⁴ I am grateful to a referee for pointing out the relevance of this contrast.

sentence ungrammatical, as shown by (24).¹⁵ When *èto* is absent the movement of such a DP to a pre-verbal position is highly preferred, as shown by (25):¹⁶

- (24) a. $\dot{E}to_i$ UDIVILO Mašu, [CP $\dot{c}to$ Max – špion]_i.
 this surprised Masha ACC that Max spy
- b. */??(Mašu) $\dot{e}to_i$ (Mašu) UDIVILO t , [CP $\dot{c}to$ Max –špion]_i.
 Masha ACC this surprised that Max spy
 'It surprised Masha that Max was a spy.'
- (25) a. */?? Udivilo Mašu, [CP $\dot{c}to$ Max – špion].
 surprised Masha ACC that Max spy
- b. Mašu udivilo t , [CP $\dot{c}to$ Max – špion].
 Masha ACC surprised that Max spy
 'It surprised Masha that Max was a spy.'

This contrast may be explained in terms of the EPP requirement. It has been shown that in Russian the EPP can be satisfied by a wide range of non-Nominative XPs (Babyonyshev 1996; Bailyn 2004; Preslar 1998). Suppose that the pre-verbal position in question is the EPP position and that in (24), *èto* satisfies the EPP. There is no motivation for *Mašu* to raise. In contrast, in (25) where *èto* is absent *Mašu* raises to satisfy the EPP. This further supports the existence of two distinct structures. If sentences with and without *èto* had the same structure, with the possibility of *èto* being syntactically present but phonologically null, there should be no motivation for the accusative DP to raise, and in both (24b) and (25b) this movement should be equally problematic.

To sum up, the data discussed in this section demonstrate that Russian sentences with post-verbal CPs have different structures depending on whether or not the subject position of the matrix clause is occupied by *èto*. Post-verbal CPs in sentences without *èto* behave like

¹⁵ The situation is different when the DP in question is a pronoun (see 10b above). I am not going to address this contrast here.

¹⁶ Some speakers might find (24b) and (25a) acceptable under a specific context. For various analyses of the Russian word order, and in particular the number and status of possible pre-verbal positions (see Babyonyshev 1996, Bailyn 2004, King 1995, and references there).

complements of the verb/adverb, whereas post-verbal CPs co-indexed with *èto* behave like adjuncts and exhibit properties of a right-dislocated XP.

3.3 *The Antecedent of Èto*

Let us now turn to the second issue: a possible antecedent of *èto*. I propose that the antecedent of *èto* is the co-indexed clause, by virtue of the fact that *èto* refers to the event denoted by this clause. A similar claim is made by Rothstein (1995) and earlier by Bolinger (1977) regarding English *it* in the object position. Rothstein (1995) argues that in (26) *it* is not an expletive but refers to the event denoted by the clausal complement:

(26) a. I regret *it* every time I have dinner with John.

b. The children enjoy *it* every time you tell them a story.

(Rothstein 1995:514 (43a,b))

In (26) *it* is a variable bound by a quantifier over events, and not an anaphor co-indexed with a DP within the adverbial. In other words, *it* is bound by the quantifier phrases *every time I have dinner with John* and *every time you tell them a story*, and not co-indexed with *dinner* and *a story* in (26a) and (26b) respectively. Following Davidson (1967), Rothstein assumes an event argument (e-argument) present in the argument grid of the verb. She also assumes, following Parsons (1990) that entities are of two types: individuals and events. The property of the verbs *regret* and *enjoy* is that they select either an individual or an event as their internal argument. In (26) an event is chosen and *it* is a pronoun bound by this event.

This purely semantic account poses the following problem. As argued by Kratzer (1995), the e-argument is present in stage-level predicates, but not in individual-level predicates. Stage-level predicates refer to events that may happen, last or end (e.g. *build a house*, *read a book*), whereas individual-level predicates refer to states (e.g., *have blue eyes*, *be a spy*). If, as suggested by Rothstein, *it* is bound by the e-argument, we expect that it can only be associated with sentences that

contain a stage-level predicate. As the examples below show this is not the case:¹⁷

- (27) a. I have regretted *it* all my life that I don't have blue eyes.
 b. I take *it* that Max is a spy.

Furthermore, traditionally within the binding theory a pronoun agrees with its antecedent in person, number and gender (ϕ -features), and it also receives its semantic reference from it (Chomsky 1981). Thus, in the sentence [*The girl with blue eyes*]_i thinks that Mark loves her_i, her receives its ϕ -features (3rd singular-feminine) from the head of the DP *girl*, whereas the semantic reference is supplied by the whole DP and not just its head: *her* refers to the girl with blue eyes. I assume that *èto*, as any other referential pronoun, receives its ϕ -features and its semantic reference from its antecedent. However, it is not clear how the abstract *e*-argument is able to supply *èto* with its ϕ -features.

Leaving aside for the moment the issue of English *it* in the object position, for the purposes of my analysis of *èto* I propose a modification of Rothstein's purely semantic account. I propose that the antecedent of *èto* is indeed the co-indexed clause, however the labor of assigning *èto* its reference is divided between two 'sub-antecedents'. Let us refer to them as *structural antecedent* and *semantic antecedent*. Suppose that the structural antecedent is an N-type element that supplies *èto* with its ϕ -features. One possible candidate for such an N-type element is found in Borer's (1989) theory of anaphoric AGR. Borer follows Reuland (1983) and Stowell (1982) in assuming that both finite and non-finite clauses contain an INFL node. She also assumes that INFL is comprised of TENSE and AGR, the latter being an N-type element.¹⁸

Based on Borer's analysis, I propose that AGR, by virtue of being an N-type element, can function as an antecedent of *èto* and supply it with its ϕ -features. Let us assume that these are default ϕ -features of CP: 3rd-singular-neuter:

¹⁷ Thanks to Betsy Ritter for pointing this out to me.

¹⁸ It should be made clear that Borer's (1989) theory is not aimed at explaining any of the facts discussed in this paper, but is designed to account for a completely different phenomenon. In this paper, I am only adopting her assumption that AGR is an N-type element. Other details of her theory are irrelevant here.

- (28) Èto_i ogorčì-lo Mašu,
 this_{3SG. NEUTR} upset_{PAST. 3SG. NEUTR} Masha_{ACC}
 [CP čto Max okazalsja špionom]_i
 that Max turned-out spy
 ‘It upset Masha that Max turned out to be a spy.’

This accounts for the distribution of *èto*: As shown in section 2, *èto* may be co-indexed with finite and non-finite CPs, and it may not be co-indexed with PPs.¹⁹ Since PPs do not contain the INFL node they do not contain AGR and therefore may not be co-indexed with *èto*.

However, not being a lexical head, AGR may not assign semantic reference to *èto*. Following Borer’s theory, AGR itself may be anaphoric and as such referentially dependent on an antecedent. I propose that just like personal pronouns such as *she* or *he* receive their semantic reference from the co-indexed DP and not from its head alone *èto* receives its semantic reference from the co-indexed CP, its semantic antecedent. This is consistent with Rothstein’s analysis and explains the binding facts above.

To sum up, when a pronoun is co-indexed with a clause the labor of supplying this pronoun with its φ -features and semantic reference is divided between two distinct elements: φ -features are supplied by AGR — the structural antecedent, whereas the semantic reference is supplied by the entire clause — the semantic antecedent.

4. Conclusion

Contrary to previous analyses, I argued that *èto* in sentences with post-verbal clauses is a referential pronoun that must be theta-marked. This analysis captures the Russian facts that may not be accounted for under the expletive treatment of *èto*. I have shown that Russian sentences with and without *èto* are associated with two different syntactic structures. When *èto* is present, the construction contains an adjunct that has properties of a right-dislocated XP. Furthermore, the antecedent of *èto* is the co-indexed post-verbal clause. *Èto* receives its φ -features (3rd

¹⁹ According to Borer (1989), the INFL node is also present in gerunds.

singular-neuter) from AGR (an N-type element found within the INFL node), and its semantic reference from the co-indexed clause.

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On Prominence, Focus, and Sentence Type in Russian: ‘Intonationally Marked’ Yes-No-Questions

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1. Introduction

There are two major kinds of root yes-no questions (YNQs) in Russian. The first one, marked by the particle *li*, has been studied to some extent in the generative syntactic literature since its first analysis by King (1994). The second one, which overtly differs from a corresponding declarative sentence only by a special prosodic pattern, and has been given far less attention yet, is the subject of this paper.

An important initial observation about these ‘prosodically marked’ YNQs in Russian is given in Ladd (1996, 168f; see also Comrie 1984 with a similar description): “Russian statements [...] have the greatest prominence on the noun if there is one following the verb [...] In YNQs, on the other hand, the neutral accent pattern or citation form has the greatest prominence on the verb, regardless of whether the verb is followed by a lexical noun [...] A YNQ with greatest prominence on a noun is distinctly non-neutral, i.e., [...] is felt to focus narrowly on [the noun].” E.g., following Ladd, (1a) would be a relatively ‘neutral’ accent pattern for YNQs, while (1b) would convey a contrastive focus on *knigu*.

- (1) a. Ona KUPILA knigu? [- Da, (ona) kupila (knigu).]
she bought book_{ACC} yes she bought book_{ACC}
- b. Ona kupila KNIGU? [- Da, knigu.]
she bought book_{ACC} yes book_{ACC}

For Ladd, this fact forms a crucial argument against so-called ‘prominence-to-focus’ accounts, i.e., theories which assume that cross-linguistically, prosodically prominent words are always in focus. Since the focus/prominence relation in Russian YNQs differs from the pattern observed, e.g., in English, the rules governing this relation must be language-specific. While generally convincing, this point has an undesirable consequence for the analysis of Russian: We seem to need two completely different sets of focus/prominence rules for declaratives vs. YNQs within one grammar. The pattern described by Ladd (1996) opens up a number of interesting research questions about Russian which have not been addressed in any detail: (i) How exactly are declaratives and YNQs with the same locus of prominence prosodically distinguished? (ii) What does the ‘special intonation’ of YNQs consist in, and what does it really mark? (iii) How can the different patterns of prominence for focus marking in declaratives vs. YNQs be explained?

The goal of this paper is to give an account of the basic intonation patterns in Russian YNQs and the respective focusing properties, proposing an answer to the above questions. To this end, I first provide some more details, both instrumental and impressionistic, on the ‘special intonation’ of Russian YNQs (Section 2). In Section 3, the effect of this prosodic pattern on sentence mood marking is put under scrutiny. In Section 4, I turn to its effect on focus marking. Section 5 gives the conclusions.

2. Russian YNQ prosody

2.1.1 Background

Traditional descriptive studies of Russian intonation are mainly concerned with the general contour of the pitch accent in YNQs vs. declaratives, rather than with its different locus. According to Bryzgunova (1975), a neutral declarative is characterized by a gradual decline and a sentence-final fall, the IK-1 (= *intonation construction* 1). YNQs, on the other hand, are marked by IK-3, a steep rise to very high pitch, followed by a rapid fall; the contour is centered, with the highest pitch located on the so-called *predikat voprosa* (‘predicate of the question’). IK-3 may also occur in declaratives, where it encodes ‘non-

finality' of the utterance, according to Bryzgunova (1977).¹ There is some disagreement whether the subtypes of IK-3 may be even instrumentally distinguished (see the overview in Makarova 2001). Makarova (2001) reports significant phonetic distinctions between the rise-fall occurring in declaratives and exclamations on the one hand, and the one in YNQs and enumerations on the other hand. This result obviously does not mean that Russian has an unambiguous intonational contour for YNQs; first, there is no clearcut distinction between enumerations and YNQs, and second, Makarova's study did not take focus-background structure into account. But the crucial point of comparison between declaratives and YNQs is not between the respective 'neutral' cases, which are distinguished by the locus of the pitch accent anyway (Ladd 1996). One has to compare declaratives and YNQs with the *same* locus of prominence, to see if their pitch accents differ. Meyer and Mleinek (*in prep.*) report the results of a reading study and a perception study of simple 3-word SVO sentences in contexts disambiguating their sentence mood and focus-background structure. While, e. g., the intonation contours of a declarative with contrastive focus on the verb and of an 'all-new' YNQ (with the main accent on the verb, see above) are indeed of a very similar shape, there were nevertheless statistically significant general differences in F0 height and peak alignment: In YNQs, the frequency maximum was not only higher than in comparable declaratives, but it also occurred relatively later (measured in quarter syllables), well within the syllable *after* the one bearing lexical stress (cf. diagram 1). A similar peak delay has been reported for question tunes not only in East European languages (see Grice, Ladd and Arvaniti 2000 for details), but also in Dutch and Chinese, where "[...] listeners associate not only higher peaks and higher end pitch with questions, but also later peaks." (Gussenhoven *to appear*). I take this shape of a pitch accent with a very high peak delayed from the accented syllable as the first hallmark of Russian 'special YNQ intonation'.

¹ For the sake of completeness, YNQs introduced by *a* ('and/but') — which I will not discuss in this paper — are marked by a different contour, IK-4 in Bryzgunova's system.

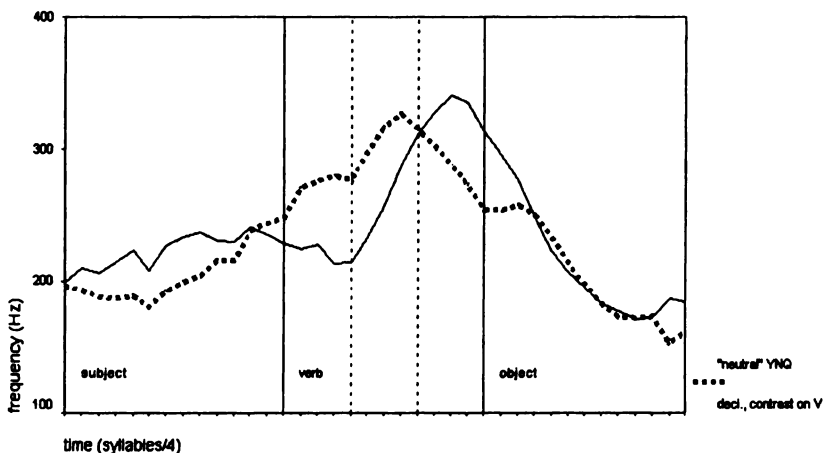


Diagram 1: ‘Neutral’ YNQ vs. declarative with contrastive focus on V (8 similar SVO sentences uttered by one speaker). V is lexically stressed on the 2nd syllable.

The second hallmark is the special *locus* of the pitch accent in YNQs. According to traditional descriptions, the constituent marked by highest prominence contains the *predikat voprosa* (‘predicate of the question’, Bryzgunova 1977) or the *iskomoe* (‘searched item’, Restan 1972). This is means that an appropriate answer to a YNQ with *iskomoe* X takes the form ‘*Da(, X)*’ or ‘*Net(, ne X)*’, as in (1a,b) above. In an obvious sense, the locus of the pitch accent marks the *focus* of the question: It rests on the constituent that may be contrasted to some element of the previous context. We will return to the question in what sense the YNQ in (1a) may be considered ‘neutral’ (Ladd 1996), whereas the one in (1b) can be only contrastive.

3. Sentential mood and YNQ intonation

As is well-known from languages like English or German, syntactically declarative sentences may be exceptionally used as questions, typically accompanied by a final rising tone – so-called ‘rising declaratives’ (see Gunlogson 2001 on English; BRRZ 1992 on German, among others). In these languages, unambiguous main clause YNQs are marked obligatorily by subject-aux-inversion and verb first order, respectively. This

is, of course, not the case in Russian: A *li*-less root YNQ usually does not differ from a declarative sentence with respect to word order.² This fact has led to claims that question intonation works like a function which applies to a declarative sentence, yielding a YNQ (Siemund 2001). In that case, (i) there should be no direct Russian equivalent of English rising declaratives, and (ii) question intonation should be a sufficient condition for interrogative sentence type in Russian. On closer inspection, however, neither (i) nor (ii) turn out valid: There is a class of YNQs, traditionally called ‘presumptive questions’ (Restan 1972), which patterns with declarative sentences and differs from ‘true’ YNQs marked by *li*, according to a number of criteria. Since these presumptive questions are marked by exactly the same accent shape as ‘true’ *li*-less YNQs, question intonation can only be a necessary, not a sufficient condition for interrogative sentence type. Despite first appearance and traditional claims, intonation is only an indicator of question *function*, regardless of syntactic sentence type.

3.1 Licensing of certain modal particles

Certain modal particles are admissible in declarative clauses, but not in *li*-questions:

- (2) a. U nas ved' / že ždut nemedlennogo rezul'tata.
 at us MP MP wai_{3PL} quick result_{GEN}
 ‘They are expecting a quick result from us.’ (mod., TRK)
- b. Ždut li (*ved' /*že)unas nemedlennogo rezul'tata?
 wait_{3PL} LI MP MP at us quick result

Inserting *že* or *ved'* into a *li*-less YNQ gives it a distinct presumptive reading: The speaker seems to think the question’s propositional content true and to ask only for the hearer’s approval (cf. also Hagstrom and McCoy 2002). The effect is similar to that of an English rising declarative, as analyzed by Gunlogson (2001). It seems plausible to relate the distribution of particles like *že* and *ved'* to syntactic sentence type, and

² Disregarding for now the fact pointed out by Restan (1972), that YNQs in which the verb has raised up across the subject seem to be incompatible with a ‘presumptive’ reading (but see below).

analyze Russian presumptive YNQs as syntactic declaratives (marked [-Q]), which are only put to use as questions. At least for *že*, it is moreover obvious that its distribution cannot be explained only by reference to the sentence's illocutionary function (i. e., not being a question act), since this particle may also occur in *wh*-interrogatives (marked [+wh]). Now, we expect the following: (i) If there are elements or contexts compatible with *li*-YNQs, but not with syntactic declaratives, then these elements/contexts should also be incompatible with YNQs containing modal particles like *že* or *ved'*. (ii) If these diagnostic elements/contexts are still compatible with *some* intonationally marked, non-presumptive YNQs, then those YNQs must be of the same syntactic sentence type as *li*-questions, marked [+Q]. Let us turn to the evidence.

3.2 Licensing of bare *wh*-indefinites

In somewhat archaic style, YNQs marked by the particles *li* or *razve* can license *wh*-pronouns with an indefinite reading:

- (3) a. Znaet li kto iz nas, gde on umrët? (Solouxin, TRK)
 knows LI who of us where he dies_{PF}
 'Does anyone of us know where he is going to die?'

Given an appropriate context, the same holds for intonationally marked YNQs; but a parallel declarative clause would be incomprehensible.³

- (3) b. [Iz nas nikto ne znaet, gde on umrët.
 'Noone of us knows where he is going to die.']
 A iz vas kto ZNAet, gde on umrët?
 and of youwho knows where he dies_{PF}
 'Does anyone of you know where he is going to die?'
- c. *No iz vas kto ZNAet, gde on umrët.
 but of you who knows where he dies_{PF}

³ The accented syllable is rendered in capitals; it is crucial for the relevant reading that the *wh*-pronoun be deaccented.

A *li*-less YNQ can never license a bare *wh*-indefinite and contain particles like *že* or *ved'* simultaneously:

- (3) d. A iz vas *že / *ved' kto ZNAet, gde on umrët?
and of you MP MP who knows where he dies _{PF}

If bare indefinites are licensed by [+Q], the pattern in (3d) is expected, because — as we saw in 3.1 — the modal particles *že* and *ved'* are incompatible with [+Q].

3.3 Licensing of *nibud'*-indefinites

Gunlogson (2001) demonstrates that polarity items like *any* are licensed in proper interrogatives, but not in rising declaratives in English:

- (4) a. Is anybody home?
b. #Anybody's home?

With little variation, my informants found a similar pattern for *nibud'*-indefinites in Russian:

- (5) a. Izmenilos' li s tex por čto-nibud'?
changed LI from these times something
'Has anything changed since that time?' (TRK)
b. Zdes' (*že / *ved') čto-nibud' izmenilos'?
here MP MP something changed
c. *S tex por čto-nibud' izmenilos'.
from these times something changed

While *li*-interrogatives can license *nibud'*-indefinites (5a), declaratives disallow them ((5c), for most of my informants). *Li*-less YNQs can license these indefinites in principle, but not in combination with *že* or *ved'* (5c). Thus, the YNQ in (5b) patterns with proper interrogative sentences, not with declaratives.

3.3.1 Licensing of indefinites under negation

Brown and Franks (1995) report that proper YNQs differ from presumptive YNQs with respect to the type of indefinite pronoun which they license under negation: While negated *li*-questions allow only *nibud'*-indefinites, but no *ni*-indefinites, this pattern is reversed in negated declaratives:

- (6) a. Ne dopustil li kto-nibud' / *nikto ošibki?
 not admitted LI someone noone mistake_{GEN. SG}
 'Didn't anybody make a mistake?'
 (Franks and Brown 1995:273; Brown 1999:97)
- b. Ne dopustil *kto-nibud' / nikto ošibku.
 not admitted someone noone mistake_{ACC. SG}

Superficially, *li*-less YNQs seem to allow both variants:

- (7) a. A kogo-nibud' drugogo iz podpol'sčikov ty ne znaeš'?
 and someone else from undergrounders you not know
 'So don't you know any others from the underground?'
- b. A nikogo drugogo iz podpol'sčikov ty ne znaeš'?
 and noone else from undergrounders you not know
 'So you don't know anyone else from the underground?'
 (Brown and Franks 1995:273; see also Brown 1999:98)

As soon as a sentential adverb or modal particle reserved for declaratives is inserted, making the question explicitly presumptive (Restan 1972), the choice of negative indefinites works as in declarative clauses:

- (8) Da vy, stalo byt', ničego ne zamečate v sebe?
 and you seems nothing not notice in yourself
 'And you don't notice anything in yourself, it seems?'

(Brown and Franks 1995:63)

Brown and Franks (1995) and Brown (1999) relate the different licensing patterns of *li*-marked YNQs vs. declaratives to two syntactic factors: (i) the presence/absence of a [+Q]-feature in C^0 and (ii) overt movement of the Neg+verb-complex up to C^0 vs. its staying *in situ*. Negation may be

either proper (allowing for *nibud'*-indefinites and excluding *ni*-indefinites) or pleonastic (licensing *ni*-indefinites and disallowing *nibud'*-indefinites). Differences in formalization aside, both accounts assume that the movement of Neg+verb up to a [+Q]-marked C^0 is only licit if negation is pleonastic. Proper negation would lead to a Relativized Minimality effect (Brown and Franks 1995) or to inconsistent feature specifications (Brown 1999). Thus, Neg+verb in C^0 in questions licenses *ni*-indefinites and disallows *nibud'*-indefinites (6a). If the Neg+verb-complex does not move to C^0 , as in (7), either pleonastic or proper negation should be possible, and therefore, both types of negative indefinites should be acceptable. The intuitive difference in meaning between (7a) and (7b) — reflected also in the different translations⁴ — has no syntactic basis, on this account. In fact, Brown and Franks (1995) explicitly state that there must be syntactic [+Q]-marking in both (7a) and (7b), because both sentences are used as questions; the difference lies in either a positive or a negative pragmatic implicature. Brown (1999) goes further and views (7a) as presumptive and (7b) as non-presumptive, but there is no explicit mechanism which ensures that only presumptive questions can contain proper negation and only proper questions allow pleonastic negation.

A crucial piece of evidence for Brown and Franks' analysis concerns ([+Q]-)*li*-questions in which a focused XP, rather than the Neg+verb complex, has moved up in front of *li*. Here, no conflict with proper negation can arise, and *ni*-indefinites should be licit. This prediction seems to be borne out:

- (9) [_{Foc} Maše] li vy ničego (/ *čto-nibud') ne kupili?
 M. _{DAT} LI you nothing something not bought
 'Is it Maša that you bought nothing for?'

(Brown and Franks 1995, with modifications)

On the one hand, (6a) and (9), taken together, seem to indicate that pleonastic negation is available only if proper negation is grammatically excluded (Brown and Franks 1995:274). On the other hand, this

⁴ Note that the Russian YNQs containing proper negation are rendered as English rising declaratives, and the ones with pleonastic negation as true interrogatives.

generalization does not extend to non-*li* YNQs, where there seems to be a free choice between proper and pleonastic negation.⁵

I would like to argue that this 'free choice' is illusory; the decisive factor for allowing proper negation or licensing pleonastic negation is the setting of the syntactic [Q]-feature: Presumptive YNQs are syntactically [-Q]: They behave like declaratives, i.e. they do not license pleonastic negation. Only proper YNQs (*li*-YNQs and non-presumptive *li*-less YNQs) are marked [+Q] and therefore, may cause a conflict with proper negation. Furthermore, I stipulate that [Pol] (i.e., the feature realized in the head of a NegP; see Brown 1999) always has to be identified within its clause, either overtly or covertly. Then, *proper* negation is incompatible with proper ([+Q]-)YNQs if and only if [Pol]+verb moves up to C⁰ overtly, as before; it is compatible with presumptive YNQs independently of word order. Note that raising of the finite verb to C⁰ would preclude a presumptive reading anyway, independently of negation (Restan 1972, Brown 1999, 103). The exact reason for this fact has not yet been explained; I assume that the finite verb can move to check the [+Q] feature, which may be optionally strong in Russian. *Pleonastic* negation is licensed in proper ([+Q]-)YNQs, and not in presumptive YNQs, because only in the former can its operator be c-commanded by a true ([+Q])-operator (in the system of Brown and Franks 1995) or identified (in the sense of Brown 1999).

3.5 Answering patterns under negation

A further overt effect of proper vs. pleonastic negation shows up in the possible positive/negative answers to negated *li*-questions and negated declaratives. When the propositional content of a negated *li*-question is being accepted, as in (10a), the proper answer can only be of the form (*da*, +)*non*-Neg. On the other hand, when the answerer wishes to refute

⁵ Franks and Brown (1995:278) offer the following explanation: The proper negation operator has to scope over T (i.e., adjoin above T overtly or covertly), whereas pleonastic negation can be interpreted *in situ*. By assumption, the interrogative operator can be situated either [Spec,TP] or in [Spec, CP] in *li*-less YNQs. Then one would expect a crossing violation if and only if proper negation occurred in a YNQ with the interrogative operator in [Spec,TP]. I fail to see why only presumptive YNQs can have the interrogative operator in [Spec,CP], while proper *li*-less YNQs must have it in [Spec,TP], and how this mechanism would exclude pleonastic negation in (9).

the question's propositional content, he can only use *net* plus a negated clause (10b):

- (10) Ne ukral li on den'gi?
 not stole LI he money
 'Did(n't) he steal the money?'
- a. Da, ukral. / *Net, ukral.
 yes stole no stole
- b. Net, ne ukral. / *Da, ne ukral.
 no not stole yes not stole

Purely informative negated *li*-questions like these do not carry any positive or negative implicature (Restan 1972), and thus, *da* and *net* respectively simply make reference to the actual truth value of the proposition. 'Intonationally marked' YNQs, as before, seem to have a choice of either following the pattern of proper *li*-questions (11) or a different one, as in (12). The latter pattern can be enforced by the use of certain modal particles or sentential adverbials which only fit declarative clauses:

- (11) Vy ne vidali eĭ?
 you not saw her
 'Didn't you see her?'
- a. Da, vidal. / *Net, vidal.
 yes saw no saw
- b. Net, ne vidal. / *Da, ne vidal.
 no not saw yes not saw
- (12) Ty ved' (že / kažetsja,) ne čital Evtušenko?
 you MP MP seems not read E.
 'You, it seems, haven't read Evtušenko?'
- a. *Da, čital. / Net, čital.
 yes read no read
- b. Net, ne čital. / Da, ne čital.
 no not read yes not read

(Restan 1972)

The pattern in (12) is unexpectedly complicated. The question seems to carry a ‘negative implicature’ (Franks and Brown 1995), i.e., we deal with proper, not pleonastic, negation. What could be the meaning of *da* in (12a,b)? It has to be something like ‘I agree’ and cannot just reflect the material truth of the proposition (then *da* in (12a) should be meaningful). *Net*, however, seems to be ambiguous between ‘I do not agree’ (12a) and ‘the proposition does not hold’ (12b). Interestingly, the same peculiar pattern can also be observed in ordinary negated declarative clauses.

- (13) a. ‘[...] I ničego ne menjalos’.– ‘Net, (/ *da) menjalos’.
 and nothing not changed no yes changed
 ‘[...] and nothing has changed. – Yes, it has. [...]’
 (after Strugackie, TRK)
- b. [‘A on ved’ [...] po svoej polnote v ètu dver’ na čerdak ne
 projdet’. – But he [...] with his obesity, won’t ever fit
 through this door.] Da, (/net) on ne projdet.
 yes no he not go-through
 ‘Yes, he won’t go through.’ (after Leskov, TRK)

Note, moreover, that the answers to *li*-questions and to proper, non-presumptive YNQs correspond exactly to the appropriate responses to run-of-the-mill *non-negated* declarative clauses or *non-negated* interrogatives. Pleonastic negation thus truly seems to have a zero effect on yes-/no-answering patterns. If we wanted to stick to the generalization that proper negation was the default case, while pleonastic negation had to be especially enforced, e.g., by remaining as the only option because of movement across an offending intervenor, then it would be once more hard to see how pleonastic negation could be enforced in a *li*-less YNQ like (11). On the other hand, if pleonastic negation depends on the presence of a special licenser, which is incompatible with a modal particle like *že*, then (11)-(12) can be easily explained. I take the parallel behavior of *li*-questions and proper *li*-less YNQs on the one hand and presumptive YNQs and declaratives on the other, as indication that again, sentence mood distinctions are decisive for the licensing of presumptive vs. proper negation.

3.6 Some consequences

In the preceding Sections, I tried to show that there are two distinct kinds of alleged intonationally marked YNQs in Russian. The one type,

incompatible with typically declarative modal particles, carries a syntactic [+Q]-marking. The second type, compatible with these particles/adverbs, is syntactically declarative ([-Q]), and is only pragmatically interpreted as a question, much like rising declaratives in English.

An important correlate of this distinction was the occurrence of proper vs. pleonastic negation. But what comes first, the chicken or the egg? If one wanted to insist that there is just one syntactic type of li-less YNQs, then the distribution of the respective modal particles would have to follow from the meaning or implicatures of pleonastic vs. proper negation. But there are at least two clear counterarguments: First, our first two pieces of evidence, i.e., the licensing of bare *wh*-indefinites and *nibud'*-indefinites in non-negated contexts, must be explained with respect to a licensing interrogative sentence type feature. Second, there is a type of example in which pleonastic negation is licensed by lexical means even within a declarative clause (Brown and Franks 1995). If the distribution of the critical particles/adverbs was linked to the type of negation semantically or pragmatically, then they should be impossible in this case. If, on the other hand, their presence was connected to syntactic sentence type, they should be able to occur. The latter seems to be the case:

- (14) On *že/ ved' / konečno / ,stalo byt' , čut' ne uronil stakan ?*
 he MPMP of-course apparently almost broke glass
 'He, of course, almost broke the glass, didn't he?'

Let us now turn to the role of intonation. Diagram 2 shows an average of the verbal accent on six presumptive vs. proper YNQs. from the same female speaker. They differed only in the presence/ absence of the modal particles which are diagnostic for declarative sentence type. The accent shape of both types of YNQs is obviously very similar, involving both very high F0 and by peak delay. While this is definitely only the beginning of more thorough phonetic work, diagram 2 at least points in the direction we argued for: 'IK-3' seems to be a necessary, not a sufficient, marker of interrogative sentence type in Russian.

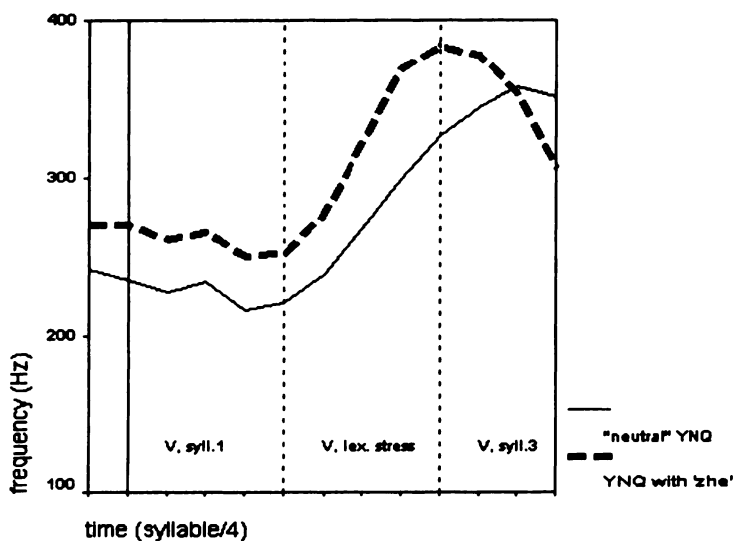


Diagram 2: Peak delay and pitch accent shape in proper vs. presumptive YNQs

4. Focus in *li*-less YNQs

We now turn to the puzzle posed by the relation of focus and the locus of prominence in Russian YNQs. Recall that highest prominence on the verb has been described as ‘neutral’, while highest prominence on the direct object *in situ* is felt to be distinctly contrastive (Comrie 1984, Ladd 1996). This pattern clearly differs from the one observed in declarative clauses (see e.g., Junghanns and Zybatow 1997). Thus, we seem to need two distinct sets of rules to for an appropriate analysis.

When a simple *li*-less YNQ is uttered out of the blue or following a very general *wh*-question like *čto novogo?/ čto takoe delaetsja?* (‘What’s up?/What’s going on?’), Russian speakers regularly stress the finite verb and deaccent the rest of the sentence. This pattern does not carry any implications about the givenness of the deaccented arguments and is

remarkably stable.⁶ However, what is highlighted here, is not actually the *lexical* content of the verb, but rather an element of ‘validity’ syntactically linked to *finiteness*, as can be seen in periphrastic tenses, where stress on the finite auxiliary is the most ‘neutral’ pattern:

- (15) a. Igor’ BUdet pererabatyvat’ svoju stat’ju?
 I. AUX_{FUT} rework his article
- b. Igor’ budet pereraBAtyvat’ svoju stat’ju?
 I. AUX_{FUT} rework his article
 ‘Will Igor’ revise his article?’ (Mehlig 1990, 201)

(15a) is called an ‘existential’ question by Mehlig (1990), a question about the mere existence of the situation described by the propositional content. (15b) — a so-called ‘explicative’ question — asks if the action taken by Igor’ will be specifically one of revising or rather something else (say, burning). Clearly, (15b) imposes more restrictions on the context, presupposing, e.g., the existence of an article and a future action to be taken by Igor’, and contrasting the latter to other possible actions by Igor’.

As has been demonstrated in detail by Höhle (1992) and Klein (1998), among others, finiteness involves a component of assertion or VERUM, which in a declarative clause expresses the positive or negative polarity of the claim being made (it also involves other components, see Klein 1998). The assertive component can be highlighted seperately, e.g., by stressed-*do* support in English or by stressing the complementizer in German subordinate clauses. Zybatow (1997) shows that, other than in German, the accent which marks a Verum focus in Russian can never be dissociated from the finite verb form.⁷ Verum focus bears strong resemblance to contrastive focus, in that the highlighted element can occur in

⁶ E.g., the pattern cannot be influenced by changing the referential status of the right-peripheral object, e.g. from discourse-old to indefinite or from existent to hypothetical.

⁷ This empirical fact of Russian makes it difficult to prove that the highlighted element is really Verum, rather than contrasting the temporal component. However, the two are clearly logically distinct: A sentence like *Ivan ne zvoNIL Maše* (*Ivan did not call Maša*) does not necessarily imply that the action takes place in the present or the future, instead of the past. On the most plausible reading, it contrasts the event’s not taking place to its possible taking place (both in the past).

any surface position. The pitch contour used to mark a Verum focus is very similar to that of a contrastive focus (Mehlhorn 2002). From a theoretical perspective, Verum focus has been classified, along with contrastive focus, as a type of operator focus, i.e., as A'-bound by an operator which rests in a fixed syntactic position (a polarity phrase, following Drubig 2003). Thus, Verum and contrastive focus differ from so-called 'presentational' focus; the latter is not licensed by syntactic binding to an operator, but depends on the context and the intentions of the speaker (Junghanns and Zybatow 1997).

All these properties fit our characterization of *li*-less YNQs in Russian. First, we have seen evidence that the 'neutral' focus in YNQs highlights the assertive component of the finite verb, rather than, e.g., the main verb's lexical content. Second, the shape of the pitch accent marking a neutral YNQ is quite similar to a declarative contrastive accent; more importantly, 'neutral' YNQs and YNQs with a contrastive focus on the finite verb are not distinguished accentually at all (see Meyer and Mleinek *in prep*). Third, the analysis of 'neutral' focus in YNQs as a kind of operator focus has welcome theoretical consequences. Our original assumption, following Ladd (1996), was that we need two different sets of rules for the focus/prominence-relation in the two sentence types. Instead, we now claim that Russian YNQs simply lack presentational focus altogether. Russian [+Q] introduces both interrogativity and an element of contrast/exclusion of alternatives, like the focus particle *only* in English. Like *only*, it binds an operator focus in its syntactic scope. Therefore, any highlighted element will be understood as excluding some salient alternatives; and prominence on the direct object in a YNQ necessarily leads to a contrastive interpretation. At the same time, Verum focus is the most 'neutral' of all the potential operator foci in a YNQ, since it does not impose any further given-new division on the propositional content of the clause – it simply asks about the occurrence or non-occurrence of the described event as a whole.

On the other hand, [-Q] in Russian does not bind an operator focus, but is compatible with all kinds of foci, including the presentational, non-contrastive type. This claim has an obvious consequence with respect to the conclusion reached in the previous Section: presumptive questions, syntactically [-Q], should follow the prominence pattern of declarative clauses, i.e., allow for presentational focus and come with highest prominence not on the finite verb, but on the right-peripheral, most

deeply embedded complement, in their most ‘neutral’ version. But didn’t we claim throughout that the prosody of proper and presumptive YNQs was indistinguishable?

It turns out that an additional factor has been involved in the data presented so far: Modal particles like *že*, *ved’* and the like, which we used as indicators for [-Q] in presumptive questions, show a strong tendency towards Verum focus already in a declarative clause (a conclusion reached independently by Hagstrom and McCoy 2002). It comes as no surprise that the locus of prominence in the respective YNQs was on the finite verb. But if our discussion in Section 3 was on the right track, then we can also construct examples of [-Q]-questions *without* those particles, e.g., by inserting (proper) negation in combination with a *ni*-indefinite. Although judgments are subtle here, the non-contrastive [-Q]-YNQ with a *ni*-indefinite in (16a) indeed comes with highest prominence on the most deeply embedded, right-peripheral argument. The pattern in (16b), on the other hand, involves a special contrast on the verb.⁸

- (16) a. Maša ne zakazala nikomu NOmer (, što li)?
 M_·NOM not ordered nobody_{DAT} room_{ACC} MP
 ‘So Maša didn’t order a room for anybody (or what)?’
 b. Maša ne [_{Foc-c} zakaZAla] nikomu nomer (, što li)?

A further case of mismatch between syntactic sentence type and illocutionary function of an utterance concerns YNQs with an embedded *that*-clause. Interestingly, the most neutral pattern of prominence here does not involve accentuation of the finite verb in the embedded clause⁹ (17a), but accentuation of the most deeply embedded right-peripheral argument (17b).

- (17) a. Ty dumaeš’, što Tamara [_{F-Verum} sobiRAla] malinu?
 you-think that T_·NOM harvested raspberries
 ‘Do you think that Tamara harvested the raspberries?’

⁸ Brown and Franks (1995:273) offer an example of a contrast between *nibud’*- and *ni*-indefinites in which all arguments are scrambled out of VP, forming part of the background. The difference in pitch location between the two types is thus neutralized.

⁹ Why embedded *that*-clauses detract the main accent from the matrix clause, i.e., why it is not the matrix verb that is accented in (17b), has to be explained independently.

b. Ty dumaes', čto Tamara sobirala maLlnu?

It seems hopeless to account for (17) under the assumption that the specific prominence pattern in Russian YNQs is linked to the illocutionary force of the utterance: since the whole utterance is a question and the embedded clause lacks an illocutionary force of its own, the most neutral pattern would have to be (17a). However, the pattern is expected under our argumentation: If the *syntactic* feature [+Q] in Russian YNQs associates with an operator focus, then it seems plausible that this association cannot extend across the syntactic clause type feature [-Q] of the embedded *that*-clause. In line with Höhle's (1992) generalization that Verum focus by itself is associated with a syntactic, rather than an illocutionary feature, (17a) represents a Verum focus in the embedded clause.

5. Conclusion

The goal of this paper was to establish a number of generalizations about the relation between the shape and locus of the pitch accent and its sentence modal and information-structural significance in Russian YNQs. *Contra* some more traditional assumptions, I argued that

- (i) the special shape of the pitch accent marks illocutionary force (pragmatic 'questionhood') rather than interrogative sentence type,
- (ii) there is an identifiable subset of Russian *li*-less YNQs which are marked [+Q], making them proper syntactic interrogatives,
- (iii) [+Q] is a focus particle in Russian (unlike, e.g., in English). It obligatorily binds an operator focus. Thus, presentational focus is excluded in Russian proper YNQs, and Verum focus is the variant imposing least requirements on the context,
- (iv) the locus of the „most neutral' pitch accent is determined by the presence or absence of a [+Q]-operator.

Future work should provide further reliable prosodic data and a worked-out focus semantics for the presented analysis.

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A Distributed Morphology Approach to Syncretism in Russian Noun Inflection*

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1. Introduction

Russian noun inflection exhibits many instances of syncretism (understood here in a broad sense, as homonymy of inflection markers). There are two basic types. First, there is *intra-paradigmatic* syncretism, i.e., homonymy of inflection markers for two (or more) cases within an inflection class. Second, there is *trans-paradigmatic* syncretism, i.e., homonymy of inflection markers across inflection classes (the homonymous markers may or may not be for identical cases).¹ Following seminal work by Jakobson (1962a,b), intra-paradigmatic syncretism has been approached by decomposing standard, privative case features like [nom], [acc], etc. into combinations of more abstract, binary features, such that natural classes of cases are formed that inflection markers can refer to. In contrast, trans-paradigmatic syncretism has not yet been addressed in a principled way. The main goal of this paper is to show that trans-paradigmatic syncretism can be derived systematically in essentially the same way as intra-paradigmatic syncretism if inflection class features like [class I], [class II], etc. are also decomposed into combinations of more abstract, binary features, such that natural

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¹ Throughout this paper, I assume that paradigms have no status except as empirical generalizations; see, e.g., Bobaljik (2002), Harley & Noyer (2003).

classes of inflection classes are formed that inflection markers can refer to. This implies that inflection markers may bear underspecified case and inflection class information, which often leads to a competition of markers. The competition can be resolved by selection of the most specific marker.

Since the analysis is based on underspecification and specificity-based competition, it presupposes an approach to inflectional morphology that recognizes these two concepts. One such approach is Distributed Morphology (see Halle & Marantz 1993, Harley & Noyer 2003), which will be adopted here.²

A caveat is due before I turn to the empirical evidence: Throughout, I focus on the core system of noun inflection in Russian. This implies that I disregard minor inflection classes, minor cases, stem alternations, stress patterns, lexical idiosyncrasies, and so on. These issues are ultimately important; but my hope is that they do not significantly affect what I have to say here about intra- and trans-paradigmatic syncretism.

2. Data

Russian has six cases: nominative (nom), accusative (acc), dative (dat), genitive (gen), instrumental (inst), and locative (loc). Furthermore, I assume that there are four inflection classes, labelled I-IV.³ For now, I focus on the singular (see section 6 on the plural).

Consider first inflection class I, which contains only masculine stems. Three sample paradigms are given in table T₁. The variation in this class is conditioned by two factors: First, inanimate noun stems like *zavod* ('factory') employ the nominative marker /Ø/ (= null) in the accusative, whereas animate noun stems like *student* ('student') take the genitive marker /a/

² However, most of what follows can also be formulated in alternative approaches that allow underspecification and specificity-based competition, like, e.g., the ones developed by Carstairs (1987), Anderson (1992), Blevins (1995), Wunderlich (1996), or Stump (2001). In fact, there is a more comprehensive version of the present material (see Müller 2003) which does not assume Distributed Morphology. The only case where Distributed Morphology may initially seem crucial involves the analysis of the animacy effect in section 7, which relies on impoverishment; but see the remarks there.

³ This follows Corbett & Fraser (1993); reference grammars typically postulate three main classes (see, e.g., Isačenko 1975). As we will see, there is no real contradiction here if inflection class features are decomposed.

in the accusative.⁴ Second, there are systematic, morpho-phonologically predictable differences between nouns whose stem ends in a “hard” (i.e., [+back]) consonant and nouns whose stem ends in a “soft” (i.e., [-back]) consonant: compare *student* (‘student’) with *žitel’* (‘inhabitant’).

*T*₁: Inflection class I, Sg.: masc

	I		
	<i>zavod</i> _m (‘factory’)	<i>student</i> _m (‘student’)	<i>žitel’</i> _m (‘inhabitant’)
nom/sg	zavod-∅	student-∅	žitel’-∅
acc/sg	zavod-∅	student-a	žitel’-ja
dat/sg	zavod-u	student-u	žitel’-ju
gen/sg	zavod-a	student-a	žitel’-ja
inst/sg	zavod-om	student-om	žitel’-em
loc/sg	zavod-e	student-e	žitel’-e

Inflection class II has mainly feminine stems; it is illustrated in table *T*₂. This time, there is no animacy effect in the accusative, which employs a uniform marker /u/ for, e.g., inanimate *komnat* (‘room’) and animate *učitel’nic* (‘female teacher’). However, as before, there is predictable morpho-phonological variation that depends on the nature of the stem ending as [±back]; compare, e.g., the markers attached to a stem ending in a hard consonant (like *komnat* (‘room’)) with the endings attached to a stem ending in a soft consonant (like *nedel’* (‘week’)). Furthermore, this inflection class is not gender-specific: In addition to the feminine stems, some masculine stems also belong to this class (like *mužčin* (‘man’)); these stems trigger masculine agreement but inflect according to the pattern in *T*₂. Unlike the masculine stems in class I, masculine stems in class II exhibit no animacy effect in the accusative.

Next, inflection class III is illustrated in table *T*₃. Abstracting away from a few exceptions, this class contains only feminine stems. All stems in this class end in a soft consonant. Class III shows fewer case differentiations (consequently, more intra-paradigmatic syncretism) than classes I and II; in the singular, it employs only the three markers /∅/, /i/, and /ju/ for the six cases. Some nouns exhibit stem alternation (compare *doč’* (‘daughter’)).

Finally, inflection class IV contains only neuter stems; see table *T*₄. This class is similar to class I but differs in the choice of markers for

⁴ Here and henceforth, the / / notation is used so as to indicate that the markers have the status of underlying representations that may undergo changes on the way to PF realization.

T₂: Inflection class II, Sg.: fem, masc

	II			
	<i>komnat_f</i> (‘room’)	<i>učitel’nic_f</i> (‘teacher’)	<i>nedel’_f</i> (‘week’)	<i>mužčin_m</i> (‘man’)
nom/sg	komnat-a	učitel’nic-a	nedel-ja	mužčin-a
acc/sg	komnat-u	učitel’nic-u	nedel-ju	mužčin-u
dat/sg	komnat-e	učitel’nic-e	nedel-e	mužčin-e
gen/sg	komnat-y	učitel’nic-y	nedel-i	mužčin-y
inst/sg	komnat-oj(u)	učitel’nic-ej(u)	nedel-ej(u)	mužčin-oj(u)
loc/sg	komnat-e	učitel’nic-e	nedel-e	mužčin-e

T₃: Inflection class III, Sg.: fem

	III		
	<i>tetrad’_f</i> (‘notebook’)	<i>myš’_f</i> (‘mouse’)	<i>doč’_f</i> (‘daughter’)
nom/sg	tetrad’-Ø	myš’-Ø	doč’-Ø
acc/sg	tetrad’-Ø	myš’-Ø	doč’-Ø
dat/sg	tetrad-i	myš-i	doč-er-i
gen/sg	tetrad-i	myš-i	doč-er-i
inst/sg	tetrad’-ju	myš’-ju	doč-er’-ju
loc/sg	tetrad-i	myš-i	doč-er-i

nominative and accusative in the singular (class IV also differs from class I in the plural; see below). There is no animacy effect in the singular (even though there are some animate stems belonging to this class, like *suščestv* (‘creature’)); but, as before, there is [±back]-governed morphophonological variation (compare *pol’* (‘field’)).

T₄: Inflection class IV, Sg.: neut

	IV			
	<i>mest_n</i> (‘place’)	<i>jablok_n</i> (‘apple’)	<i>suščestv_n</i> (‘creature’)	<i>pol’_n</i> (‘field’)
nom/sg	mest-o	jablok-o	suščestv-o	pol-e
acc/sg	mest-o	jablok-o	suščestv-o	pol-e
dat/sg	mest-u	jablok-u	suščestv-u	pol-ju
gen/sg	mest-a	jablok-a	suščestv-a	pol-ja
inst/sg	mest-om	jablok-om	suščestv-om	pol-em
loc/sg	mest-e	jablok-e	suščestv-e	pol-e

The task of the inflectional morphology component of a grammar is to provide the correct inflection marker for any given noun stem. Ideally, one might hope that information that is inherently present on a stem – like gender, phonological, or semantic features – will suffice. This is not the case,

though. Consider first gender features. Neuter noun stems always belong to class IV. However, masculine stems may in principle belong to class I or class II; and feminine stems may belong to class II or class III. Similarly, phonological features of the stem do not suffice to predict inflection class; e.g., a feminine stem ending in a soft ([–back]) consonant can belong to class II or class III. In addition, there are no theme vowels in modern Russian that might signal class membership (see Wurzel 1984 and Corbett & Fraser 1993), despite claims to the contrary (see, e.g., Wunderlich 1996, Wunderlich 2002). Finally, semantic features of the noun stem are insufficient as predictors of class membership; e.g., whereas animacy does play a role in inflection (see section 7), all classes may in principle contain both animate and inanimate noun stems (recall that this also holds for the neuter class IV). Note finally that not even a combination of gender, phonological, and semantic information suffices to fully predict class membership. For instance, a feminine, inanimate noun stem ending in a soft consonant may belong to class II or class III; a masculine, animate noun stem ending in a hard consonant may belong to class I or class II; etc. Thus, arbitrary inflection class features must be assumed as inherent properties of noun stems. In the following sections, I will argue that there is indeed reason to strengthen their role in morphological theory, by holding them responsible for the occurrence of trans-paradigmatic syncretism.

3. Syncretism

Table T₅ lists the instances of syncretism in the singular as they can be extracted from T₁–T₄.⁵

There is both intra- and trans-paradigmatic syncretism in T₅. Instances of intra-paradigmatic syncretism involve, e.g., /e/ in the dative and locative in class II; /i/ in the dative, genitive, and locative in class III; /o/ in the nominative and accusative in class IV; and so on. Instances of trans-paradigmatic syncretism involve /Ø/ in the nominative (and in the accusative, which makes this syncretism intra-paradigmatic in addition) in classes I and III;

⁵ In this table, inflection marker variation that is systematically predictable in terms of the [±back] distinction is not indicated separately. Thus, I assume that there is a morphophonological rule that realizes the underlying inflection marker /om/ as *em* after a soft ([–back]) consonant, and as *om* otherwise. Similarly, underlying /oj/ is realized as *ej* after a [–back] consonant, and as *oj* otherwise. Finally, underlying /i/ is realized as *y* after a hard ([+back]) consonant, and as *i* otherwise.

T₅: Syncretism within and across inflection classes in Russian

	I _m	II _{f,m}	III _f	IV _n
nom	∅	a	∅	o
acc	∅/a	u	∅	o
dat	u	e	i	u
gen	a	i	i	a
inst	om	oj	ju	om
loc	e	e	i	e

/i/ in the genitive in class II and III (and, as just noted, also in the dative and in the locative in class III); /om/ in the instrumental in classes I and IV; /u/ in the dative in classes I and IV, and in the accusative in class II; and /a/ in the genitive in class I and IV, and in the nominative in class II.⁶

The question then is to what extent these instances of syncretism can or should be taken to be systematic. I adopt (1) as a meta-grammatical principle.

(1) *Syncretism Principle*

Identity of form implies identity of function

(in a domain Σ , and unless there is evidence to the contrary).

The Syncretism Principle may look quite radical, but I take it to be the null hypothesis, both for a child acquiring a language, and for a linguist investigating it. According to (1), all instances of syncretism should initially be considered systematic within a certain grammatical domain, and can be considered accidental only in the face of strong counter-evidence.⁷ Of course, the question is what the domain Σ in (1) should be for our present concerns. I assume that Σ includes different cases and inflection classes, but not different numbers; i.e., I will not try to account for instances of syncretism that hold between singular and plural.⁸

⁶ For now, I ignore the animacy-driven occurrence of /a/ in the accusative of class I. I will return to this phenomenon in section 7.

⁷ This implies a shift of perspective from standard assumptions, and a change of burden of proof: It must be shown that a given instance of syncretism is non-systematic, not that it is systematic. In line with this, I would like to contend that there is indeed less evidence against the systematicity of syncretism than is sometimes made out (see, e.g., Carstairs 1987, Zwicky 1991, Williams 1994).

⁸ Also see Baerman et al. (2002). This difference between number on the one hand and case and class on the other may ultimately be traced back to whether or not a feature carries

The many instances of syncretism in Russian noun inflection illustrated in T₅ have of course not gone unnoticed. Basically, three different kinds of approaches to syncretism in Russian noun inflection can be distinguished. First, Jakobson (1962a,b), Chvany (1986), Neidle (1988), Franks (1995), and Wiese (2003) propose accounts that rely on a decomposition of case features, which creates natural classes of cases that insertion contexts for inflection markers can refer to. In accounts of this type, an intra-paradigmatic syncretism where some marker / μ / is used in two cases C₁, C₂ is due to the fact that C₁, C₂ form a natural class characterized by an abstract feature (or set of features) \mathbb{F} , and the insertion context of / μ / refers to \mathbb{F} , i.e., to what C₁, C₂ have in common, rather than to C₁ or C₂ directly. Second, Halle (1994) develops an analysis (in an early version of Distributed Morphology) that is based on disjunctions in vocabulary insertion rules. For the abstract example just mentioned, such an approach amounts to postulating that there is a rule that inserts / μ / in C₁ or in C₂ environments. Third, Corbett & Fraser (1993), Fraser & Corbett (1994), and Stump (2001) employ rules of referral that simply stipulate identity of markers with different functions. For the case at hand, this would imply taking one occurrence of / μ / as basic (by, e.g., postulating that / μ / occurs in C₁ environments), and deriving the other occurrence as secondary (by then postulating that the marker for C₂ is identical to the marker for C₁).

None of these approaches is fully satisfactory. The second and third types of analyses (that rely on disjunction and referral, respectively) suffer from employing non-restrictive techniques (in effect, *any* kind of syncretism could be captured), and from being highly descriptive (the instances of syncretism are stated rather than derived). In contrast, while I take the first type of approach (based on case feature decomposition) to be essentially on the right track as far as intra-paradigmatic syncretism is concerned, it has nothing to say about instances of trans-paradigmatic syncretism.

semantic information – number features do, whereas class features and case features (at least those of the languages under consideration in this paper, which do not exhibit ‘semantic cases’) do not. – The denial of systematicity of “trans-number” syncretism implies that the well-known alternation effect between nominative singular and genitive plural (see below on the latter) with respect to the occurrence of / \emptyset / (an inflection class has / \emptyset / in the genitive plural iff it does not have / \emptyset / in the nominative singular) must be considered accidental from a synchronic perspective. (Incidentally, all systematic accounts of this phenomenon that I am aware of require a significantly more complex approach, e.g., by permitting reference to existing output forms in the determination of markers; see Bailyn & Nevins (2003) for a recent analysis.)

Hence, my objective in the following sections will be to extend a feature decomposition approach to inflection classes, so as to capture both intra- and trans-paradigmatic syncretism in Russian noun inflection.

4. Assumptions

Let me begin by laying out some background assumptions about fusional noun inflection systems that I will make within a Distributed Morphology setting (see Halle & Marantz 1993, Harley & Noyer 2003). A noun stem (*N*) is a terminal node in syntax; following Chomsky (2001, 11) (and deviating from some work in Distributed Morphology), I assume that a noun stem has phonological content in syntax already. Furthermore, it is inherently equipped with fully specified inflection class features (alongside gender, semantic, selectional, and categorial features), but not with case or number features. In languages with fusional noun inflection, a noun stem is accompanied by a fusional case/number morpheme (*cn*). A case/number morpheme *cn* is a terminal node in syntax that is phonologically empty, and that is inherently equipped with fully specified case and number (as well as [+N] category) features. *N* and *cn* may either form a complex X^0 , or may each project an XP. For concreteness, I adopt the latter view, and assume that there is obligatory head movement from *N* to *cn*, as in (2). (I also assume that inherent class and gender features of *N* are copied onto *cn* as a result of this movement, but this is mainly to simplify the discussion below.)

(2) [_{cnP} N-cn [_{NP} ... t_N ...]]

The case/number morpheme *cn* is spelled out post-syntactically by insertion of an appropriate inflection marker, i.e., a vocabulary item that pairs phonological information and (possibly underspecified or absent) morpho-syntactic (category, class, case, and number) features that encode its insertion context. For vocabulary insertion to succeed, the morpho-syntactic features of an inflection marker must be a subset of the morpho-syntactic features provided by the syntactic context, i.e., *cn*; this is the first requirement imposed by the Subset Principle, a version of which is given in (3).⁹

⁹ See Kiparsky (1973), Lumsden (1992), Noyer (1992), Williams (1994), and Blevins (1995), among others, for other versions, sometimes with different names; and in particular Halle (1997), which the present formulation is based on.

(3) *Subset Principle*

A vocabulary item V is inserted into a functional morpheme M iff (i) and (ii) hold:

- (i) The morpho-syntactic features of V are a subset of the morpho-syntactic features of M .
- (ii) V is the most specific vocabulary item that satisfies (i).

Because of underspecification, the insertion contexts of inflection markers will turn out to overlap significantly. Hence, inflection markers may compete for insertion into a given cn , and such competition is resolved by the second requirement of the Subset Principle in (3): Of those inflection markers that fit into a given cn position, only the most specific marker can actually be inserted. Specificity can be defined as in (4).

(4) *Specificity of vocabulary items*

A vocabulary item V_i is more specific than a vocabulary item V_j iff there is a class of features \mathbb{F} such that (i) and (ii) hold.

- (i) V_i bears more features belonging to \mathbb{F} than V_j does.
- (ii) There is no higher-ranked class of features \mathbb{F}' such that V_i and V_j have a different number of features in \mathbb{F}' .

(4) presupposes a ranking of feature classes (see Lumsden 1992, Noyer 1992). For present purposes, the partial hierarchy in (5) will suffice; it identifies three feature classes: number, class, and case.

(5) Number \gg class \gg case

On the basis of these assumptions, I now turn to a decomposition of case and inflection class features that forms the core of the analysis.

5. Analysis

As noted, intra-paradigmatic syncretism can be accounted for by decomposing privative case features into combinations of more primitive, binary case features; this yields natural classes of cases. These primitive features are semantics-based in the tradition initiated by Jakobson (1962a,b) (see, e.g., Neidle 1988 and Franks 1995). In contrast, I assume that the primitive case features are syntax-based, as suggested by Bierwisch (1967) for German, and elaborated by Wiese (2001) for Latin. Thus, suppose that the six Russian cases result from the cross-classification of the three binary primitive case features [\pm subject], [\pm governed], [\pm oblique], as shown in

(6).¹⁰(6) *Decomposition of cases in Russian*

nominative:	[+subj,−gov,−obl]
accusative:	[−subj,+gov,−obl]
dative:	[−subj,+gov,+obl]
genitive:	[+subj,+gov,+obl]
instrumental:	[+subj,−gov,+obl]
locative:	[−subj,−gov,+obl]

Underspecification with respect to case features will then encode natural classes of cases. For instance, nominative and accusative form a natural class characterized by the feature [−obl]; accusative and dative form a natural class characterized by the features [−subj,+gov]; and so on. As we will see, feature specifications of vocabulary items may make use of this kind of reduced case information, which accounts for intra-paradigmatic syncretism.

Crucially, I would like to suggest that trans-paradigmatic syncretism can be derived in the same way, by decomposing privative class features as they are standardly assumed (like [class I], [class II]), into more primitive, binary class features. Cross-classification of these abstract features yields inflection classes; underspecification of inflection markers encodes natural classes of inflection classes and thereby explains trans-paradigmatic syncretism.¹¹ The four inflection classes result from a cross-classification of

¹⁰ Two potential cases thus remain unused. Note that the specifications in (6) are syntactically motivated: First, the [+subj] cases nominative, genitive, and instrumental all typically show up on arguments that are merged last with a predicate (NP-internally with the genitive, in passive constructions with the instrumental). Second, the [+gov] cases accusative, dative, and genitive are the prototypical cases for objects of V. Finally, the [+obl] cases dative, genitive, instrumental, and locative differ from the non-oblique cases nominative and accusative in that the latter (but not the former) typically encode the core arguments of V. Needless to say, the morphological case specifications based on these features only reflect *primary* syntactic functions, and may be at variance with other syntactic functions. Underlying this is the assumption that it is unlikely that a simple, homogeneous specification (be it syntactic or semantic) can be found for all cases, in all their occurrences; see Isačenko (1975, 81) (but also see, e.g., Bailyn 2003 for a recent attempt concerning the Russian genitive).

¹¹ There are predecessors. First, Halle (1992, 38) employs the primitive, decomposed features [±marginal], [±marked] (in addition to the “standard” class features A, B) in his analysis of Latvian noun inflection, essentially so as to account for instances of trans-paradigmatic syncretism. Second, Nessel (1994, 229ff) develops an analysis of Russian noun inflection that uses [±nom-end] and [*a/igen*-end] as primitive class features, again in

two abstract features $[\pm\alpha]$, $[\pm\beta]$ as shown in (7).¹²

(7) *Decomposition of inflection classes in Russian*

I: $[\alpha, -\beta]$	<i>zavod_m</i> ('factory')
II: $[-\alpha, +\beta]$	<i>komnat_f</i> ('room'), <i>mužčin_m</i> ('man')
III: $[-\alpha, -\beta]$	<i>tetrad'_f</i> ('notebook')
IV: $[+\alpha, +\beta]$	<i>mest_n</i> ('place')

According to (7), inflection classes I and IV form a natural class (characterized by $[\alpha]$), and so do classes II and III ($[-\alpha]$), classes I and III ($[-\beta]$), and classes II and IV ($[\beta]$). However, classes I and II do not form a natural class of inflection classes, and the same goes for classes III and IV. Consequently, no insertion context of an inflection marker can refer to either of these groups of inflection classes, and we expect that there is no instance of trans-paradigmatic syncretism that applies exclusively to classes I and II, or to classes III and IV. This prediction will be shown to be borne out.

The list of vocabulary items that I assume to underlie noun inflection in the singular in Russian is given in (8); underspecified class information is underlined in the feature specifications of markers. In general, specificity decreases from top to bottom. The default (or elsewhere) inflection marker is /a/ in (8-10) (or /a/₁₀, as I will write from now on); it fits into all *cn* morphemes but is blocked by a more specific marker in most contexts. Next, /u/₉ emerges as a highly non-specific marker for accusative and dative that does not bear any inflection class information. /i/₈ is a general obliqueness marker for the $[-\alpha]$ classes II and III; /ø/₇ is a non-obliqueness marker for the $[-\beta]$ classes I and III; and /o/₆ is a non-obliqueness marker for class IV.

order to account for instances of trans-paradigmatic syncretism. The analysis has a limited scope (involving only a few of the attested cases of trans-paradigmatic syncretism, and no cases of intra-paradigmatic syncretism), and stays somewhat informal (e.g., theoretical issues arising with underspecification and competition of inflection markers are not explored – more generally, no attempt is made to account for the whole system of noun inflection in a systematic way); nevertheless, it is clearly guided by the same underlying idea. Third, *Oltra Massuet* (1999) develops an analogous proposal for verbal inflection in Catalan. Note also that class feature decomposition is suggested in *Alexiadou & Müller* (2004) for noun inflection in Greek and German, and in *Müller* (2004) for noun inflection in Icelandic. For attempts to establish natural classes of noun inflection classes in Russian without invoking feature decomposition, see *McCreight & Chvany* (1991), *Wiese* (2003).

¹² Inflection class features are arbitrary and irreducible by definition; this is reflected in the labels. Still, it is worth emphasizing that the features $[\pm\alpha]$, $[\pm\beta]$ are no more arbitrary than standardly adopted features like [class I], [class II].

Two vocabulary items /e/ are postulated: /e/₅ is a locative marker for the [+α] classes I and IV; /e/₄ is a marker for the natural class of dative and locative in class II. Finally, the markers /om/₃, /ju/₂, and /oj/₁ are instrumental markers. The latter two are fully specified (hence, most specific); /om/₃ is restricted to the [+α] classes I, IV.

(8) *Vocabulary items* (singular):

1. /oj/ ↔ {[+N],[−α,+β],[+subj,−gov,+obl]}
2. /ju/ ↔ {[+N],[−α,−β],[+subj,−gov,+obl]}
3. /om/ ↔ {[+N],[+α],[+subj,−gov,+obl]}
4. /e/ ↔ {[+N],[−α,+β],[−subj,+obl]}
5. /e/ ↔ {[+N],[+α],[−subj,−gov,+obl]}
6. /o/ ↔ {[+N],[+α,+β],[−obl]}
7. /∅/ ↔ {[+N],[−β],[−obl]}
8. /i/ ↔ {[+N],[−α],[+obl]}
9. /u/ ↔ {[+N],[−subj,+gov]}
10. /a/ ↔ {[+N]}

Whenever an inflection marker does not show up in a *cn* morpheme where it would fit, this is due to blocking by a more specific inflection marker whose specification is also a subset of the specification in *cn*, in accordance with the Subset Principle. The competition of inflection markers in the singular is illustrated in table T₆. Here, the vocabulary item that is selected under the Subset Principle for insertion in *cn* is given in bold face; markers that fit but are blocked as less specific are given below, in parentheses.

T₆: *The interaction of inflection markers in the singular in Russian*

	I: [+α,−β]	II: [−α,+β]	III: [−α,−β]	IV: [+α,+β]
nom: [+subj,−gov,−obl]	/∅/₇ (/a/₁₀)	/a/₁₀	/∅/₇ (/a/₁₀)	/o/₆ (/a/₁₀)
acc: [−subj,+gov,−obl]	/∅/₇ (/u/₉, /a/₁₀)	/u/₉ (/a/₁₀)	/∅/₇ (/u/₉, /a/₁₀)	/o/₆ (/u/₉, /a/₁₀)
dat: [−subj,+gov,+obl]	/u/₉ (/a/₁₀)	/e/₄ (/i/₈, /u/₉, /a/₁₀)	/i/₈ (/u/₉, /a/₁₀)	/u/₉ (/a/₁₀)
gen: [+subj,+gov,+obl]	/a/₁₀	/i/₈ (/a/₁₀)	/i/₈ (/a/₁₀)	/a/₁₀
inst: [+subj,−gov,+obl]	/om/₃ (/a/₁₀)	/oj/₁ (/i/₈, /a/₁₀)	/ju/₂ (/i/₈, /a/₁₀)	/om/₃ (/a/₁₀)
loc: [−subj,−gov,+obl]	/e/₅ (/a/₁₀)	/e/₄ (/i/₈, /a/₁₀)	/i/₈ (/a/₁₀)	/e/₅ (/a/₁₀)

In sum, a decomposition of case and inflection class features has made it possible to fully account for intra- and trans-paradigmatic syncretism in Russian noun inflection, with the exception of /e/, where two vocabulary items with different specifications must be postulated. I will leave open the question whether this reflects an imperfection of the analysis or an imperfection of the system as such (but see section 8). Let me next turn to the plural.

6. Plural

The distribution of markers in the plural across the four inflection classes is shown in table T₇.

T₇: *Inflection classes I-IV in the plural*

	I <i>zavod_m</i> (‘factory’)	II <i>komnat_f</i> (‘room’)	III <i>tetrad’_f</i> (‘notebook’)	IV <i>mest_n</i> (‘place’)
nom/pl	zavod-y	komnat-y	tetrad-i	mest-a
acc/pl	zavod-y	komnat-y	tetrad-i	mest-a
dat/pl	zavod-am	komnat-am	tetrad-jam	mest-am
gen/pl	zavod-ov	komnat-Ø	tetrad-ej	mest-Ø
inst/pl	zavod-ami	komnat-ami	tetrad-jami	mest-ami
loc/pl	zavod-ax	komnat-ax	tetrad-jax	mest-ax

The inflection markers for dative, instrumental, and locative plural (/am/, /ami/, and /ax/, respectively) are invariant across inflection classes. There are two markers for [-obl] (nominative/accusative) plural contexts, viz. /a/ and /i/ (focussing on inanimate stems for now). Even though the distribution of /a/ is more restricted than the distribution of /i/, I take the former to be the default marker, as in the singular. It must therefore be possible to refer to complements of natural classes in insertion contexts of vocabulary items (see Zwicky 1970).¹³ Finally, there are two markers for genitive plu-

¹³ For present purposes, /i/ could also be considered the default marker; this would avoid a reference to complements of natural classes. However, there is a tendency to replace /i/ with /a/ as the [-obl] plural marker in certain lexical domains in class I; see, e.g., Isačenko (1975, 97-99). This productive strategy might be taken to indicate a default status of /a/. Further (indirect) justification for taking /a/ as the default marker will be provided in section 8. – As observed by the reviewer, there might be an alternative that avoids reference to complements of natural classes but still maintains default status of /a/: Suppose that /i/ does not bear class

ral contexts: /Ø/ is used by the [+β] classes II and IV, and /ov/ by the [-β] classes I and III.¹⁴ The plural vocabulary items are listed in (9).

(9) *Vocabulary items* (plural):

1. /ax/ ↔ { [+N], [+pl], [-subj, -gov, -obl] }
2. /ami/ ↔ { [+N], [+pl], [+subj, -gov, obl] }
3. /am/ ↔ { [+N], [+pl], [-subj, +gov, obl] }
4. /ov/ ↔ { [+N], [+pl], [-β], [+subj, +gov, obl] }
5. /Ø/ ↔ { [+N], [+pl], [+β], [+subj, +gov, obl] }
6. /i/ ↔ { [+N], [+pl], [-(+α, +β)], [-obl] }
7. /a/ ↔ { [+N], [+pl], [-obl] }

The competition between vocabulary items for insertion in *cn* plural contexts is minimal; it is shown in table T₈.¹⁵

At this point, a general conclusion concerning the decomposition of inflection class features can be drawn: For each natural class of inflection classes, there is in fact an insertion context of an inflection marker that refers to it: [+α] (I, IV) is referred to by the singular markers /om/₃ and /e/₅; [-α] (II, III) by the singular marker /i/₈; [+β] (II, IV) by the plural marker /Ø/₅; and [-β] (I, III) by the singular marker /Ø/₇ and by the plural marker /ov/₄. In contrast, no marker needs to make reference to pairs of inflection classes that do not form a natural class.

information at all (only the case feature [-obl]), and that /a/ is radically underspecified, i.e., [-obl]-less. Then, an impoverishment rule (of the type used in section 7 below) might remove the [-obl] specification in class IV, and force choice of /a/ in this context, with more specific /i/ emerging in classes I, II, and III. The choice between these two options is not entirely straightforward (but see the remarks on the role of impoverishment in section 7); for present purposes, I will leave the matter undecided.

¹⁴ I follow Halle (1994, 53ff) in assuming that there is a morpho-phonological rule that accounts for /ov/ being realized as *ej* under certain conditions.

¹⁵ Do singular and plural markers compete? Plural markers do not fit into singular contexts; their insertion would violate clause (i) of the Subset Principle, due to a feature clash: There is a [+pl] feature in the specification of a plural marker, and a [-pl] feature on the *cn* morpheme. In contrast, singular markers do in principle compete in plural contexts because they are not specified for number (by assumption). Still, since singular markers do not have a number feature, they can never become the most specific markers for a given context, due to the high ranking of number on the hierarchy of features in (5).

T₈: The interaction of inflection markers in the plural in Russian

	I: [+α,-β]	II: [-α,+β]	III: [-α,-β]	IV: [+α,+β]
nom: [+subj,-gov,-obl]	/i/ ₆ (/a/ ₇)	/i/ ₆ (/a/ ₇)	/i/ ₆ (/a/ ₇)	/a/ ₇
acc: [-subj,+gov,-obl]	/i/ ₆ (/a/ ₇)	/i/ ₆ (/a/ ₇)	/i/ ₆ (/a/ ₇)	/a/ ₇
dat: [-subj,+gov,+obl]	/am/ ₃	/am/ ₃	/am/ ₃	/am/ ₃
gen: [+subj,+gov,+obl]	/ov/ ₄	/Ø/ ₅	/ov/ ₄	/Ø/ ₅
inst: [+subj,-gov,+obl]	/ami/ ₂	/ami/ ₂	/ami/ ₂	/ami/ ₂
loc: [-subj,-gov,+obl]	/ax/ ₁	/ax/ ₁	/ax/ ₁	/ax/ ₁

7. Animacy

The system developed so far does not yet have anything to say about accusative/genitive syncretism with animates in class I in the singular; compare *student-a* ('student') with **student-Ø* in accusative singular contexts (see T₁). The same effect occurs with animates in the plural throughout; see, e.g., the accusative plural forms *student-ov* ('students') vs. **student-y* in class I, *učitel'nic-Ø* ('teachers') vs. **učitel'nic-y* in class II, *myš-ej* ('mice') vs. **myš-i* in class III, and *suščestv-Ø* ('creature') vs. **suščestv-a* in class IV. Given the assumptions so far, Subset Principle-driven vocabulary insertion would seem to predict the starred forms in all these cases.

There is reason to assume that this animacy-driven syncretism does not have the same source as the instances of syncretism discussed so far, and that it should not be traced back to case feature underspecification in insertion contexts associated with vocabulary items. The reason is that an underspecification approach would classify the animacy effect as an accidental outcome of the interaction of independent inflection markers, rather than as the general, system-defining regularity that it seems to be. To express this overarching regularity, an impoverishment rule can be adopted. Impoverishment rules manipulate syntactic feature specifications before vocabulary insertion applies (see Bonet 1991, Bobaljik 2002, and Frampton 2002, among others). Standardly, impoverishment is taken to *delete* features (as the name suggests), thereby forcing a retreat to the general case (i.e., insertion of less specific markers). However, this will not do in the case at hand: The plural markers /i/₆ and /a/₇ in (9) are less specific than the markers /ov/₄

and /Ø/₅ (that they need to be replaced by in animate contexts). Therefore, I follow Noyer (1998, 282) in assuming that impoverishment rules can also *change* features (or at least feature values). For concreteness, I adopt the two impoverishment rules in (10-a) (for class I) and (10-b) (for the plural) that bring about a change in the feature specifications of *cn* morphemes: a feature bundle [-subj,-obl] is changed to [+subj,+obl].

- (10) a. [-subj,-obl] → [+subj,+obl] / [+α,-β],[+anim]__
 b. [-subj,-obl] → [+subj,+obl] / [+pl],[+anim]__

These rules turn a syntactic accusative context into a morphological genitive context (leaving the shared feature [+gov] unaffected) and thus account for the animacy-driven presence of genitive markers in accusative environments in class I and in the plural.¹⁶

8. Form and Function

Closer inspection of the lists of vocabulary items in (8) and (9) reveals an interesting correlation of form and function of inflection markers: From top to bottom, the specificity of the inflection markers decreases.¹⁷ In contrast, the sonority of the markers increases. Thus, it seems that the more specific an inflection marker is, the lower is its rank on the sonority hierarchy: The vocalic marker /a/ is least specific and most sonorous; consonantal markers like /oj/ and /ju/ are most specific and least sonorous; and the remaining vocalic markers show intermediate degrees of specificity and sonority, with, e.g., /i/ emerging as more specific and less sonorous than /u/, and /u/ as more

¹⁶ The two readjustment rules proposed in Halle (1994) have essentially the same effect. Harley & Noyer (2003, 478) note that “feature-changing impoverishment [...] has approximately the same power as rules of referral”. Indeed, referral rules that are comparable in their scope with the impoverishment rules in (10) are assumed in Corbett & Fraser (1993), Stump (2001), and Müller (2003).

¹⁷ At least as a strong tendency. There is some minor blurring of this with the singular markers /om/, /e/, and /o/ in (8), where the specificity-based order would be 4.-6.-3.-5. The order of the plural markers in (9) fully follows decreasing specificity if we make two assumptions: First, the complement specification of /i/ counts as a single inflection class feature; and second, the dative, instrumental, and locative markers /am/, /ami/, and /ax/, being invariant across inflection classes and thus exhibiting an agglutinative-like status, simply do not interact with the other plural markers, and therefore inherently qualify as maximally specific.

specific and less sonorous than /a/.¹⁸

There are some apparent exceptions to the generalization that sonority increases from top to bottom in (8) and (9). First, /e/ seems to stand out in (8) because its two occurrences qualify as quite specific, much more so than, say, /i/; however, /e/ is clearly more sonorous than /i/. This potential problem disappears when we take into account that /e/ is in fact usually (except after consonants like /c/, /ʃ/, /ʒ/, and abstracting away from reduction effects) realized with an initial glide, which makes this marker quasi-consonantal. (This may eventually shed led on why it is exactly the syncretism with /e/ that is not fully resolved in the present approach.)

A second potential problem is posed by the null marker: /∅/ occupies an intermediate position with respect to specificity in both (8) and (9), even though the sonority hierarchy would seem to support an edge position for this marker. This problem is solved when we follow Halle (1994), who suggests that the “null marker” /∅/ is in fact an abstract yer vowel /O/, which is independently motivated in the morphophonology of Russian. Halle argues that an abstract /O/ vowel has otherwise the same features as /o/; there is a general rule that deletes abstract vowels unless they immediately precede a syllable with another abstract vowel (which, of course, they never do if they are inflection markers at the end of a word). Thus, /O/ can be assumed to replace the the null marker /∅/ assumed so far. Of course, given that /O/ and /o/ have a similar sonority status, they can be expected to exhibit a similar degree of specificity.

Some minor discrepancies between specificity and sonority of markers may eventually remain.¹⁹ All in all, however, a correlation of form and function seems hard to deny for the system of Russian noun inflection. This correlation can be taken to suggest that a notion like optimal grammar design plays a role in inflectional morphology, and that, in addition to the

¹⁸ A correspondence of form and function in the Russian noun inflection system has been noted before, by Shapiro (1969, 14) and Plank (1979, 143). Both authors correlate a hierarchy of cases H_c and a sonority hierarchy H_s . Plank states: “The higher-ranked a case is in [H_c], the more sonorous is the set of phonological segments used for its expression.” I would claim that replacing this hierarchy of cases with a hierarchy of specifications of decomposed case and inflection class features permits a more articulate (and verifiable) account that nevertheless preserves Plank’s and Shapiro’s basic insight.

¹⁹ In particular, the sonority-based order /u/ > /o/ predicted by (8) seems incompatible with the sonority-based order /o/ > /u/ argued for in Matthews (1974), Ross (1980), Kenstowicz (1994), and Crosswhite (2000).

Syncretism Principle in (1), fusional systems of inflection might adhere to a second, related meta-grammatical Iconicity Principle that differs from the Syncretism Principle only in that the concept of “identity” is replaced with the concept of “similarity”, and that may plausibly be assumed to guide (and simplify) acquisition of inflectional systems in the same way:

(11) *Iconicity Principle*

Similarity of form implies similarity of function

(in a domain Σ , and unless there is evidence to the contrary).

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Relative Clause Attachment in Bulgarian

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1. Introduction

Over the past 25 years of sentence processing research, hardly any other phenomenon has generated more experimental evidence and theoretical explanations than the apparent violations of Late Closure (Frazier and Fodor 1978) observed with the relative clause attachment ambiguity. Under the Late Closure principle, local attachments are preferred over non-local ones.¹ Accordingly, the structural ambiguity illustrated in (1) should preferentially be resolved in favor of the Late Closure (local-attachment) interpretation. English speakers generally conform to this prediction, preferring an interpretation of the relative clause (RC), *who was on the balcony*, as a modifier of the second or low noun, *actress*

¹ Late Closure receives its name from its formulation as a principle about maintaining open and attaching inside a constituent currently being processed; we focus here on Late Closure's describing the parser's preference for local attachments, elsewhere described as Recency Preference (Gibson et al. 1996) or Right Association (Kimball 1973).

(N2), despite the fact that the non-local attachment to the first or high noun, *servant* (N1), is also possible.²

(1) John shot the servant of the actress who was on the balcony.

However, the low attachment preference is far from universal. Speakers of languages other than English prefer the non-local attachment of the RC, thus apparently violating Late Closure.

A substantial body of research on relative clause attachment addresses two important issues. The first has to do with the universality of the preference predicted by Late Closure with respect to this construction. The second issue deals with the consistency of results within a given language: are the same preference patterns obtained when the methodology or the materials are varied?

Late Closure's universality came under scrutiny very early on and still remains a topic of current investigations (e.g., Hemforth et al. submitted). Late Closure is proposed as a principle reflecting working memory limitations, under the assumption that local attachments are less computationally demanding than non-local ones (Kimball 1973, Frazier and Fodor 1978). This logically leads to the hypothesis that Late Closure, along with other principles employed in the parsing of natural language (e.g., Minimal Attachment, Minimal Chains), must be universal across languages. However, seminal work by Cuetos and Mitchell (1988) questioned the universality of Late Closure. Cuetos and Mitchell demonstrated that while English speakers preferred a relative clause as in (1) to be attached locally (to N2) some 60% of the time, Spanish speakers favored the non-local (N1) attachment some 60% of the time, with translation-equivalent materials in Spanish, like the example in (2).

(2) Juan disparó a la criada de la actriz que estaba en el balcón.

This cross-linguistic difference between English and Spanish has been replicated in a number of experimental investigations (e.g., Fernández 2003), and with a number of languages other than English and

² Henceforth, we will use 'N2 attachment' interchangeably with 'low attachment' and 'local attachment'. Likewise, 'N1 attachment', 'high attachment' and 'non-local attachment' will be interchangeable.

Spanish.³ The two classes of language, high- versus low-attaching, are so heterogeneous that they defy any natural explanation for their different preferences, which are nevertheless fairly consistent. However, while a number of theoretical explanations exist, there is no general consensus of yet about a conclusive explanation for the phenomenon. Alternative accounts include the Tuning Hypothesis (Mitchell and Cuetos 1991), the Two-Factor Model (Gibson et al. 1996), Construal (Frazier and Clifton 1996), Attachment-Binding (Hemforth et al. 1998), and the Implicit Prosody Hypothesis (Fodor 1998, 2002). Among these, we will return to the Implicit Prosody Hypothesis later in this discussion.

Language-internal consistency in RC attachment has received relatively less attention in the experimental literature, but it is observed when variation is introduced by either the methodology or the materials. The cross-linguistic differences in attachment that are clearly present with unspedded questionnaire tasks and have been found with some types of speeded response tasks (especially eye-tracking tasks) are not always replicated with all self-paced reading paradigms (De Vincenzi and Job 1993, Fernández 2003). Language-internal differences have also been examined along various dimensions of the materials.⁴ Let us focus on one particular language-internal effect: RC length reliably shifts preferences, with speakers exhibiting a stronger preference for N1 when an RC is longer (e.g., Fernández 2003; Hemforth et al. submitted). Arguably, this effect is purely prosodic in origin (Bradley et al. 2003), despite the fact that adding prosodic weight to RC also alters the informational content of the sentence (Thornton et al. 2000). The prosodic explanation of RC length effects assumes that the prosody projected implicitly during silent reading can affect syntactic resolutions, in a system where major syntactic breaks preferentially align with major prosodic breaks (Fodor 2002). A long RC is more likely to trigger a pre-RC prosodic break than a short RC (Bradley et al. 2003), this prosodic discontinuity promoting

³ High-attaching languages include Afrikaans and Dutch (Mitchell et al. 2000), Croatian (Lovrić 2003), German (Hemforth et al. submitted), Polish (Nowak 2000), and Russian (Sekerina 2002), among others. Low-attaching languages include Norwegian, Romanian and Swedish (Ehrlich et al. 1999), and Egyptian Arabic (Abdelghany and Fodor 1999).

⁴ Language-internal effects have been found with manipulations of the host nouns in terms of their referentiality, animacy, frequency, and length (see discussion in Fernández 2003). The position of the complex NP, as subject or object of the matrix clause, has also been investigated (Hemforth et al. submitted), as has the type of relative pronoun (Sauerland and Gibson 1998), and the preposition in the NP (e.g., De Vincenzi and Job 1993).

the projection of a syntactic discontinuity that aligns with it: a high attachment.

The present study investigates language-internal consistency in relative clause attachment using a less-studied Slavic language, Bulgarian. Our main objective is to establish the pattern of attachment preference within this language using a standard questionnaire task and a task that was designed to address the problem of the semantic/pragmatic complexity of sentences presented in isolation and without immediate discourse referents. Within this second task, we compare findings across two modalities, reading and listening. The modality issue is of significant methodological and theoretical importance, as it addresses the debate in the area of language production and syntactic priming concerning *modality-neutral* (Cleland and Pickering in preparation) versus *modality-specific* effects (Rapp and Caramazza 2002). Is the attachment preference involved in language comprehension common to different perceptual modalities within the same language? This concern arises because the overwhelming majority of relative clause attachment studies has used, and continues to use, written sentences as stimuli.⁵ In fact, we are not aware of a single study testing identical experimental materials in both written and spoken form. The methodological issue of modality effects has important theoretical implications. Finding the same attachment preference regardless of the perceptual modality would indicate that processing is modality-neutral. On the other hand, if we find that preference patterns within a language vary depending on the perceptual modality — i.e., if written materials elicit an attachment preference different from that elicited by materials presented auditorily — we will have to pursue explanations of RC attachment preferences based on demand for cognitive resources.

Effects of modality, if discovered, should be most dramatic in a language that exhibits a strong high attachment preference in a standard written questionnaire. Our test case is Bulgarian, a language characterized by its lack of case-marking morphology, unusual for a Slavic language. We report the results of three experiments. Experiment 1 employed materials similar to the examples in (1) and (2), only in Bulgar-

⁵ The trend of using auditory rather than written stimuli is changing, particularly given that a number of recent investigations (e.g., Igoa and Teira 2003, Lovrić 2003, Salillas and Carreiras 2002, Schafer et al. 1996) have examined whether explicit prosody affects attachment preference.

ian. In such materials the lexical content has no direct referent in the immediate discourse context, but such combinations of lexical content result in sentences with intrinsic biases for attachment, given the semantic and pragmatic status of the two nouns *vis-à-vis* the RC. Experiments 2 and 3 employed novel materials designed to avoid the pitfalls brought about by such semantically and pragmatically complex nouns; instead, the materials in these experiments described abstract geometric shapes, and were accompanied with visual contexts. In Experiment 2 the linguistic stimuli were presented in written form, while in Experiment 3 identical linguistic stimuli were presented auditorily.

2. Experiment 1: written questionnaire

This experiment establishes the general preferences for relative clause attachment in Bulgarian. Its design follows the standard paper-and-pencil written questionnaire format that has been used previously in a variety of languages. This experiment therefore should identify the status of Bulgarian as a high or low attaching language, while also permitting us to explore two manipulations: relative clause length and word order.

Participants. Seventy-four participants, all native Bulgarian speakers, undergraduates at the University of Sofia, were each pseudo-randomly assigned to one of four versions of the experiment. The participants were naïve with respect to the purpose of the experiment and received the equivalent of \$3 for their participation.

Design and Materials. The questionnaire booklets each contained 55 items: 3 practice, 36 filler, and 16 experimental. Each item in the questionnaire consisted of a complete sentence typed on one line, followed by a comprehension question and two potential answers arranged on a second line directly below. All experimental sentences and half of the fillers contained a complex NP with the reposition *na* 'of', modified by a relative clause.

Experimental sentences were constructed by a Bulgarian linguist (K. A. Petrova) to be globally ambiguous, allowing the RC to attach grammatically to either of the two nouns in the complex NP. The complex NP itself was always the direct object of a transitive verb. Six of the complex NPs were inanimate, and eight were animate, with N1 and N2 always matched in gender (relative pronouns in Bulgarian are gender-marked).

The target materials manipulated two factors, both in a within-items design: RC Length (short versus long) and Word Order (canonical versus scrambled); a complete example is provided in (3). Short RCs consisted of the relative pronoun *kojato* ‘that+FEM’ or *kogoto* ‘that+MASC’ and a one- or two-word predicate (a simple verb or a complex verb with an auxiliary), e.g., *kogoto târseše* ‘that he was looking for’. Long RCs expanded the short RC with an additional two- to four-word phrase, e.g., *cjala sedmica* ‘the entire week’. The word order manipulation contrasted sentences with the object NP (containing the ambiguity) in the canonical position, (3a), and sentences with the object NP in a scrambled (preverbal) position, (3b). We expect that longer RCs will be more likely interpreted as attached to N1, as predicted by the Implicit Prosody Hypothesis (Fodor 1998, 2002). The Word Order manipulation is included to test whether changing the information structure via changes in word order has an effect, e.g., the ambiguity in scrambled position may be more likely to be resolved locally.

The question used to probe attachment preference in targets is illustrated in (3c). Binary-choice questions also followed fillers, but unlike the targets they had unambiguously correct answers.

- (3) a. Včera Petâr naj-nakrajasreščna brata na učitelja,
 yesterday Peter finally found brother of teacher
 kogoto târseše (cjala sedmica).
 that_{ACC} (he) looked for (entire week).
- b. Brata na učitelja, kogoto târseše (cjala sedmica),
 brother of teacher, that_{ACC} (he) looked for (entire week)
 naj-nakraja sreščna včera Petâr.
 finally found yesterday Peter
 ‘Yesterday, Peter finally found the brother of the teacher that
 he was looking for (for the entire week).’
- c. Kogo târseše Petâr? brata učitelja?
 who_{ACC} looked for Peter? brother teacher
 ‘Who was Peter looking for? the brother the teacher?’

Four separate lists presented the materials in a fixed pseudo-randomization; presentation of the targets was counterbalanced across the four lists, such that no one subject would see more than one of the four versions of each experimental item.

Procedure. Each of the four lists was presented to a different group of participants in booklet form. Participants were instructed to read each sentence-and-question pair, and to indicate their response by circling one of the two provided answers for each item. Completion of the questionnaire typically took 20 minutes. The responses for the fillers were screened for errors, and two participants with more than 25% errors were rejected and replaced. Participants were highly accurate in responding to filler item questions (99%).

Subject- and item-based means of percent high (N1) attachment were used in the analyses of variance, which included the variables of RC Length (short versus long) and Word Order (canonical versus scrambled); an additional dummy factor (subject and item groups) was included to extract irrelevant variance but will not be reported here.

Results. Table 1 reports mean percent high attachment choices for the globally ambiguous sentences.

Table 1. Experiment 1, mean high attachment preference (%) in the written questionnaire using semantically/pragmatically complex nouns.

	Scrambled	Canonical
Long RC	61.6	63.9
Short RC	52.4	56.4

The data clearly show a significant main effect of RC Length, with long RCs more likely to be interpreted as attached high (63%) than short RCs (54%), $F_1(1,68)=8.83, p<0.005$, $F_2(1,12)=15.08, p<0.005$. This replicates the RC length effect found previously for a different Slavic language, Croatian (Lovrić 2003). This effect has been explained by the Implicit Prosody Hypothesis (Fodor 1998, 2002), according to which, all other things being equal, prosodic phrasing projected during silent reading affects attachment preferences for ambiguous RCs. A long RC can be phrased independently, and it is such phrasing that can encourage high attachment, whereas a short RC is likely to be phrased in the same pro-

sodic constituent as N2, phrasing which would more likely result in a local attachment.

The data are also clear about the lack of effect of the Word Order manipulation, which failed to reach significance as a main effect, $F_1(1,68)=1.64$, $p>.20$, $F_2<1$, and which did not interact with RC Length, F_1 , $F_2 < 1$. Resolution of the ambiguity when the complex NP was scrambled did not differ from when the complex NP was in canonical position. Despite the fact that N1 was less salient when it was scrambled, it remained the preferred host for the RC.

Overall, the Bulgarian speakers exhibited a high attachment preference, choosing N1 on average 59% of the time, a grand mean differing significantly from chance (50%), $t_1(71) = 3.69$, $p<.001$, $t_2(15) = 2.00$, $p=.064$. This finding is not surprising since other Slavic languages — Croatian (Lovrić 2003), Polish (Nowak 2000), and Russian (Sekerina 2002) — have also been found to exhibit a high attachment preference.

3. Experiment 2: auditory questionnaire with abstract shapes

Overall attachment preference within a given language has been found to vary from study to study, which suggests that speakers' preferences can be shifted around by manipulating the linguistic properties of the materials, as discussed earlier and as shown through the RC length manipulation of Experiment 1. We now consider an additional property, the semantic/pragmatic complexity of the materials used in Experiment 1. Such materials, presented without immediate contextual referents, could conceivably bias the general attachment preference in Bulgarian. In an attempt to avoid this bias, Experiment 2 employs materials that do not depend on imagined context and thus are not semantically/pragmatically complex. Instead of using NPs, like *the brother of the teacher*, NPs referring to abstract geometric shapes, like *the tip of the triangle*, were used and presented with corresponding visual contexts. The experiment included globally ambiguous linguistic stimuli that were visually disambiguated or visually ambiguous, with two distinct predictions in mind. First, visually disambiguated items should result in ceiling accuracy, regardless of whether disambiguation is to the high or to the low site. Second, visually ambiguous items should be preferentially interpreted according to the overall preference for the language: we expect to observe the same high attachment preference found in Experiment 1 with

written stimuli in Experiment 2 with auditory stimuli, only perhaps now the preference will be strengthened, given that the visual contexts provide immediate referents for the sentences.

Participants. Twenty-one native Bulgarian speakers from the University of Sofia undergraduate population chose to participate in this experiment. They were naïve with respect to the purpose of the experiment and received the equivalent of \$3 for participation.

Design and Materials. The complete materials consisted of 2 practice, 9 experimental, and 10 filler items. Each item included two preamble sentences followed by a comprehension question (a complete example is provided in (4)). The auditory stimuli, produced by a Bulgarian linguist (K. A. Petrova), were synchronized with the visual presentation, which introduced the visual components in their order of occurrence in the audio.

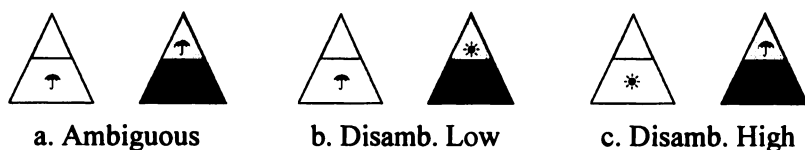


Figure 1. Sample visual stimuli used in Experiment 2. In all three pairs, the triangle on the left was yellow and had a green tip, the one on the right was pink and had a light blue tip.

- (4) a. Èto edin rozov triâgâlnik i edin žâlt triâgâlnik.
this one pink triangle and one yellow triangle
- b. Vârrovete im sa različno ocveteni.
the tips them are differently colored
'This is a pink triangle and a yellow triangle.
Their tips are different colors.'
- c. Kakâv cvjat e vârxât na triâgâlnika, v kojto e narisuvan čadâr?
what color is the tip of the triangle in which is drawn umbrella
'What color is the tip of the triangle that has an umbrella in the middle?'

The visual contexts, illustrated in Figure 1, were designed as pairs of identical geometric shapes, which differed only in terms of their features or components (color, texture, contents). For each of the three visual contexts illustrated in Figure 1, there are two large triangles with smaller triangles inside them, outlining the triangles' top angles (their 'tips'). The triangles and the tips differ in color and in type of the embedded object, an umbrella or a sun. The linguistic stimuli were always the same, irrespective of the visual stimuli they were paired with.

In combination with the question in (4c), each picture rendered one of the three experimental conditions: Ambiguous (Figure 1a), where both N1 *vârxât* 'tip' and N2 *triâgálnika* 'triangle' contained an umbrella; Disambiguated Low (Figure 1b), where the umbrella was inside the triangle (N2) but not inside its tip; and Disambiguated High (Figure 1c), where the umbrella is inside the tip (N1). Thus, attachment was disambiguated (or left ambiguous) by means of the visual contexts, while the questions in the linguistic stimuli remained globally ambiguous.

Three separate lists presented the materials in a fixed pseudo-randomization; presentation of the targets was counterbalanced across the three lists, such that no one subject would see more than one of the three versions of each experimental item.

Procedure. Participants were seated in front of a laptop PC computer, which displayed the visual contexts on its screen and played the accompanying acoustic stimuli through external speakers at a loud but comfortable volume. Participants were given written instructions on the screen and were assisted by the experimenter during two practice items. The experimenter remained in the room with the participants throughout the duration of the experiment to record the responses, which participants were instructed to utter out loud. A 16-sec pause between items helped ensure that the experiment moved at a pace rapid enough to retain participants' interest but slow enough to allow them enough time to respond. Completion of the experiment typically took 15 minutes.

Within a given item, each auditory preamble was played automatically and synchronized with the variously-animated presentation of one picture component. For the example above, the first preamble sentence (4a) was played while the two triangles appeared in sequence, the one on the right (pink) followed by the one on the left (yellow). After a 500 msec delay, the second preamble sentence (4b) was played and the tips

appeared on the screen, one after the other. All visual components remained on the screen while the question (4c) was played at the offset of the last animation. The participant was thus able to inspect the two alternative visual contexts while answering the questions.

The responses were screened for missing answers and for errors in the fillers, but no participants were rejected on these criteria. For the fillers and visually-disambiguated experimental items, participants' responses were recorded as correct or incorrect, and for the ambiguous items, as indicating either high (N1) or low (N2) attachment preference. Subject- and item-based means of percent correct (for visually-disambiguated targets) were used in the analyses of variance, which included the variable Disambiguation Type (low versus high) and a dummy variable included to extract irrelevant variance, but which will not be reported here.

Results. Table 2 compares participants' accuracy with fillers and with target items visually disambiguated to low or high attachment. Just like in Experiment 1, participants' accuracy with fillers was at ceiling. Performance with experimental items visually disambiguated towards low attachment was also close to perfect. That is, participants named the color of the triangle correctly ('yellow' for the example in (4) and Figure (1b)) on average 98% of the time. Participants' accuracy, however, fell dramatically for the experimental items that were visually disambiguated towards high attachment. Instead of the expected response, correctly naming the color of the tip ('blue' for the example above), participants named either the color of the triangle itself ('pink') or the color of the embedded object 30% on average. When attachment was disambiguated high, the color of the triangle (N2) interferes with naming the color of its tip (N1). In terms of choosing the correct picture, participants behaved with accuracy comparable to that with items disambiguated low (94%), yet they lost track of which component of the picture should be named on almost one third of such trials. The main effect of Disambiguation Type was highly significant, $F_1(1,18)=27.90$, $p<0.001$, $F_2(1,6)=13.10$, $p<0.01$, with items visually disambiguated towards low attachment producing substantially better accuracy than items visually disambiguated towards high attachment.

Table 2. Experiment 2. Distribution of responses (%) as Correct (both picture and named component), Correct Picture (only), and No Answer, for Experiment 2.

	Disamb. Low	Disamb. High
Correct	98.4	63.5
Correct Picture	1.6	30.5
No Answer	—	6.0

Turning now to the ambiguous items, we were surprised to find that the overall attachment preference was for N2, entirely contrary to the high attachment preference of Experiment 1. These participants — sampled from the same population as those who preferred high attachment of the ambiguous RC with the written sentences of Experiment 1 at a rate of 59% — exhibited entirely different overall preferences with the visual ambiguous materials in Experiment 2, choosing high attachment only 37% of the time.

How can we explain this case of the language-internal shift in overall attachment preference? Some existing work (De Vincenzi and Job 1993; Fernández 2003) has argued for a two-stage model for processing RC attachment ambiguities. In the first stage, the universal principle of Late Closure applies in all languages and the RC is initially attached low. This initial decision may be altered by non-syntactic considerations—such as pragmatic principles or prosodic phrasing preferences—made during a second processing stage. The overall preference for low attachment revealed by the data for Experiment 2 suggests that this procedure taps the early phase of processing where only Late Closure is at play. The visual contexts for the linguistic stimuli employed in Experiment 2 were designed to minimize semantic/pragmatic complexity (since they provided immediate interpretative contexts). Thus, an initial low attachment decision would not be altered on such grounds. What's puzzling, however, is that prosodic phrasing preferences are not biasing attachment toward N1 in this study. Not only were the RCs of similar length to the long RCs in Experiment 1, but we also note that the questions in Experiment 2 were recorded with a long pause (400 ms, on average) preceding RC. This kind of prosodic structure should have promoted high attachment (Lovrić 2003).

Instead of appealing to post-syntactic processing to explain the language-internal shift in attachment preference in Bulgarian, we may need to turn to the general architecture of human cognition. This explanation appeals to limitations of the human sentence processing mechanism, taking us beyond more constrained views approaching the phenomenon by examining factors inside the language processing mechanism. In addition to various linguistic properties of the stimuli, extralinguistic characteristics of the experimental design could contribute to the processing burden on working memory and cognitive resources.

The idea of a resource-limited processing system is not new; its implications have been investigated in several areas of psycholinguistics such as reading span in adults (Just and Carpenter 1992) and individual differences in spoken language acquisition (Adams and Gathercole 2000). The resource-limited processor will preferentially select the syntactic representation that is more easily computed: the local attachment. What complexity factors, modality, interpretative operations, visual properties, or a combination of those, are responsible for cognitive overload in the relative clause attachment ambiguity remains an open question.

However, before concluding that the effects observed in Experiment 2 are associated with a resource-limited processor, we explore one potential confound. A comparison of the experimental design between Experiments 1 and 2 reveals an additional difference besides the semantic/pragmatic complexity of the types of NPs used. This additional difference has to do with modality: materials in Experiment 1 were presented to the participants in the written form while in Experiment 2 they were spoken. Recent work in language production has raised the question of modality-neutral versus modality-dependent effects in cross-modal priming (Cleland and Pickering in preparation; McLean et al. 2003). In contrast to Experiment 2's auditory materials, the written presentation of materials in Experiment 3 should allow enough time for non-syntactic considerations to come into play, those considerations that produced the departure from low attachment in Experiment 1. Experiment 3 puts the modality question to direct empirical test, by presenting the visual contexts used in Experiment 2 with written rather than auditory linguistic stimuli.

4. Experiment 3: written questionnaire with abstract shapes

Participants. Twenty-one native speakers of Bulgarian who had not previously participated in either Experiment 1 or Experiment 2 took part in the experiment. They were naïve with respect to the purpose of the experiment and received \$3 for their participation.

Design, Materials, and Procedure. The design, materials, and procedure (including the procedures for the data analyses) for Experiment 3 were identical to those for Experiment 2, with one critical difference: The linguistic stimuli presented auditorily in Experiment 2 were presented in the written form in Experiment 3. The written preambles and their corresponding questions were synchronized with the presentation of the visual components, appearing on the screen simultaneously with the visual components. Thus, the appearance of the pink triangle in Figure (1a) triggered the display of the first phrase in (4a), *Eto edin rozov triâgâlnik* ‘This is a pink triangle’. The yellow triangle followed, together with the second phrase, *i edin žâlt triâgâlnik* ‘and a yellow triangle’. The second preamble sentence (4b) appeared simultaneously with the appearance of the first of the two tips. Both preamble sentences were displayed above the pictures and remained on the screen throughout the slide presentation. The experimental question (4c) appeared under the pictures after a 2-3 sec delay. Participants were asked to write down their responses on an answer sheet, before they triggered the display of the following item.

Results. Table 3 compares participants’ accuracy with targets disambiguated low and targets disambiguated high, for Experiment 3. (Responses to filler items were 99% accurate.) Accuracy in Experiment 3 is similar to accuracy in Experiment 2, with one exception: the participants were less accurate in naming the color correctly for the experimental items that were visually disambiguated towards low attachment (86%) than for the same items in Experiment 2 (98%). Just like in Experiment 2, responses to experimental items that were visually disambiguated towards high attachment were less accurate than responses to items visually disambiguated low; the main effect of Disambiguation Type was reliable, $F_1(1,18)=5.65$, $p<0.05$, $F_2(1,6)=4.62$, $p=0.068$. Still, the items visually disambiguated towards low attachment produced better accuracy than high attachment unambiguous items.

Table 3. Experiment 3. Distribution of responses (%) as Correct (both picture and named component), Correct Picture (only), and No Answer, for Experiment 2.

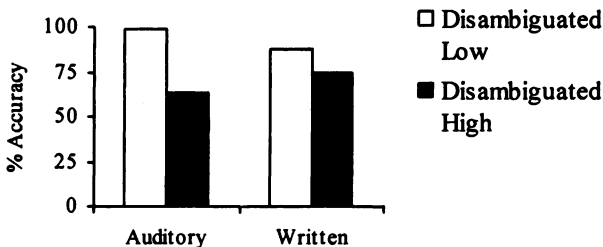
	Disamb. Low	Disamb. High
Correct	87.3	74.6
Correct Picture	12.7	25.4
No Answer	—	—

The overall preference with ambiguous items was again for low attachment, like Experiment 2 but unlike Experiment 1: the rate of N1 attachment with ambiguous materials was 22% in Experiment 3.

Comparison of Experiments 2 and 3. To compare directly accuracy rates for the visually disambiguated items across the two experiments, Analyses of Variance were performed combining the between-subjects factor of Modality (auditory versus written) and the within-subjects and-items factor of Disambiguation Type (low versus high); the data are displayed in Figure 2. These analyses confirm that, regardless of modality, it is easier to respond correctly in this task when the visual contexts disambiguate attachment to N2: the main effect of Disambiguation Type was highly significant, $F_1(1,18)=36.45$, $p<0.001$, $F_2(1,6)=10.35$, $p<0.02$. But this factor interacted significantly with Modality, $F_1(1,18)=6.00$, $p<0.025$, $F_2(1,6)=15.13$, $p<0.01$; as Figure 2 illustrates, the effect of disambiguation, a 34% difference for Experiment 2, is reduced in Experiment 3, where the difference is 12%.

In a comparison of the overall attachment preference with ambiguous items in Experiments 2 and 3, the main effect of Modality was not significant, $F_1(1,18)=2.99$, $p>0.1$, $F_2(1,6)=1.63$, $p>0.25$: participants were equally unlikely to choose the high-attachment interpretation, with rates of N1 attachment of 22% (Experiment 2) and 37% (Experiment 3).

Figure 2. Overall accuracy (%) in Experiments 2 (Auditory) and 3 (Written) with visually disambiguated items.



This shows that the overall low attachment preference with this task is present regardless of modality.

5. General discussion

The experiments reported here investigated relative clause attachment in Bulgarian. Using a traditional paper-and-pencil questionnaire in Experiment 1, we found that native Bulgarian speakers prefer to attach the RC to the non-local site, N1, with semantically/pragmatically complex globally-ambiguous sentences. This finding aligns Bulgarian with other high-attaching Slavic languages, including Croatian, Polish, and Russian.

The high attachment preference found in Experiment 1 was not replicated in Experiments 2 and 3. In the latter two experiments, semantically/pragmatically complex materials containing NPs such as *the brother of the teacher* were replaced with abstract materials containing immediate visual contexts. The presence of contextual support resulted in an overwhelming preference for low (local) attachment interpretations of the RC. This locality preference was present regardless of the modality of the linguistic stimuli, auditory (Experiment 2) or written (Experiment 3). Modality effects were nevertheless not entirely absent with these materials: the effect of disambiguation (more accuracy with N2 than with N1 visual disambiguation) was stronger in Experiment 2, with auditory materials, than in Experiment 3, with written materials.

We are left with the puzzle of understanding why the strong preference for Bulgarians to attach to N1 in Experiment 1 dramatically shifted to a preference to attach to N2 in Experiments 2 and 3. This N2 preference, which theoretically follows from application of the Late Closure Principle, could be seen as a consequence of the fact that low (local) attachments are less computationally demanding than high (non-local) attachments. This suggests that the color-identification task of Experiments 2 and 3 limits the resources of the processor in a way that the questionnaire of Experiment 1 does not. This work therefore adds to the record yet another way in which RC attachment is sensitive to variation in materials and in aspects of the method. It also points to a number of promising avenues for future work, including experimentation presenting the materials of Experiment 1 in auditory format, and the materials of

Experiments 2 and 3 in a format more closely comparable to the protocol used in Experiment 1.

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Genesis of the Balkan Slavic Future Tenses

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1. Introduction

The future tenses in Balkan Slavic employ 'will'-modal auxiliaries or negative verbs that derive from the fusion of the Neg operator with the 'have'-auxiliary.¹ This paper will analyze the underlying structure, the

¹ The Serbo-Croatian *futurum secundum* — used in conditional and 'when'-temporal clauses with future reference — also employs the so-called 'perfective' 'be'-auxiliary (which in Polish, Slovenian and the Kajkavian Croatian dialect is used in the formation of the future tense):

(i) Kad budeš došla, rešićemo SC
when be 2SG. PERF come FEM. SG. L-PART solve SHORT INF+Will 3PL. MOD. CL
sve probleme.
all problems.
'When you come, we shall solve all the problems.'

(ii) Ako ne budu došli, propada plan.
if not be 3PL. PERF come PL. L-PART fail 3SG plan
'If they do not come, the plan fails.'

Taking into consideration the usage (as pointed out by a reviewer, very much like that of the Portuguese future subjunctive), the Serbo-Croatian paradigm of 'perfective' 'be'-forms plus *l*-participles could more appropriately be referred to as 'subjunctive future paradigm' and the 'perfective' 'be'-forms could more appropriately be referred to as 'subjunctive 'be'-forms'. It was remarked by the same reviewer that, while the perfective 'be'-forms can be constructed with participles of both perfective and imperfective verbs, in 'when'-clauses with future reference only perfective verbs can be used. Indeed, the verb in the 'when'-clause in (i) cannot be imperfective and (iii) is not acceptable:

usage and the diachronic development of the Balkan Slavic future tenses. In section 2, the Serbo-Croatian future tenses with 'will'-modal auxiliaries and infinitives or subjunctive constructions will be discussed. In section 3, the Bulgarian and Macedonian future tenses with 'will'-modal auxiliaries will be dealt with. Section 4 will present the genesis of the Bulgarian and Macedonian future tenses. Section 5 will examine the Balkan Slavic future tenses with 'have' auxiliaries. In section 6 some general conclusions will be drawn.

2. The Serbo-Croatian future tenses

The Balkan Slavic future tenses with 'will'-modal auxiliaries developed from 'quasi' future tenses with forms of the verb *xъtěti/xotěti* 'be willing/want' plus infinitives of lexical and auxiliary verbs.² Configurations in which present tense forms of the successor of the Old (Church) Slavic modal verb *xъtěti/xotěti*, *ht(j)eti*,³ takes infinitive complements, still exist in Serbo-Croatian,⁴ though the future tense interpretation transpires only in questions in which the present tense forms of *ht(j)eti* are clause-initial, such as (1):⁵

- (iii) *Kad budeš dolazila, rešićemo SC
 when be_{2SG} PERF come FEM SG. IMPER. FEM. L-PART solve_{SHORT INF}+ Will 3PL. MOD. CL
 sve probleme.
 all problems.

However, in appropriate contexts, imperfective verbs are fine:

- (iv) Kad budeš dolazila, svrati kod Ane. SC
 when be_{2SG} PERF come SG. IMPER. FEML-PART drop_{2SG IMPERAT} at Ana GEN
 'On your way, drop by at Ana's.' (lit. 'As you would be coming, drop by at Ana's.')

² According to Stieber (1973), these 'quasi' future tenses were rare in Old (Church) Slavic but won out in Middle Bulgarian.

³ The symbols in brackets occur in Standard Croatian, but not in Standard Serbian. The forms in brackets mark Standard Croatian usage when different from Standard Serbian.

⁴ Upon the disintegration of Yugoslavia, Serbo-Croatian dissolved into Serbian, Croatian and Bosnian. The grammatical structures of the three 'successors' do not, however, substantially differ from one another. I am using the term 'Serbo-Croatian' when speaking of the grammatical structure of the language/languages, and 'Serbian' or 'Croatian', when referring to the socio-linguistic categories 'standard language' or 'dialect'.

⁵ In the glosses of the examples, the following abbreviations are used: 1/2/3 = 1st/2nd/3rd person; Acc = Accusative (case); Aux = auxiliary; Cl = clitic; Comp = complementizer; Dat = Dative (case); FEM = feminine; Imp = Imperfect (tense); Imperat = imperative;

- (1) Hoće li doći sutra? SC
 be willing/want_{3SG} INTER.PART come_{PERF. INF} tomorrow
 ‘Will (s)he come tomorrow?’

In affirmative clauses, the non-clitic forms of *ht(j)eti* are interpreted as forms of the original lexical modal verb:

- (2) Petar hoće doći sutra. SC
 Peter be willing/want_{3SG} come_{PERF. INF} tomorrow
 ‘Peter is willing/wants to come tomorrow.’

Note, however, that past tense and perfect forms of the lexical modal verb *ht(j)eti* with infinitive complements, express futurity relative to a past moment:

- (3) a. Petar ht(j)ede doći sutradan. SC
 Peter be willing/want_{3SG·IMPERF} come_{PERF. INF} tomorrow day
 b. Petar je hteo/(htio) doći
 Peter is_{CL} be willing/want_{MASC.SG·L-PART} come_{PERF. INF}
sutradan.
 tomorrow day
 ‘Peter was willing/wanted to come the next day.’

From the thirteenth century onwards, the Balkan Slavic forms of *xvtěti/xotěti* were gradually being replaced by ‘will’-modal clitics (cf. Mirčev 1978:24). Stieber (1973:62) quotes the following example from 13th century documents in the Serbo-Croatian speaking area:

Imperf = imperfective (aspect); Impers = impersonal; Inf = infinitive; Inter = interrogative; *l*-Part = participle ending on *-l* – for masculine singular (in Serbo-Croatian *-o*), *-la* – for feminine singular, *-lo* – for neuter singular, *-li* – for all persons plural (In Serbo-Croatian and Bulgarian, but not in Macedonian, the *l*-participle is the only active participles used in the Perfect tense. In Macedonian clauses with clitics, the behaviour of the *l*-participle is analogous to that of tensed verbs (cf. Tomić 1996, 1997); MASC = masculine, Mod = modal; NEUT = neuter; Nom = Nominative (case); Part = participle; Past = past (tense); Perf = perfective (aspect); Pl = plural; Pr = present (tense); Prox = proximate; Refl = reflexive; Sg = singular; Shirt.Inf = short (suffixless) infinitive; Subj = subjunctive; Subj.Comp = subjunctive complementizer

The names of the languages are abbreviated as follows: Ar = Aromanian; B = Bulgarian; C = Croatian; DialM = dialectal Macedonian; M = Macedonian; MG = Modern Greek; MidB = Middle Bulgarian; MidM = Middle Macedonian; MidS/C = Middle Serbian/Croatian; OChSl = Old (Church) Slavic; S = Serbian; SC = Serbo-Croatian; S-ES = Southeastern Serbian; TALb – Tosk Albanian

- (4) Čto će moj človek govoriti, MidS/C
 what will_{3SG. MOD. CL} my man speak_{INF}
 věruj ga.
 believe_{2SG-IMPERAT} CL_{3SG-ACC}
 'Believe what my man will say!'

Stieber (1973:62) also quotes the following inscriptions from 15th century tombstones in Hercegovina:

- (5) a. proklet tko će tućin leč idS/C
 damned who will_{3SG. MOD. CL} foreigner lie_{INF}
 'Damned be the foreigner who will lie (here).'
- b. vi ćete biti kako ja, ja ne mogu
 you will_{2PL} be_{INF} as I I not may_{1SG}
 biti ako bićete
 be_{INF} as be_{INF+2PL. MOD. CL}
 'You will be as I am, I cannot be as you will be.'

The future tenses in which 'will'-modal clitics take as complements infinitives of lexical verbs are used up to date. Examples:⁶

- (6) a. On će doći sutra. SC
 he will_{3SG. MOD. CL} come_{INF} tomorrow
- b. Doćiće sutra.
 come_{INF+WILL. 3SG. MOD. CL} tomorrow
 'He will come tomorrow.'

From the 17th century onwards, subjunctive constructions, which elsewhere in the language appear much earlier, began to occur in complement positions of the 'will'-modal auxiliary clitics. Thus, as an alternative to (6a-b), Serbian has (7):

- (7) On će da dođe S
 he will_{3SG. MOD. CL} SUBJ.COMP come_{3SG. PERF. PRES}
 sutra.
 tomorrow
 'He will come tomorrow.'

⁶ In the constructions with infinitives, when the subject is dropped, the 'will'-clitic encliticises to the infinitive.

The structures of clauses with future tense with infinitives and subjunctives are given in (8a) and (8b):

(8) a. $[T/AgrSP NP_i [T/AgrS [AuxP t_i Mod.Cl] [VP t_i V_{inf}]]$

b. $[T/AgrSP NP_i [T/AgrS [AuxP t_i Mod.Cl] [MoodP t_i da] [VP t_i V]]$

The derivation of the modal clitics in AuxP, to the right of T/AgrS where they check their features,⁷ follows from the fact that they inflect for person and number.⁸

Both (8a) and (8b) illustrate mono-clausal raising structures. While in (8a) the modal clitic takes as a complement a VP in which V is instantiated by an infinitive, in (8b) it takes as a complement a mood phrase headed by a subjunctive complement.⁹ As argued in Tomić (to appear a), the future tenses with subjunctive constructions relate to restructuring configurations in which subjunctive constructions appear in complement positions of forms of the lexical modal verb *ht(j)eti* 'be willing/want', with which the verb of the subjunctive construction agrees in all ϕ -features. The structure of clauses with such configurations is given in (9):¹⁰

⁷ AuxP is independently needed in Serbo-Croatian. As argued in Tomić (1996), it is the node where the third person of the 'be'-auxiliary is derived. In Tomić (1996), arguments are also given for the joint treatment of Tense and AgrS.

⁸ In the Southeastern Serbian dialects, the modal auxiliaries inflect for tense, as well:

(i)	Čaše	da	stroše	šiše(to).	S-ES	
	would	3PL. MOD. AUX	SUBJ. COMP	break	3PL. PERF. PRES	bottle+the. NEUT. SG
	'They fell short of breaking the bottle.' (lit. 'They wanted to break the bottle.')					

The example was provided by Prof. Nedeljko Bogdanvić, speaker of a Svrlijig-Zaplen Southeastern Serbian dialect, specialist for Southeastern Serbian dialectology and author of *Izoglose Jugoistočne Srbije* [The izoglosses of Southeastern Serbia]. 1992. Niš: Prosveta.

⁹ The Serbo-Croatian complementizer *da* is used as a subjunctive mood complementizer, as well as an indicative complementizer. We actually have two *da*'s: the 'that'-complementizer *da*₁, which introduces indicative complements, and the subjunctive mood complementizer *da*₂, which introduces subjunctive complements. The two different uses of the Serbo-Croatian *da* are discussed in Bibović (1971); Browne (1981/1986); Vrzić (1996). Note, however, that what synchronically are referred to as 'two different uses of *da*', could diachronically be two different conjunctions. Gołąb (1964:28) argues that 'it is highly possible that Old Slavic *da* represents a homonym: *da* – a modal particle serving to derive an analytic subjunctive mood from the present indicative and *da* – a paratactic conjunction corresponding to English 'so, thus, also.'

¹⁰ Stjepanović (to appear) refers to modal verbs such as *htjeti* as potentially restructuring verbs since, when the verb of the main clause and the verb of the subjunctive construction

(9) [T/Agr_{SP} NP/DP_i [T/Agr_S [VP t_i V [MoodP t_i da [VP t_i V]

Along with a pair structure with an infinitive complement, this structure is used in clauses expressing futurity relative to a past moment.¹¹

have joint reference, clitic climbing and negative polarity are licensed. Stjepanović's structure for the restructuring configuration with a subjunctive complement in (i) is (ii):

- (i) Petar nije morao da SC
 Petar_{MASC. SG. NOM} not+is had to_{MASC. SG. L-PART} Comp
upozna nikoga
 get to know_{3SG. PERF. PRES} nobody
 'Peter didn't have to get to know anybody.'

- (ii) [*Petar_i nije* [FP t_i *morao* [_{daP} *da* [VP t_i *upozna nikoga*]

As observed, the subject *Petar* starts out within the *da*-complement in the Spec position of the smallest verbal projection containing the embedded verb and raises to the matrix subject position. The raising verb characteristics of restructuring verbs are argued for on the example of sentence triplets such as the following one:

- (iii) Svi uslovi su se morali ispuniti SC
 all conditions_{MASC. PL. NOM} are_{3PL} REFL. CL had-to_{MASC. PL. L-PART} fulfill_{INF}
do tog roka.
 until that_{ACC} deadline_{ACC}
- (iv) Svi uslovi su morali da se ispune
 all conditions_{MASC. PL. NOM} are had-to COMP REFL. CL fulfill_{MASC. PL. L-PART}
do tog roka.
 until that_{ACC} deadline_{ACC}
- (v) %Svi uslovi su se morali da
 all conditions_{MASC. PL. NOM} are REFL. CL had-to_{MASC. PL. L-PART} COMP
 ispune do tog roka.
 Fulfill_{MASC. PL. L-PART} until that_{ACC} deadline_{ACC}
 'All conditions had to be fulfilled until that deadline.'

In (iii), the subject *svi uslovi* has Nom case and agrees in ϕ -features with the matrix verb. Given the interpretation of the sentence, it is, however, clear that *svi uslovi* is not assigned a theta-role by the matrix verb, but rather by the infinitive *ispuniti*. Accordingly, we are here dealing with a raising structure. In (iv-v), the Nom subject *svi uslovi* agrees both with the verb of the matrix clause and the verb of the embedded *da*-construction. Nevertheless, as in (iii), *svi uslovi* in these sentences starts out as object of the embedded verb. Therefore, it is plausible to assume that (iv-v) are also raising structures. Furthermore, given that *da*-complements in restructuring configurations are not CPs or TPs — since they have no independent tense and disallow two structurally represented arguments to act as subjects — the option under which *svi uslovi* gets its case checked in the *da*-complement is not available at all.

¹¹ The structure with the infinitive was exemplified in (3a-b). A pair sentence with a subjunctive complement is given in (i):

The verb of the subjunctive complements agrees in person and number with the modal clitics and derives its ϕ - features from them. Since it does not inflect for tense (its forms are always the present tense forms of the lexical verb in question), there are no future tense constructions in which the modal clitic and the lexical verb in the subjunctive complement have disjoint reference, as illustrated by the well-formedness of (10a-b) and the unacceptability of (10c):

- (10) a. Petar će ti ga dati. SC
 Peter will_{3SG.CL} 2SG.DAT.CL CL_{3SG.NEUT.ACC} give_{INF}
 ‘Peter will give it to you.’
- b. Petar će da ti
 Peter will_{3SG.CL} SUBJ.COMP CL_{2SG.DAT}
 ga da.
 CL_{3SG.NEUT.ACC} give_{3SG.PERF.PRES}
 ‘Peter will give it to you.’
- c. *Petar će da mu
 Peter will_{3SG.CL} SUBJ.COMP CL_{3SG.MASC.DAT}
 ga daš.
 CL_{3SG.NEUT.ACC} give_{2SG.PERF.PRES}

Stojanović (2000) demonstrates that with verbs of the ‘be willing/want’ type, in standard Serbian, subjunctive complements are most often used, while in standard Croatian, infinitive complements are preferred. Subjunctives with disjoint reference are used in both standard Serbian and standard Croatian, whereas subjunctives with joint reference are used in standard Serbian, all Serbian dialects and some Croatian dialects (cf. Tomić to appear a). Since the ‘will’-modal clitics developed from the lexical verb *ht(j)eti* ‘be willing/want’ and since in the future tenses the ‘will’-modal clitics and their subjunctive complements always have joint reference, it is to be expected that the future tense with ‘will’-modal

- (i) Petar je hteo(htio) da dode SC
 Peter is_{CL} be willing/want_{MASC.SG.L-PART} SUBJ.COMP COME_{3SG.PERF.PRES}
 sutradan.
 tomorrow day
 ‘Peter was willing/wanted to come the next day.’

clitics and subjunctive complements do not occur in Standard Croatian. This expectation is borne out.¹²

3. The Macedonian and Bulgarian future tenses with ‘will’ auxiliaries

In the Macedonian and Bulgarian future tenses with ‘will’-auxiliaries, the modal clitics do not inflect and project ModPs which subcategorise for MoodPs with an empty Mood operator to the left of T/AgrSP and VP.¹³ The structure of clauses with such future tenses is given in (11b) on the example of the Macedonian sentence (11a):

- (11) a. Petar *ќе* dojde. M
 Petar will_{MOD. CL} come_{3SG. PERF}
 ‘Petar will come.’

- b. [_{ModP} *Petar*_i [_{Mod} *ќе* [_{MoodP} _t_i [_{Mood} \emptyset [_{T/AgrSP} _t_i [_{T/AgrS} [_{VP} _t_i *dojde*]]]]]]

The position of T/AgrS is argued for by the fact that the modal clitic does not inflect, while the lexical verb to its right does. In Macedonian, the lexical verb to the right of the modal clitic occurs not only in the Present tense, but also in the past tense:

- (12) a. Nie *ќе* stignevme utredenta. M
 we will_{MOD. CL} arrive_{3PL. SUBJ. PAST} tomorrow+the
 ‘We would have arrived the next day.’

- b. Petar *ќе* dojdeše.
 Petar will_{MOD. CL} come_{3SG. SUBJ. PAST}
 ‘Petar would have come.’

¹² Standard Croatian is not, however, coextensive with ‘the language spoken in Croatia’. The future tense with subjunctive constructions is used in Eastern Croatia. As a matter of fact, the use of the subjunctive in general increases as one moves south-eastwards in the Serbo-Croatian speaking area, and is the only option in the Southeastern Serbian dialects.

¹³ There is a general agreement among scholars that MoodPs in the Balkan languages are higher than TPs and lower than CPs (cf. Rivero 1994; Tomić 2002, to appear a; Isac and Jakab to appear, among others). For Rivero (1994) MoodPs are headed by subjunctive mood complementizers, such as the Macedonian and Bulgarian *da*, as well as by invariant future-marking modal clitics, such as the Macedonian *ќе* or the Bulgarian *šte* (cf. 2.3; 2.4). I have, however, argued that the projections of the subjunctive mood complementizers are distinct from the projections of the Macedonian or Bulgarian auxiliary modals (cf. Tomić 2002; to appear a).

The existence and the position of the mood operator is argued for by the fact that the verbs in the future tense employ forms used in subjunctive constructions, which are not always identical to the forms employed in indicative constructions. While in indicative sentences only present tense forms of imperfective verbs are used, subjunctive constructions and future tenses employ present tense forms of both imperfective and perfective verbs:¹⁴

- (13) a. (Mu) ja čitam/*pročitam M
 CL 3SG.MASC.DAT CL 3SG.FEM.ACC read 1SG.IMPERF/*PERF.PRES
 knjigava.
 book+the PROX.FEM.SG
 'I am reading the book (to him).'
- b. Sakam da (mu)
 want 1SG.IMPERF.PRES SUBJ.COMP CL 3SG.MASC.DAT
 ja čitam/pročitam knjigava.
 CL 3SG.FEM.ACC read 1SG.IMPERF/PERF.PRES book+the PROX.FEM.SG
 'I want to read the book (to him).'
- c. Āe (mu) ja
 will_{MOD}.CL CL 3SG.MASC.DAT CL 3SG.FEM.ACC
 čitam/pročitam knjigava.
 read 1SG.IMPERF/PERF.PRES book+the PROX.FEM.SG
 'I will read the book (to him).'

With a number of verbs, present tense forms of perfective verbs are formed from bases distinct from those from which present tense forms of imperfective verbs are constructed, and could be labelled 'subjunctive.' Compare the present tense forms of imperfective verbs in the a examples, to their counterpart forms of perfective verbs in the b examples in (14)-(15):¹⁵

¹⁴ The examples are from Macedonian. Analogous examples exist in Bulgarian.

¹⁵ As illustrated in (i)-(iii), the b forms are not acceptable in indicative sentences with reference to the moment of speaking:

- (i) Ti *dadam nešto. M
 CL 2SG.DAT give 1SG.PERF.PRES something
 Purported meaning: 'I am giving you something.'

- (14) a. Mnogu ti davam. M
 much CL 2SG. DAT give 1SG. IMPERF. PRES
 'I am giving you a lot.'
- b. Āe ti dadam nešto.
 will MOD. CL CL 2SG. DAT give 1SG. PERF/SUBJ. PRES something
 'I will give you something.'
- (15) a. Doāaat sekoj den. M
 come 3PL. IMPERF. PRES every day
 'They come every day.'
- b. Āe dojdat utre.
 will MOD. CL come 3PL. PERF/SUBJ. PRES tomorrow
 'They will come tomorrow.'

The subjunctive verb forms are checked in MoodP.¹⁶

Historical evidence also shows that the Macedonian and Bulgarian future tenses have actually developed from restructuring configurations with 'will'-lexical modal verbs.

4. From infinitive to tensed verb complements

Not only in Old (Church) Slavic, but also in Middle Macedonian and Middle Bulgarian manuscripts, the future tense is constructed with finite forms of the modal verb *xotēti* 'will/want' plus infinitives of lexical verbs. Koneski (1967:204) cites the following examples from the 14th century *Trojanska priča* [The Story of Troy]:

- (16) a. Xoščet počiti moj brat. MidM
 will 3SG die INF my brother
 'My brother will die.'

(ii) *Najdeš greški.
 find 2SG. PERF. PRES mistakes
 Purported meaning: 'You find mistakes.'

(iii) *Dajdat sega.
 oome 3PL. PERF. PRES now
 Purported meaning: 'They are coming now.'

¹⁶ MoodP is also the node where imperatives are checked (cf. Tomić to appear b)

- b. Xoščet pogovorēti.
 will_{3SG} speak_{INF}
 '(S)he will speak out.'

Somewhat later, there appear inflected modal auxiliary forms. Koneski (1967:204) cites the following example from a 1706 manuscript found in a monastery in Kičevo:

- (17) Koi kēt mislit, koi kēt iskat MidM
 who will_{3SG.MOD.AUX} think_{INF} who will_{3SG.MOD.AUX} wants
 'Who will think, who will want.'

Future tenses with modal auxiliary inflected forms (which had developed from the modal verb *xotēti*) plus short, suffixless infinitives, are common even as late as the 18th century. Mirčev (1963:202-204) cites the examples in (18) from the Damaskins from Svištov (17th century) and the ones in (19) from the Čerget's prayers (18th century):

- (18) a. šta napisa MidB
 will_{1SG.MOD.AUX} write down_{SHORT INF}
 'I will write down'
- b. šteš pozna
 will_{2SG.MOD.AUX} recognize_{SHORT INF}
 'You will recognize'
- (19) a. štem vidi MidB
 will_{1PL.AUX} see_{SHORT INF}
 'We shall see'
- b. šteš ostavi
 will_{1PL.AUX} leave_{SHORT INF}
 'You shall leave'

In the spirit of the general tendency of the languages of the Balkan Sprachbund to replace synthetic grammatical forms with analytic ones, from the 15th century onwards, the infinitive was gradually being replaced by subjunctive constructions, and these constructions began to appear in the future tenses (cf. Koneski 1967:206). According to Asenova (1989:205), finite forms of the 'will'-modal auxiliary plus subjunctive constructions have been found in 15th century Bulgarian manuscripts. In the late 18th — early 19th century writings of the Macedonian writers Joakim Krčovski and Kiril Pejčinovič, there are

future tenses with a non-finite modal clitic plus subjunctive constructions,¹⁷ such as:

- (20) a. *će da ođi* MidM
 will_{MOD.CL} SUBJ.COMP go_{3SG}
 '(s)he will go'
- b. *će da vidi*
 will_{MOD.CL} SUBJ.COMP see_{3SG}
 '(s)he will see'

When it comes to futurity in reference to the past, in Serbo-Croatian, forms of the (full) modal verb *ht(j)eti*, in association with infinitives or subjunctive constructions, continued to be used, while in Macedonian and Bulgarian, the full modal verb forms were replaced by forms of the modal 'will'-auxiliary and the infinitive was completely ousted by subjunctive constructions.

In older stages of development of the Bulgarian future tense, the 'will'-modal auxiliary could occur in the imperfect or the perfect (cf. Gerđžikov 1984). Nowadays, the constructions with the perfect are, however, used to express *irrealis* conditionality from the point of view of a past moment, while the Imperfect forms plus subjunctive constructions represent the future-in-the-past tense:

- (21) a. *Da ne valeše, ošte Ńtjxme B*
 SUBJ.COMP not rained_{3SG. IMP} still would_{1PL}
da se razxođdame.
 SUBJ.COMP REFL.CL walk_{1PL. IMP. PRES}
 'If it didn't rain, we would still have been walking.'
- b. *Da ne beše doŃla, ošte*
 SUBJ.COMP not were_{2SG/was} come_{FEM. SG. L-PART} still

¹⁷ In contemporary Macedonian, constructions with non-finite (clitic) forms of the modal 'will'-clitic plus subjunctive constructions (with verbs in the present or past tense) denote presuppositions. Examples:

- (i) *Će da doađaat.* M
 will_{MOD.CL} SUBJ.COMP come_{3PL}
 'They seem to be coming.'
- (ii) *Će da dojdoa.*
 will_{MOD.CL} SUBJ.COMP came_{3PL}
 'They seem to have come.'

štjax	da	četa.
would _{1SG}	SUBJ.COMP	read _{1SG}

‘If you/she hadn’t come, I would still have been reading.’

Analogous constructions existed in Macedonian and still exist in dialectal Macedonian. Koneski (1967:206) cites an example from some villages in the Veles region:

(22)	ќеše/кеž	da	dojde	DialM
	will _{3SG.PAST}	SUBJ.COMP	come _{3SG.PERF}	
	‘(s)he would come’			

A further stage in the development of the configurations expressing futurity in reference to the past in Macedonian, are configurations in which the pastness signals appear on the auxiliary, as well as on the lexical verb (cf. Koneski 1967:207):

(23)	ќеše	(da)	dojdeše	DialM
	will _{3SG.PAST}	SUBJ.COMP	come _{3SG.SUBJ.PAST}	
	‘(s)he would come’			

Finally, the inflections of the auxiliary, as well as the subjunctive complementizer, are lost and we get modal clitics plus finite verbs with past tense signals:

(24)	ќе	dojdeše	M
	will _{3SG.PAST}	come _{3SG.SUBJ.PAST}	
	‘(s)he would come’		

We can conclude that the structure of the contemporary Macedonian and Bulgarian clauses with future tenses developed from structures such as the structure of the contemporary Serbian future tense with subjunctives, given in (7b) and for convenience repeated in (25):

(25) [_{T/Agr}SP NP/DP_i [_{T/Agr}S [_{Aux}P t_i Mod.Cl [_{Mood}P t_i da [_{VP} t_i V]

The development of the structure with an inflecting modal clitic and a subjunctive construction into a structure with a non-inflecting modal clitic to the immediate left of a tensed verb was mediated by a structure in which a subjunctive construction appears as a complement of a non-

inflecting modal clitic. Thus, structure (25) was followed by structure (26), which, in turn was followed by structure (27):

(26) [_{ModP} NP/DP_i [_{Mod} Mod.Cl [_{MoodP} t_i [_{Mood} da [_{T/AgrSP} t_i [_{VP} t_i V]]]]]

(27) [_{ModP} NP/DP_i [_{Mod} Mod.Cl [_{MoodP} t_i [_{Mood} O [_{T/AgrSP} t_i [_{VP} t_i V]]]]]

Note that future tenses with the intermediate structure appear in the contemporary Southeastern Serbian dialects.¹⁸ Examples:

- (28) a. Tvoj prijatelj će (da) S-ES
 your friend will_{MOD.CL} SUBJ.COMP
 stigne jutre.
 arrive_{3SG.PERF.PRES} tomorrow
 'Your friend will arrive tomorrow.'
- b. Do jutre na pladne mi će (da)
 till tomorrow on noon we will_{MOD.CL} SUBJ.COMP
 završimo projekat.
 finish_{1PL.PERF.PRES} project+the
 'Till tomorrow at noon we will have the project finished.'

Future tenses with subjunctive constructions in complement positions of non-inflecting 'will'-modal clitics are also documented in Tosk Albanian and Aromanian — Balkan languages neighbouring with Macedonian.¹⁹

¹⁸ In the Southeastern Serbian dialects, we also have future-in-the-past tenses with inflecting past tense modal auxiliaries plus subjunctive constructions, analogous to the dialectal Macedonian future-in the-past tense forms illustrated in (21). Examples:

- (i) Ća da ga nosi. S-ES
 would_{SG.MOD.AUX} SUBJ.COMP CL_{3SG.NEUT.ACC} carry_{3SG}
 '(S)he wanted to carry him.'
- (ii) Ća (da) se vrnem,
 would_{SG.MOD.AUX} SUBJ.COMP REFL.CL come back_{1SG.PERF.PRES}
 al(i) ne mogo.
 but not could_{1SG.IMP}
 'I wanted to come back, but I couldn't.'
- (iii) Ćaše da stroše šife(to).
 would_{3PL.MOD.AUX} SUBJ.COMP break_{3PL.PERF.PRES} bottle+the_{NEUT.SG}
 'They fell short of breaking the bottle.' (lit. 'They wanted to break the bottle.')

The examples in this footnote, as well as examples (28a-b), were provided by Prof. Nedeljko Bogdanvić (cf. footnote 7).

- (29) a. Do ta jap TAI
 will SUBJ.COMP_{3SG. DAT. CL} give_{1SG}
 librin nesër.
 book+the_{MASC. SG} tomorrow
 ‘I will give you the book tomorrow.’
- b. Va s-yin s- Ar
 will SUBJ.COMP-come_{1SG.PRES} SUBJ.COMP.
 ti ved mäne.
 CL_{2SG. ACC} see_{1SG. PRES} tomorrow.
 ‘I will come to see you tomorrow.’

5. Future tenses with ‘have’-auxiliaries

In addition to forms of *xõtěti/xotěti* ‘be willing/want’ plus infinitives, Old (Church) Slavic referred to the future with forms of *iměti* ‘have’ and *načěti/vyčěti* ‘begin/start’ plus infinitives (cf. Stieber 1973).²⁰ As a matter of fact, the constructions with *iměti* outnumbered the ones with *xõtěti/xotěti* (cf. Asenova 2002:204). Stieber (1973) gives the examples in (30a-c) and Lunt (1974:136-137) the one in (30d):

- (30) a. kako li čьto imate glagolati OChSl
 how INTER.MARK what have_{2PL} speak/say_{INF}
 ‘...what you are to/will say...’

¹⁹ Many Balkan languages underwent changes analogous to those of Bulgarian or Macedonian. While the history of the Albanian and Aromanian future is poorly documented, the history of Modern Greek is well documented. In this language the ‘will’-auxiliary lost its ϕ -features and fused with the subjunctive mood complementizer:

- (i) thelo + na → tha MG
 will/want_{1SG} SUBJ.COMP will_{MOD.CL}
- (ii) theleis + na → tha
 will/want_{2SG} SUBJ.COMP will_{MOD.CL}

The derived modal clitic *tha* takes as complements verbs with any ϕ -features:

- (iii) Tha su dhiavazo ta vradhia. MG
 will_{MOD.CL+SUBJ.COMP} CL_{2SG. GEN} read_{1SG. PRES} the_{NEUT. PL. CL} evenings
 ‘I will be reading to you in the evenings.’
- (iv) Tha tu dhiavazis ta vradhia.
 will_{MOD.CL+SUBJ.COMP} CL_{3SG. MASC. GEN} read_{2SG. PRES} the_{NEUT. PL. CL} evenings
 ‘You will be reading to him in the evenings.’

²⁰ There were different shades of meanings.

- b. ne imatъ ostati
not have_{3SG} remain_{INF}
'(s)he is not to/will not remain'
- c. ne imatъ viděti
not have_{3SG} see_{INF}
'(s)he is not to/will not see'
- d. azъ brašyno imamy ěsti ego že vy ne
I flour have_{1SG} eat_{INF} which you_{PL} not
věste
know_{2PL}
'I have meat to eat that you know not of'

From the eleventh century onwards, the use of forms of *xъlěti*/*xotěti* began to spread and the 'quasi' future tense with forms of *iměti* were gradually being ousted (cf. Mirčev 1978:223).²¹

In Serbo-Croatian, the configurations with forms of the successor of *iměti* plus infinitive continued to exist and from the fifteenth century onwards were coupled by configurations with forms of the successor of *iměti* plus subjunctives. In contemporary Serbo-Croatian, however, both configurations express order or obligation, i.e., have readings which in the Old Church Slavic 'quasi' future tense with forms of *iměti* were previously present as shades, nuances. Examples:²²

- (31) a. Imaš doći na vreme! SC
have_{2SG} come_{INF} on time
- b. Ima da dođeš na vreme!
have_{IMPERS} SUBJ.COMP come_{2SG.PERF.PRES} on time
'You have to come on time!'

In the Southeastern Serbian dialects, the negated impersonal form of the 'have'-auxiliary *nema* plus subjunctive complements express prohibition

²¹ It should be pointed out that not only future tenses with 'will'-auxiliary but also future tenses with 'have' auxiliaries exist in the contemporary Balkan languages. In Romanian and Megleno-Romanian constructions in which 'have'-auxiliaries take subjunctive complements represent some kind of 'intentional future', whereas in Ghëg Albanian they constitute the future tense (though the 'will'-future tense currently used in Tosk Albanian is also used).

²² Whereas standard Serbian prefers impersonal forms of *imati* plus subjunctive, standard Croatian uses almost exclusively tensed forms of *imati* plus infinitives.

as well as negation in reference to the future, in the latter case as an alternative to the future tense with 'will'-modal clitics plus subjunctives.²³

- (32) a. Nema da dojdu(!) S-ES
not+have IMPERS SUBJ.COMP come 3PL. PERF. PRES
a. 'They shouldn't come!'
b. 'They won't come.'

In Macedonian, the configuration *nema* plus subjunctive complement also expresses prohibition and negation in reference to the future, in the latter case as an alternative to the future tense with 'will'-modal clitics plus tensed verbs.²⁴

- (33) Nema da dojdat(!) M
not+have IMPERS SUBJ.COMP come 3PL. PERF. PRES
a. 'They shouldn't come!'
b. 'They won't come.'

In contemporary Bulgarian, the negated future tense with 'will'-auxiliaries plus tensed lexical verbs was active in the writings of the 19th century writers, but in the contemporary language it is considered obsolete or dialectal. Configurations with negated impersonal form of the 'have'-auxiliary *njama* plus subjunctive complements are in this language treated as a 'suppletive' negative counterpart of the (positive) future tense with 'will'-modal clitics plus tensed lexical verbs.²⁵

- (34) a. Petko šte dojde utre. B
Petko will MOD. CL come 3SG. PERF. PR tomorrow
'Petko will come tomorrow.'

²³ This Southeastern Serbian example was also provided by Prof. Nedeljko Bogdanović (cf. footnote 7).

²⁴ Note that in Macedonian, non-negated 'have'-auxiliary forms, plus subjunctive constructions, express orders.

²⁵ In Bulgarian, the non-negated configuration with forms of the 'have'-auxiliary plus subjunctives is very marginally used.

- b. Petko njama da dojde utre.
 Petko not+have IMPERS SUBJ.COMP come 3SG. PRES tomorrow
 ‘Petko won’t come tomorrow.’

The verb of the subjunctive construction of the Bulgarian negative future tense agrees in person and number with the negative ‘have’- auxiliary and does not inflect for tense. The negative ‘have’-auxiliary *njama*, does not inflect for person/number, but can occur in the present tense, as in (34b), as well as in the imperfect or the perfect, as in (35a) and (35b), respectively:

- (35) a. Petko njamaše da dojde B
 Petko not+have IMPERS. IMP SUBJ.COMP come 3SG. PERF. PRES
 ‘Petko wouldn’t come.’
- b. Petko njamalo da dojde
 Petko not+have IMPERS. PART SUBJ.COMP come 3SG. PERF. PRES
 ‘Reportedly, Petko wouldn’t come.’

In the Macedonian future tense with negative ‘have’-auxiliary plus subjunctive complement, however, either the negative ‘have’-auxiliary or the verb of the subjunctive construction can show past tense inflection:

- (36) a. Petko nemaše da dode M
 Petko not+have IMPERS.PAST SUBJ.COMP come 3SG.PERF.PRES
- b. Petko nema da dojdeše.
 Petko not+have IMPERS SUBJ.COMP come 3SG. PERF. PAST
 ‘Petko wouldn’t come.’

Clauses such as (36b) where *nema* does not inflect, have an underlying structure in which *nema* is treated as a negation operator:

- (37) [_{NegP} NP/DP_i [_{Neg} *nema* [_{MoodP} t_i da [_{T/AgrSP} t_i [_{VP} t_i V]]]]

Njama in the Bulgarian negative future tense and *nema* in the Macedonian negative future tense illustrated in (36a), however, inflect for tense and cannot be treated as negation operators. I propose that they be derived in AuxP and check their tense feature in a TP to the right of AgrSP (distinct from TP) to which the subject raises:

(38) [_{AgrSP} NP/DP_i [_{TP} t_i [_{AuxP} t_i nema(še) [_{MoodP} t_i da [_{VP} t_i V]

The verb in the subjunctive construction, which inflects for person and number but not for case, would check its ϕ -features covertly.

Note that, diachronically, structures such as (38) appear to be stages through which structures such as (37) have passed, in the same way as the structures of the Macedonian and Bulgarian future tenses with 'will'-modal clitics and tensed verbs have passed through a stage illustrated with examples such as (22).

6. Conclusions

Old (Church) Slavic had 'quasi' future tense configurations with forms of *xotěti/xotěti* 'be willing/want', *iměti* 'have' or *načěti /vyčěti* 'begin/start' plus infinitives, with the configurations with *iměti* prevailing. In Balkan Slavic, however, the present tense forms of *xotěti/xotěti* evolved into modal clitics and the configurations in which they participate became Balkan Slavic future tenses.²⁶

From the 17th century onwards, subjunctive constructions, which in other environments appear much earlier, began to occur in complement positions of the 'will'-modal auxiliary clitics. While in Croatian, infinitives continued to be the only complements of the 'will'-modal clitics, in Serbian, subjunctive constructions have been alternating with infinitives. In Macedonian and Bulgarian, however, the use of infinitives was gradually extinguished, the 'will'-modal clitic lost its ϕ -features, while the subjunctive constructions lost the introductory subjunctive complementizer, and the future tense came to be constructed by non-inflecting 'will'-modal clitics plus tensed verbs.

The genesis of the Balkan Slavic future tense with 'will'-modal clitics went through four stages of development that can be represented by the following four structures:

²⁶ It is noteworthy that Slovenian is the only South Slavic language in which the present tense forms of *xotěti/xotěti* did not evolve into modal clitics. The Slovenian future tense is constructed by 'be'-auxiliaries derived from the root *be* (*bom* 'be.1Sg, *boš* 2Sg...) plus *l*-participles. (cf. footnote 1).

- (39) a. $[_{T/AgrSP} NP/DP_i [_{T/AgrS} [_{AuxP} t_i Mod.Cl [_{VP} t_i V_{inf}]]]$
 b. $[_{T/AgrSP} NP/DP_i [_{T/AgrS} [_{AuxP} t_i Mod.Cl [_{MoodP} t_i da [_{VP} t_i V]]]$
 c. $[_{ModP} NP/DP_i [_{Mod} Mod.Cl[_{MoodP} t_i [_{Mood} da [_{T/AgrSP} t_i [_{T/AgrS} [_{VP} t_i V]]]]]$
 d. $[_{ModP} NP/DP_i [_{Mod} Mod.Cl[_{MoodP} t_i [_{Mood} O [_{T/AgrSP} t_i [_{T/AgrS} [_{VP} t_i V]]]]]$

Most Serbo-Croatian dialects went only through the first two stages; while contemporary standard Serbian has future tenses with structure (39a) or (39b), contemporary standard Croatian has only future tenses with structure (39a). The Southeastern Serbian dialects went through the first three stages of development and to date have a future tense with structure (39c). Macedonian and Bulgarian went through all four stages of development, so that the contemporary future tenses of these languages have the structure (39d). Whereas in Macedonian the same structure represents the future tense with past relevance, the Bulgarian future tense with past relevance has finite modal auxiliaries followed by subjunctive structures, and can be represented by the structure representing the Serbo-Croatian future tense with subjunctive constructions.

In Serbo-Croatian and Macedonian, the future tense expressions with 'will'-modal clitics can be negated.²⁷ In Bulgarian, however, negated future tense expressions with 'will'-modal clitics have been obsolete

²⁷ In many Serbian dialects, including standard Serbian, the negated future tense construction with subjunctives is ambiguous. As observed, (i) has two readings.

- (i) On *neće* da dođe.
 he not+will 3SG.MOD.CL SUBJ.COMP come 3SG.PERF/SUBJ.PRES
 a. 'He will not come.'
 b. 'He doesn't want to come'.

The ambiguity is due to the fact that the negation marker fuses with the verb *hoće* as well as with the clitic *će*, in both cases yielding *neće*.

Note that *neću* 'not+will.1Sg.Mod.Cl, *nećeš* 'not+will.2Sg.Mod.Cl, *neće* 'not+will.3Sg/Pl.Mod.Cl, *nećemo* 'not+will.1Pl.Mod.Cl, *nećete* 'not+will.2Pl.Mod.Cl plus subjunctive construction with the interpretation '(s)he doesn't want to V' is also used in many Croatian dialects, though not in standard Croatian.

As pointed by a reviewer, the semantic differences between *neću/nećeš//neće/nećemo/nećete* plus infinitive and *neću/nećeš//neće/nećemo/nećete* plus subjunctive construction are discussed at length by Milka Ivić (cf. Ivić 1970, 1972, 1973).

since the 19th century, the negative counterpart of the ‘will’-future tense being constructed by the impersonal negated form of the ‘have’-auxiliary plus subjunctives – configurations which have developed from negated forms of the Old Church Slavic verb *iměti* ‘have’ plus infinitive. Negative future tenses with negated impersonal forms of the ‘have’-auxiliary are also operative in Macedonian and the Southeastern Serbian dialects, though as alternatives to negated ‘will’-future forms.

In Bulgarian, the negated impersonal form of the ‘have’- auxiliary inflects for tense, whereas in Macedonian, tense markers appear either on the negated impersonal form of the ‘have’-auxiliary or on the verb of the subjunctive complement. Thus, while the Bulgarian negative future tense has the structure (40a), the Macedonian negative future tense with the negated impersonal form of the ‘have’-auxiliary has either the structure (40a) or the structure (40b):

(40) a. [_{AgrSP} NP/DP_i [_{TP} t_i [_{AuxP} t_i nema(še) [_{MoodP} t_i da [_{VP} t_i V]

b. [_{NegP} NP/DP_i [_{Neg} nema [_{MoodP} t_i da [_{T/AgrSP} t_i [_{VP} t_i V]

Diachronically, structure (40a) is a stage through which structure (40b) has passed.

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Case and Agreement in Russian Adversity Impersonal Constructions*

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There are many aspects of impersonal sentences in general and A-Is [adversity impersonals] in particular that need to be explored. The notion of 'impersonalization' and its semantic contribution will remain vague until the syntactic structure of impersonal sentences in languages like Russian can be determined.

Babby 1994:64

1. Introduction

In the recent minimalist framework (Chomsky 2000, 2001) assumed in this paper, an agreement relation between a verbal inflection and a nominal requires, obligatorily, the presence of uninterpretable features on both of these elements: ϕ -set on the verb and Case on the nominal. The latter can be considered a tense feature on D (Pesetsky and Torrego, in press), which receives a morphological value (e.g., nominative, accusative, dative) from an eventive predicate (a verb or a preposition). A nominal cannot trigger agreement on a verb if its Case has already been valued. In other words, only unvalued or unchecked Case features are syntactically 'active' and can trigger an agreement relation. Such a

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Case-agreement dependency implies that there are two situations in which a derivation crashes:

(1) A derivation crashes

- a. if the ϕ -set of a verbal inflection enters a structure without active Case features.
- b. if a nominal has an active Case feature by the time of Spell-Out.¹

Suppose now that in some languages there is no crash as described in (1), but there exists a repair strategy as part of their morphological component which allows features to be neutralized in the absence of a Case-agreement relation in syntax.

In this paper, I argue that impersonal (IMPERS) morphology and instrumental (INSTR) marking in Russian are two instances of a morphological repair strategy for (1a) and (1b) respectively, as formulated in (2).

- (2) a. If the ϕ -set of a verbal inflection enters a structure without (active) Case features, it is spelled out as IMPERS, that is, 3rd person singular (3SG) in present and neutral gender (NEUT) in past.
- b. If a nominal has an active Case feature by the time of Spell-Out, it is marked as INSTR.²

The argument for the hypotheses in (2) comes from a unified analysis of adversity constructions, which are exemplified in (3). Suppression of the external Causer in (3a) yields either an adversity impersonal (A-I) construction in (3b) or an adversity personal (A-P) one in (3c). In (3b) the Theme and the Patient have the same Case marking as in (3a), and the verb ends with *-o*, which signals the neuter gender in Russian — a

¹ (1b) is essentially a reformulation of the Case filter in the new minimalist framework.

² It is important to keep in mind that (2b) — or its more precise formulation in (19) — does not necessarily imply that INSTR is a default Case in the sense of Schütze 2001; nor does it imply an incompatibility of my proposal with recent analyses of INSTR in Russian (see fn. 7). Since I focus on adversity constructions, I remain agnostic with regard to the application of (2b) in other cases.

clear indication that neither of the arguments triggers agreement on the verb. In (3c) the Theme is nominative (NOM) and holds an agreement relation with the verb.

- (3) a. *Causer* *Patient* *Theme*
 Ona pridavil-a reběnka igruškoj.
 she_{NOM} crushed_{FEM.} child_{MASC. ACC} toy_{FEM. INSTR}
 ‘She crushed the child with a toy.’
- b. *Patient* *Theme*
 Reběnka pridavil-o igruškoj.
 child_{MASC. ACC} crushed_{NEUT} toy_{FEM. INSTR}
 ‘The child was crushed with a toy.’
- c. *Theme* *Patient*
 Igruška pridavil-a reběnka.
 toy_{FEM.NOM} crushed_{FEM.} child_{MASC. ACC}
 ‘The toy crushed the child.’

Following Babby (1994), I assume that constructions (3b) and (3c) are thematically related and should be considered to have the same deep structure properties. The difference is that A-Ps like (3c) involve, in Babby’s terms (1994:40), an ‘externalization’ of the internal argument, which, I claim, derives from an agreement relation between the embedded Theme and verbal inflection.

In light of the hypotheses in (2), the next sections of this paper are focused on two questions: (i) What is the source of INSTR Case in (3a-b) and how can we explain the INSTR~NOM alternation in (3b-c)? (ii) What is the source of IMPERS morphology in (3b)? The discussion is organized as follows: Section 2 provides an over-view of the most recent analyses of A-Is in Russian. Section 3 shows that psych verbs do not impersonalize after suppression of the Causer in constructions like that in (3a). However, they do impersonalize if the INSTR Theme is replaced by a PP. These facts have gone unexplained in the literature. Section 4 argues that INSTR in (3a-b) can be neither inherent nor structural Case. Section 5 argues that the impossibility of INSTR Theme in A-Is with psych-verbs is related to their categorical predication, which is opposed to thethetic predication of non-psych verbs. Thetic predication involves early Spell-Out of the Theme, making it unavailable for verbal inflection;

both parts of (2) thus apply. Categorical predication delays Spell-Out of the Theme, forcing it to be a goal for verbal inflection, and neither part of (2) applies in this case.

2. Previous analyses

Section 2.1 gives a brief overview of Markman's (2003) recent proposal to deal with violations of Burzio's Generalization in the case of Russian A-Is. Sections 2.2 and 2.3 present analyses of IMPERS morphology based on positing a silent expletive (Bowers 2002) and the ϕ -feature defectiveness of Tense (Lavine and Freidin 2002, Harves 2002).

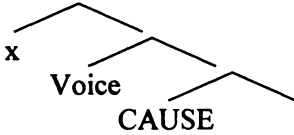
2.1. *Causative head in Russian*

As we saw in (3), suppression of external Causer does not alter the assignment of the accusative Case in (3b). This is a clear violation of Burzio's Generalization, which holds in English. For example, it is impossible to replace the external Causer in (4a) with an expletive pronoun in (4b) in order to obtain the reading 'a child was crushed with a toy.'

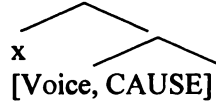
- (4) a. She crushed a child with a toy.
 b. *It crushed a child with a toy.

Following Pykkänen's (2002) theory of causativization, Markman (2003) argues that, in Russian, a causative head (CAUSE) is syntactically independent from the head introducing external arguments (Voice). English is different in that CAUSE is inseparable from Voice. This difference between Russian and English is illustrated in (5) and is characterized in terms of the 'Voice-bundling' parameter (see (146) in Pykkänen 2002:76).

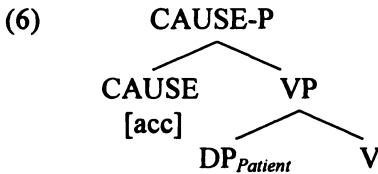
(5) a. *Russian*
Non-Voice-bundling



b. *English*
Voice-bundling



It is important to note that Pylkkänen considers CAUSE to be a non-thematic head: it does not introduce arguments and takes other predicates as compliments, thus adding a causing event to the se-mantic composition of the clause. Assuming that CAUSE is the source of accusative Case, Markman proposes the following structure for Russian A-Is:



Setting aside Burzio’s Generalization, there is one more source of crosslinguistic variation in causative constructions. Pylkkänen argues that CAUSE should also be specified for the type of phrase it selects as a compliment. More precisely, she conjectures that a language can have a ‘root-selecting,’ ‘verb-selecting,’ or ‘phase-selecting’ type of CAUSE (Pylkkänen 2002:77). Adopting Markman’s proposal with respect to the non-Voice-bundling specification of CAUSE in Russian, I will assume in Section 4.1 that CAUSE in adversity constructions selects a small clause that I label PredP. In other words, the causative head in Russian adversity constructions selects a phase or a complete functional complex whose subject is an (adversely) affected individual. We thus have a complete parameter setting for the causative head in Russian: it is non-Voice-bundling and phase-selecting.

2.2. *Silent expletive*

Let us now return to the question of IMPERS morphology. One possible analysis is to assume a silent expletive. To see this assumption at work, I

refer to Bowers' (2002) analysis of A-Is in Russian. It is formulated within his general theory of transitivity, in which little *v* splits into two functional categories: Pr(education) and Tr(ansitivity). Bowers assumes that Tr assigns accusative Case and Pr introduces an external argument.

For Bowers, A-Is represent a special type of verbal structure — an 'impersonal transitive' in his terms — that includes both Tr and Pr, but Pr does not introduce an external argument:

(7) [PrP Pr [TrP Tr [VP V DP]]]

Thus, an A-I sentence like (8a), with a PP instead of an INSTR DP, has the structure (8b) where the external argument position is filled with a null *it*-like expletive that he motivates as follows: "Tr assigns accusative Case to the object *sestru* 'sister' in Spec,V, which then moves to Spec,Tr to satisfy the EPP-feature of Tr. Hence, the only way that T can assign nominative Case [...] is to merge a (silent) expletive in Spec,Pr." (p. 187)

(8) a. *Sestru tošnil-o ot ryby.*
 sister FEM.ACC nauseated NEUT from fish GEN
 'The fish made (my) sister feel nauseous.'

b. [TP T [PrP *it* Pr [TrP Tr [VP *sestru* [v' tošnilo [PP *ot ryby*]]]]]]]
 nom ↑ ↑ ↑ acc

The IMPERS morphology in (8a) is thus triggered by the null expletive whose Case receives the nominative value. However, if we assume that T's ϕ -set is always neutralized in the absence of active Case features (as has been proposed in (2a)), we do not need, in (8), to stipulate the merger of an invisible *it* whose existence is questionable in Russian (see Babby 1989 and Lavine 2000). Moreover, insertion of an expletive at the PrP phase, which is motivated by the necessity of checking the features of T, merged at the later phase, is an apparent 'look-ahead' that is undesirable in the best of the cases.

2.3. *Defective tense*

Avoiding recourse to a silent expletive, Lavine and Freidin (2002) (L&F) assume that in an A-I construction like (9a), T is inherently defective (T_{def}), in other words, that T is not fully specified for ϕ -features. The corresponding structure is shown in (9b).

- (9) a. Soldata ranil-o pulej.
 soldier MASC. ACC wounded NEUT bullet FEM. INSTR
 ‘A soldier was wounded with a bullet.’
- b. [$_{TP}$ NP:ACC T_{def} [$_{vP}$ [V- v] [$_{VP}$ t_{NP.ACC} [v' t_VNP (OBL)]]]]
 └─────────── EPP ─────────┘

The derivation proceeds as follows (see L&F:283-4 for details): (i) V assigns inherent ‘oblique’ Case on its first merger; (ii) V assigns its remaining θ -role on its second merger, which results in a double object VP; (iii) v is merged and targets the argument in [Spec, VP], assigning it structural accusative Case; (iv) T_{def} then merges with vP , forming a TP; (v) there is an EPP-movement of NP: ACC into [Spec, TP]. Apparently, since T is defective and “[...] has no agreement features to check” (L&F:283), the EPP-movement is unrelated to an agreement relation with T. The incomplete ϕ -set of T is spelled out as a neuter inflection -o.

It appears from L&F’s analysis of A-Is in Russian that T_{def} selects only those vP s whose arguments Case features have already been valued. If [Spec, vP] is filled with an Agent bearing an unvalued Case feature, only a ϕ -complete T can appear in the structure. Harves (2002:80) takes a different direction, proposing that T_{def} can only select a projection of a ϕ -incomplete v (v_{def}). This v_{def} does not introduce an external argument and does not license the accusative Case. Harves is thus forced to assume that accusative Case in Russian A-Is is licensed by the ϕ -set of V after its raising to v (Harves 2002:152). This technical complication can be avoided if we adopt Markman’s (2003) analysis of Russian A-Is along the lines of Pylkkänen’s (2002) typology of causative heads (see Section 2.1).

Finally, it should be noted that previous analyses generally do not distinguish between a PP, as in (8a), and an INSTR DP, as in (9a),

psych verbs like *pridavit* ‘crush’ with regard to impersonalization. This difference should not be sought at the level of argument structure: both types of verbs have the same ‘complete’ adversity constructions; that is, arguments are initially projected to the same syntactic positions. It is thus unsurprising that these verbs show the same structures when the external Causer is suppressed by means of passivization:⁴

- (12) a. *Patient* *Theme*
 Rebënok byl pridavljen igruškoj.
 child MASC. NOM was crushed PASS. MASC toy FEM. INSTR
 ‘The child was crushed with a toy.’
- b. *Exp* *Theme*
 Rebënok byl napugan igruškoj.
 child MASC. NOM was frightened PASS. MASC toy FEM. INSTR
 ‘The child was frightened with a toy.’

The most intriguing fact, and the most problematic for any of the previous analyses to account for, is that there is no absolute restriction on impersonalization in the case of psych verbs. Even though psych verbs cannot form A-Is with INSTR DP complements, they are still able to form A-Is with PP complements. The minimal pair in (13) clearly shows that INSTR complements cannot be equated with oblique ones (contra L&F).

- (13) *Exp* *Theme*
 a. * Ivana vzbesil-o ètimi slovami.
 Ivan ACC enraged NEUT [these words] INSTR
 ‘These words enraged Ivan.’
- b. Ivana vzbesil-o [pp ot ètix slov].
 Ivan ACC enraged NEUT from [these words] GEN
 ‘These words enraged Ivan.’

In summary, psych verbs present a real challenge for those analyses of A-Is in Russian that assume an invisible expletive *it* (Bowers 2002) or postulate a defective T (T_{def}) instead of deriving it (L&F): Why is merger

⁴ The labels *Patient* and *Exp* are used to differentiate non-psych and psych verbs. Both identify the argument that refers to an affected individual.

In Sections 4.1 and 4.2, I argue that INSTR in (14a-b) can be neither inherent nor structural. In Section 4.3, I pursue the idea that INSTR in Russian adversity constructions spells out a syntactically unvalued Case feature.

4.1. INSTR as inherent

If we assume that INSTR in (14a-b) is inherent, the following question arises: How is it possible that the structural NOM in (14c) overrides the inherent INSTR in (14a-b)? An argument cannot move from an inherent Case position to a structural Case position. The example in (15a) represents a Chain Condition violation in GB or a Greed violation in early minimalism.

- (15) a. *Mary seemed to *t*_{Mary} that John is very smart.
- b. It seemed to Mary that John is very smart.

In the framework assumed here, the Case of *Mary* in (15) is no longer active when T is merged. *Mary* thus cannot be a goal for ϕ -features of T.⁶

A possible argument for the instrumental-as-inherent analysis might be based on the additional assumption that constructions (14a) and (14c) are not related derivationally; that is, the NOM DP in (14c) is base-generated as an external Causer and not as a complement of the verb as in (14a-b) (see Soschen 2003: chap. 1). If this avenue were correct, we would expect sentences like (16) to be as good as (14a), which is clearly not the case.

⁶ Icelandic ‘quirky’ Cases do not interfere with the syntactic activity of the arguments they mark; for example, inherently Case-marked arguments are able to block raising in (i). However, the ‘quirky’ facts of Icelandic need not concern us here, since, in Russian, inherently marked arguments are not as active as Icelandic ones (see (ii) vs. (i)).

- (i) *Ólafur hafði virst þeim *t*_{Ólafur} vera gáfaður.
 Olaf_{NOM} has.seemed them_{DAT} be intelligent
 ‘They regard Olaf as intelligent.’ (Boeckx 2000:361, (26))
- (ii) Ivan pokazalsja im *t*_{Ivan} umnym.
 Ivan_{NOM} has.seemed them_{DAT} intelligent_{NSTR}
 ‘They regard Ivan as intelligent.’

- (16) *Causer* *Patient* *Theme*
 # *Igruška* *udaril-a* *rebënka* *tokom*.
 toy FEM. NOM struck FEM. child MASC. ACC current MASC. INSTR
 ‘The toy struck the child with electric current.’

The deviance of (16) is easily captured on thematic grounds: the NOM argument has the same θ -role as the INSTR one (contra θ -labeling shown in (16)). This means that, structurally, *igruška* should originate from the same position as *tokom* (one of the two arguments thus being redundant). Even though Russian allows constructions following the pattern ‘NOM [-animate] + Verb + ACC [human] + INSTR [-animate]’, the NOM and INSTR arguments must be in a relation of inalienable possession (see (17a)). This fact suggests that they might form a small clause (SC) at early stages of the derivation, as shown in (17b); the Theme is the whole SC.

- (17) a. *Èta kniga* *udivila* *Ivana* [*svoim strannym sjužetom*]
 [this book]_{NOM} surprised *Ivan* ACC [its odd subject]_{INSTR}
 ‘This book surprised Ivan with its odd subject.’
 b. *Exp* *Theme*
 [*Èta kniga*]_i *udivila* *Ivana* [_{SC} *t_i svoim strannym sjužetom*]

4.2. INSTR as structural

One of the diagnostics for structural Case is its ability to alternate with NOM by means of passivization. Indeed, in Russian there are verbs that assign INSTR to their complements that can be passivized, as shown in (18) (see Fowler 1996).

- (18) a. *Ivan* *upravljaj* *fabrikoj*.
 Ivan MASC. NOM managed MASC factory FEM. INSTR
 ‘Ivan managed a factory.’
 b. *Fabrika* *upravljalas’* *Ivanom*.
 factory FEM. NOM managed PASS. FEM. Ivan MASC. INSTR
 ‘The factory was managed by Ivan.’

Based on (18), we can assume that Russian has two kinds of little *v*: one assigns structural ACC (v_{ACC}), and the other assigns structural INSTR (v_{INSTR}) as in (18a). In (18b), the voice marker *-s*' (post-vowel allomorph of *-sja*) 'absorbs' the structural INSTR assigned by v_{INSTR} , while the demoted subject *Ivan* in (18b) receives a non-structural INSTR marking. If this analysis of (18) is correct, a v_{INSTR} could be postulated for the adversity constructions in (14a-b). (14c) would thus be derived from a covert passivization of this v_{INSTR} and the INSTR~NOM alternation in (14) would be parallel to the INSTR~NOM alternation in (18) (*fabrikoj* ~ *fabrika*).

The above possibility seems empirically adequate until we consider the psych verbs discussed in Section 3. Since these verbs do not allow AIs with INSTR DPs, we are forced to stipulate that v_{INSTR} must be passive whenever a psych verb lacks an external Causer. However, as we have already seen, psych verbs behave pretty much like 'normal' verbs with regard to passivization. We are thus left with the final possibility, that there is no single head that assigns INSTR Case in Russian adversity constructions.

4.3. INSTR as post-syntactic

For the sake of concreteness, I assume the following rule for INSTR marking in Russian adversity constructions.

- (19) If, by the point of Spell-Out P_i ($i \geq 1$), a nominal has not entered into a Case-agreement relation in (narrow) syntax, it is marked as INSTR at PF.⁷

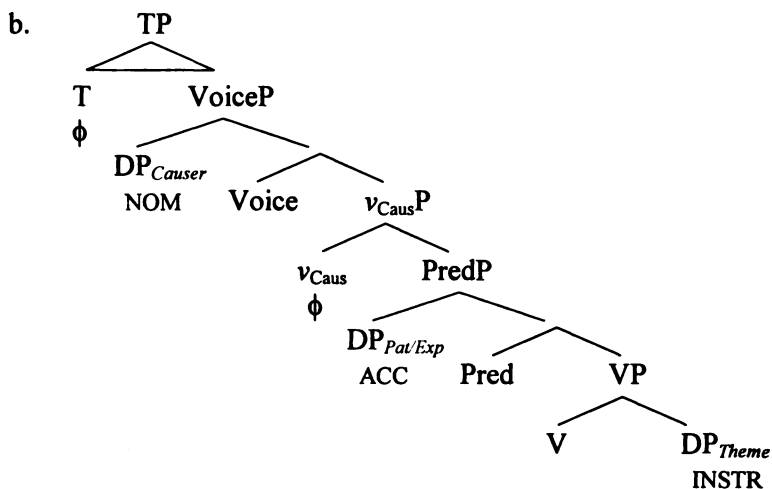
This rule does not imply that a nominal which has been targeted by the ϕ -features of a functional head has the option of avoiding a Case-agreement relation with that head. Rather, the rule in (19) should be

⁷ Note that the rule in (19) specifies what happens at PF after Spell-Out and says nothing about the semantic interface. It is worth pursuing the idea that syntactically unvalued Case may function as a spatiotemporal variable at the semantic level of representation, available after Spell-Out. This variable will be then bound by an aspectual operator, if we assume that the verbal phase (e.g., VoiceP) is selected by an aspectual head. This line of reasoning makes my analysis of INSTR in Russian adversity sentences compatible with recent proposals that INSTR is licensed by grammatical Aspect in other constructions (see Richardson 2003: chap. 4 and references therein).

understood as a marking rule of last resort for those no-mininals which could not be targeted by ϕ -features.

Let us now look at the application of (19) in the case of ‘complete’ adversity constructions (20a), whose structure is as shown in (20b). Recall from Section 2.1 that adversity constructions involve a causative head that I label here v_{Caus} . Following Pylkkänen (2002) and Markman (2003), I assume that in Russian this head has the two following properties: it is (i) non-Voice-bundling—that is the external argument is introduced by an independent Voice head — and (ii) phase-selecting (see Section 2.1). In the case of adversity constructions, the selected phase is projected by the head Pred whose specific role is to predicate an affecting event (denoted by VP), of an affected individual (Patient or Experiencer). Being purely predicational, Pred is devoid of ϕ -features; it has an exclusively semantic import, specifying a particular type of predication. This will be detailed in Section 5 with regard to the asymmetry observed between psych and non-psych verbs.

- (20) a. *Causer* *Patient/Exp* *Theme*
 Ona pridavil-a / napugal-a Ivana igruškoj.
 she_{NOM} crushed_{FEM.} / frightened_{FEM.} Ivan_{ACC} toy_{INSTR}
 ‘She crushed / frightened Ivan with a toy.’

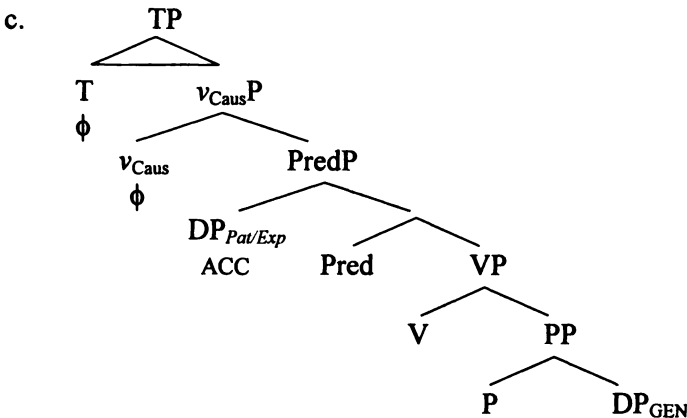


In the structure above, DP_{Causer} is targeted by the ϕ -features of T, and $DP_{Pat/Exp}$ by the ϕ -features of v_{Caus} . Consequently, the former appears as nominative and the latter as accusative. As it stands, the most embedded DP_{Theme} is not targeted by any ϕ -set. In a standard Case-theoretic approach we have to assume that this argument receives an inherent Case from V in order to satisfy the Case filter. However, this assumption is problematic for independent reasons, as discussed in Section 4.1. It thus appears that DP_{Theme} cannot be involved in any Case-agreement relation and must be spelled out with the INSTR marking in accordance with (19). We are now ready to return to impersonal constructions.

5. Explaining ‘impersonalization’ in Russian

All that differentiates a ‘complete’ adversity construction from an A-I construction is the absence of Voice. The structure of both psych and non-psych A-Is with PP verbal complements, as in (21a-b), is presented in (21c).

- (21) a. *Patient* *Theme*
 Menja tošnil-o ot ryby.
 me ACC nauseated NEUT from fish GEN.
 ‘The fish made me feel nauseous.’
- b. *Exp* *Theme*
 Menja vzbésil-o ot ètix slov.
 me ACC enraged NEUT from [these words] GEN
 ‘These words enraged me.’



Features are valued as follows. $DP_{Patient}$ is targeted by the ϕ -set of v_{CAUS} and is assigned an accusative value. The Case of the nominal embedded in PP is valued by the preposition. When T is merged, all Case features already have a value and thus cannot be involved in a Case-agreement relation with T; the ϕ -features of T remain unvalued until Spell-Out. This situation is the opposite of the one encountered with the INSTR marking in 'complete' adversity constructions: here, instead of an unvalued Case in an environment of checked ϕ -features, we have an unvalued ϕ -set in the environment of checked Case features. According to the hypothesis in (2a), Spell-Out of T's ϕ -features in (21c) results in an IMPERS verbal inflection.

Now we can proceed to the analysis of the asymmetry between psych and non-psych verbs in A-Is with INSTR objects:

- (22) a. *Ivana napugal-o igruškoj. [+psych]
 Ivan_{ACC} frightened_{NEUT} toy_{INSTR}
 'A toy frightened Ivan.'
- b. Ivana pridavil-o igruškoj. [-psych]
 Ivan_{ACC} crushed_{NEUT} toy_{INSTR}
 'A toy crushed Ivan.'

In what follows, I argue that the contrast in (22) is due to a difference in predication.

Independently of the contrast in (22), psych and non-psych verbs differ with respect to stage versus individual level interpretations when they are imperfective. Interestingly, imperfectivity forces an individual-level reading in the case of psych verbs but not in the case of non-psych verbs:

- (23) a. ✓ *individual-* / **stage-level* [+psych]
 Ivana pugajut mexaničeskie igruški.
 Ivan_{ACC} frighten_{IMPER. FEM} [mechanical toys]_{NOM}
 'Ivan is afraid of mechanical toys.'
- b. * *individual-* / ✓ *stage-level* [-psych]
 Ivana pridavlivajut mexaničeskie igruški.
 Ivan_{ACC} crush_{IMPER. FEM} [mechanical toys]_{NOM}
 'Mechanical toys are crushing Ivan.'

I do not use the term ‘generic’, suggested by a reviewer, for the following reason. When there is an overt generic operator, such as the adverb *usually* in (24a), the generic reading of the NOM Theme is accompanied by a focal stress falling on the verb. The failure to stress the verb makes unavailable the reading (24b) whereas, the contrast in (23) exists without focal marking of the verb.

- (24) a. Obyčno Ivana puGÁjut mexaničeskíe igruški.
 Usually Ivan ACC frighten IMPER. FEM [mechanical toys] NOM
 ‘Usually mechanical toys frighten Ivan.’
- b. Usually x [x is a mechanical toy] x frightens Ivan

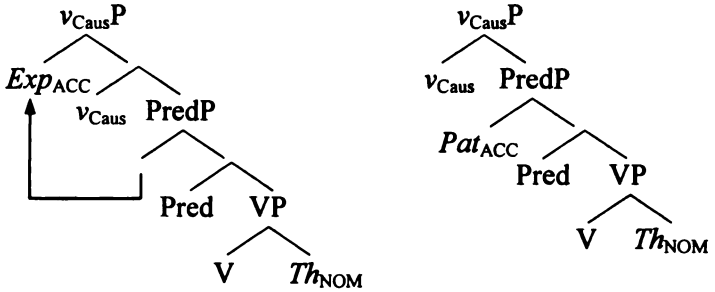
It appears that when the psych verb is focused, the NOM Theme is bound by a generic operator, but when the verb is not focused it is invisible for this binding. I would like to suggest that the NOM Theme ‘escapes’ operator-binding whenever it forms a semantically undividable unit with the verb, thus being a part of the predicate. When the verb is focused it is interpreted independently from the Theme, which then functions as an indefinite argument containing a variable (see (24)). As for the sentence in (23a), it picks out an individual, Ivan, and attributes to him a property, that of being afraid of mechanical toys. The Theme is semantically amalgamated to the psych verb, forming an individual-level predicate similar to that in *John is intelligent*. On the other hand, the sentence in (23b) asserts an event with two participants; the Theme is an indefinite argument whose variable is bound by an existential operator. We thus have in (23) two different types of predicates: one identifies an individual property and the other identifies an event. This dichotomy can be rephrased in terms of ‘categorical’ versus ‘thetic’ predication:

With a *categorical predication* form, the subject is ‘singled out’ from the event itself, and the predicate ascribes a property to this subject. Here the subject forms the ‘topic’ of the clause. With a *thetic predication*, the subject is not singled out, but instead is introduced as one of the event participants. The thetic predication form can therefore be seen as an ‘event-reporting’ sentence that involves introducing an event into discourse (Basilico 2003:3).

I assume that Pred is the locus of the categorical versus thetic distinction. In the case of psych verbs, it is categorical: *Exp(riencer)* is ‘singled out’

by being moved outside the scope of the eventive v_{Caus} and takes scope over the whole predicate, as shown in (25a).

(25) a. $[+ \text{psych}]$ (*Pred = categorical*) b. $[- \text{psych}]$ (*Pred = thematic*)

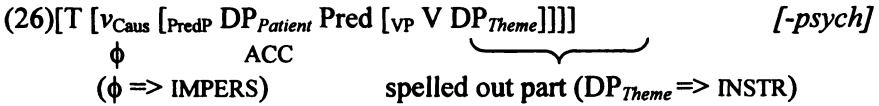


In the case of non-psych verbs, *Pred* is thematic: *Pat*(ient) does not have to ‘evade’ the scope of the eventive v_{Caus} and both arguments are construed under the structural preeminence of v_{Caus} , as shown in (25b). It is possible that either the Patient or the Theme moves to the left edge of $v_{\text{Caus}}\text{P}$, which could be triggered by some peripheral feature occurring independently of the type of predication. Such a movement would assimilate psych and non-psych constructions at the surface structure, as happens in the case of ACC fronting in (23). However, the arguments still have to reconstruct under the scope of v_{Caus} , which forces their existential closure and induces a stage-level interpretation of the sentence, as in (23b).

How does the dichotomy in (25) help us to account for the difference in impersonalization? The answer to this question lies in the cyclic application of Spell-Out. As $v_{\text{Caus}}\text{P}$ in (25) is constructed, the next step before continuing the structure building is to spell out the pieces of structure that have been created so far. According to Chomsky (2000, 2001), multiple Spell-Out proceeds by phases which are propositional rather than convergent. That is, Spell-Out targets only those pieces of structure that are Complete Functional Complexes (CFCs). If a $v_{\text{Caus}}\text{P}$ does not have any CFC, Spell-Out is delayed until the merger of *C*.⁸

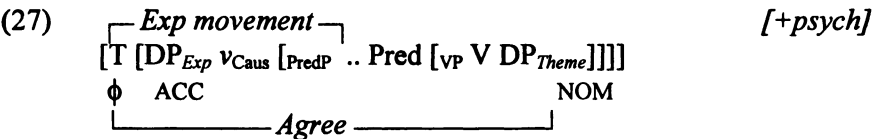
⁸ Here I assume that the application of multiple Spell-Out must meet the two following conditions: (i) time of its application (when does it occur?) and (ii) object of its application (what part of the structure does it target?). Chomsky (2000) postulates that

Let us start with non-psych verbs. Here, PredP is a CFC, hence a phase, whose right periphery is transferred to PF before the merger of T (see (26)). As a result, DP_{Theme} is marked at PF as INSTR, since its Case has not been valued inside PredP:



On the other hand, when T is merged, there are no active Case features left in the structure and its ϕ -set remains unvalued until the next application of Spell-Out, which triggers IMPERS marking of the verbal inflection.

The situation is different with psych verbs. After the merger of v_{Caus} and the subsequent movement of DP_{Exp}, PredP is no longer a CFC (see (27)), nor is $v_{Caus}P$, since v_{Caus} does not introduce any new argument. Consequently, Spell-Out does not apply at this point of the derivation, and DP_{Theme}, with its unvalued Case feature, remains in the structure until the merger of T. As T enters the derivation, its ϕ -set targets DP_{Theme}, which must then appear as nominative at PF. DP_{Exp} does not block Agree in (27), since it has already valued its Case feature against the ϕ -set of v_{Caus} . It is also possible to assume that Agree in (27) is established after the EPP-movement of DP_{Exp} to [Spec, TP].



Spell-Out applies at the merger of the core functional categories (v and C) that saturate the lexical eventive and modal domains respectively. As for the second condition, Spell-Out targets only CFCs. Thus, in the case of our $v_{Caus}P$, Spell-Out does not apply as soon as the first CFC is computed (PredP in (25a-b)), but ‘waits’ for the merger of the eventive v_{Caus} and then applies cyclically to each CFC available at this point of the derivation. More generally, with such a conception of multiple Spell-Out, the notion of phase becomes relativized. From the point of view of timing, only vP and CP are phases, while from the point of view of the object of application, any CFC qualifies as a phase.

This scenario excludes both INSTR and IMPERS markings, showing that they are in fact interrelated.

To conclude, psych verbs do not allow A-Is with an INSTR Theme because they involve the categorical type of predication, which forces DP_{Exp} to move from [Spec, PredP]. This movement delays Spell-Out and makes inevitable an agreement relation between T and DP_{Theme} . The fact that psych verbs allow A-Is with an inherently marked Theme provides strong support for the hypothesis that IMPERS and INSTR markings should be derived from the Spell-Out of the syntactically unvalued features. The next step of the research is to extend this hypothesis to other constructions and to determine how the lack of Case-agreement is repaired in other languages.

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