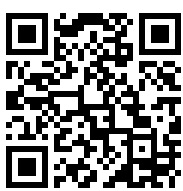


[Formal] Approaches to [Slavic] Linguistics

The South Carolina Meeting 2004

Michigan Slavic Publications

Michigan Slavic Publications is a non-profit organization associated with the Department of Slavic Languages and Literatures of the University of Michigan. Its goal is to publish titles which substantially aid the study and teaching of Slavic and East European languages and cultures. The present volume, based on a conference held at the University of South Carolina, Columbia, SC, on February 27-29, 2004, continues a series of conference proceedings devoted to formal approaches to Slavic linguistics.

Michigan Slavic Materials, 50

Series Editor
Jindřich Toman
ptydepe@umich.edu

Annual Workshop on Formal Approaches to Slavic Languages

The South Carolina Meeting 2004

edited by
Steven Franks
Frank Y. Gladney
Mila Tasseva-Kurktchieva

Michigan Slavic Publications
Ann Arbor 2005

ISBN 0-930042-95-6

CIP data available from the Library of Congress, Washington, DC

Michigan Slavic Publications
Department of Slavic Languages and Literatures
University of Michigan
3040 MLB
Ann Arbor, MI 48105-1275

michsp@umich.edu
http://www.lsa.umich.edu/slavic/

Preface

The present volume consists of revised versions of presentations at the thirteenth annual meeting of Formal Approaches to Slavic Linguistics, which took place Feb. 27-29, 2004, at the University of South Carolina at Columbia. FASL 13 was organized with the sponsorship and support of the Linguistics Program at University of South Carolina at Columbia.

We are indebted to the people and institutions who helped to make FASL 13 possible. Funding was provided by the following sources at the University of South Carolina, Columbia: the Linguistics Program, the College of Liberal Arts, the Department of English Language and Literature, and the Department of Languages, Literatures and Cultures. We are also grateful to Slavica Publishers at Indiana University, the Program in Linguistics at Princeton University, and the Slavic and East European Language Resource Center (jointly operated by Duke and UNC) for unsolicited gifts in support of FASL 13.

We would like to acknowledge the invaluable and generous contribution of time and expertise of colleagues who refereed abstracts for the conference and/or later reviewed the papers included in this volume. Our thanks for these crucial services go to John Alderete, Olga Arnaudova, Maria Babyonshev, John Bailyn, Christina Bethin, Zeljko Boskovic, Wayles Browne, Barbara Citko, Katherine Crosswhite, Dorothy Disterheft, Stanley Dubinsky, Katarzyna Dziwirek, Ron Feldstein, Hana Filip, Curtis Ford, Elena Gavruseva, Kurt Goblirsch, Ben Hermans, Eric Holt, Tania Ionin, Edit Jakab, Alexei Kochetov, Tracy King, Mariana Lambova, Ora Matushansky, Roumyana Pancheva, Asya Pereltsvaig, Ljiljana Progovac, Catherine Rudin, Roumyana Slabakova, and Charles Townsend.

Many individuals helped in the planning, organizing, and running of the conference. We are mostly indebted to the co-organizers of this conference, John Alderete, Stanley Dubinsky, and Curtis Ford. We are grateful for many kinds of vital help to the graduate students of the Linguistics Program at University of South Carolina, Columbia, particularly to Olena Aydarova, Eva Moore, Kristen Simensen, and also to Craig Callendar, Emily Elliot, Samuel Hardy, Melissa Jantz, Rachel Jones, Denis Kopyl, Theresa McGarry, Robert Moonan, Sue Scriven, Cherlon Ussery, and Lan Zhang. We thank all these individuals for contributing to the success of the conference.

We received 66 abstracts. Of these, 25 were accepted as paper presentations and 9 as poster presentations. All presenters were encouraged to submit their papers to the volume. These submissions underwent several passes of careful review for content and format to produce the papers that appear in these pages. Finally, we expressed our indebtedness to Jindřich Toman for handling the final stages of the production of the volume, as well as for having conceived and initiated the Annual Workshop on Formal Approaches to Slavic Linguistics conference in 1992.

The Editors

Contents

FASL 13, 1-12
Michigan Slavic Publications
2005

Information Structure in Polish and Bulgarian: Accent Types and Peak Alignment in Broad and Narrow Focus

Bistra Andreeva
Dominika Oliver
Saarland University, Saarbrücken

1 Introduction

1.1 Background

For over thirty years the levels-vs.-configuration debate has been a controversial issue for research in intonational phonology. Earlier traditions, such as that of the British school (e.g., Crystal 1969 and O'Connor and Arnold 1973), describe the distinctive units of intonation in a holistic way in terms of complex moves of the contour. These configurations or moves (fall, rise, rise-fall, etc.) are associated with an intonational phrase as a whole. The autosegmental-metrical approach to intonation (see Ladd 1996 for an overview) argues against configurations as primitives of linguistic analysis and analyses the intonation contour as a sequence of phonological level tones such as H(igh) and L(ow), or a combination of the two, occurring at specific structural positions in the utterance. For example, a rising f_0 movement is, in this view, taken merely as a transition from its beginning point (f_0 minimum value) to its ending point (f_0 maximum value). It is usual to refer to these points as tonal targets, which can be defined in terms of two dimensions, alignment and scaling.

Tonal alignment can be defined as the temporal synchronization of tones with some specific segments or prosodic locations (such as syllable onset, syllable offset, or rhyme onset) and can be related to phonological and/or phonetic factors. The phonological factors are qualitative and categorical (e.g., align target with syllable X rather than syllable Y) and imply different accent patterns (L*+H vs. L+H*). The phonetic factors are gradient and can often be modeled by means of interacting quantitative parameters (e.g., align target earlier the closer it is to the next target). These factors additionally fine-tune the alignment of tonal targets, determining the differing phonetic realization of phonological tones.

A number of recent studies have reported that pragmatic information such as information structure and sentence mode play a crucial role in the timing of tonal alignment (Kohler 1987, Miševa 1991, Frota 2000, among others). In these studies the tonal targets are claimed to appear at

different locations with respect to the segmental references, depending on the word's or sentence's pragmatic status (e.g., broad vs. narrow focus, contrastive vs. non-contrastive focus, statement vs. question).

Other studies (Silverman and Pierrehumbert 1990, Arvaniti et al. 1998, Ladd et al. 2000, among others) have suggested that the specification for the alignment of tonal targets is a function of speech tempo, phonological vowel length, syllabic structure and segmental effects (intrinsic vowel duration, consonant voicing etc.), adjacency to word and intonational boundaries, as well as proximity to other tones. The data analyzed in this article reveal that the timing of L and H values has a relatively stable alignment with the onset or offset of the syllable carrying a pitch accent, thus confirming the prediction of the level view, namely, that there exist well-defined targets as well as "segmental anchors" to which the tones are aligned.

1.2 Aim

Using experimental data, we investigate whether information structure affects the choice and realization of nuclear pitch accents in Bulgarian and Polish with respect to peak alignment and whether segmental anchoring can be observed in these languages.

The following three hypotheses regarding the factors affecting the variability vs. stability of nuclear peaks are investigated:

1. Different focus types match specific nuclear pitch accents.
2. The peak of the falling vs. rising pitch accent is consistently anchored to specific points in the segmental structure.
3. The phonetic realization of phonologically specified accent types is language-specific.

2 Material and Method

A production experiment was carried out for Bulgarian and Polish. Since we are primarily interested in the contribution of intonation for signaling focus, canonical word order was used for the test sentences, i.e., subject > verb > direct object > indirect object > oblique[1]. This increases the role of intonation as an information-structuring factor, allowing us to analyze the realization of focus-associated accent patterns in Bulgarian and Polish statements with respect to the f_0 peak alignment independently of syntactic structure.

Moreover, we designed the material to make the data easily comparable in both languages (cf. the four test sentences for Bulgarian and Polish below). There are one to four unaccented syllables between the

[1] Because of the difficulty of constructing the stimuli for Polish (in view of fixed stress on the penult) the word order in test sentence 3 and 4 is not the canonical one.

metrically strong syllables, with the same maximally sonorant segmental structure (*ma*), so that micro-prosodic effects are avoided.

Speech material for Bulgarian:

1. 'včera 'mama 'maza 'masata.
   yesterday mama painted the table
   'Yesterday mum painted the table.'
2. 'včera 'mama po'maga na 'Mareto.
   yesterday mama helped to Mareto
   'Yesterday mum helped Mareto.'
3. 'včera 'mama ni po'maga po gra'matika.
   yesterday mama us helped in grammar
   'Yesterday mum helped us with our grammar.'
4. 'utre 'mama šte ni po'maga po mate'matika.
   tomorrow mama will us help in mathematics
   'Tomorrow mum will help us with our mathematics.'

Speech material for Polish:

1. 'mama 'ma te'maty.
   mother has topics.
   'Mother has topics.'
2. 'mama wy'maga te'matu.
   mother requires topic.
   'Mother requires a topic.'
3. a'mator nas na'mawiał do te'matu.
   amateur us urged to topic.
   'An amateur urged us to accept the topic.'
4. a'mator nam niedo'magał przy Kaza'matach.
   amateur us felt.unwell in Kazamaty
   'The amateur felt unwell in Kazamaty.'

The subjects for the production experiment were two university educated female speakers of Sofia Bulgarian and two of standard Polish. They produced the sentences six times in random order at a normal and fast speech rate in a sound-treated studio at the Institute of Phonetics at Saarland University. No explicit instructions regarding accentuation were given to the subjects. In order to elicit broad, narrow non-contrastive, and narrow contrastive focus, the test sentences were embedded in dialogue exchanges as replies to *wh*-queries uttered by the instructor and directed towards the first, second, or last content word (cf. Table 1).

In total there were 288 utterances per speaker for Polish and Bulgarian. The recordings were digitized at a sampling frequency of 16 kHz and with an amplitude resolution of 12 bits, using the Advanced Speech Signal Processing Tool (xassp). All target words in the data were manually

labeled on the basis of the synchronized microphone signal and spectrogram using a slightly modified SAMPA transcription.

	broad	narrow initial	narrow medial	narrow final
statements [-contrast]	x	x		x
statements [+contrast]		x	x	x

Table 1. Realized focus conditions for four sentence modes (shaded areas indicate missing (unused) focus positions)

In addition to the segmental labelling, the pitch accents, phrase accents, and boundary tones were also labeled,[2] using ToBI (Beckman and Ayers 1994) with the peak alignment of the L(ow) and H(igh) targets explicitly specified. The positions of the f_0 maxima and minima were double-checked by means of the Praat pitch tracker.

The peak delay was calculated (a) as the absolute distance in time from the f_0 peak to syllable onset, syllable offset, and rhyme onset, and (b) as the proportion of the rise/fall duration relative to the syllable or rhyme duration.

3 Results

3.1 Focus-driven peak alignment

The framework adopted in the present study is Pierrehumbert's (1980) autosegmental-metrical model of intonational phonology. The phonological correlate of focus is a pitch accent which is realized on one of the prominent syllables.

Before presenting the results, we wish to call attention to the different strategies used by the Bulgarian and the Polish subjects in the realization of the sentences under different focus conditions. The number of pitch accent types used in the different test conditions by the Bulgarian speakers is given in Table 2. See Table 3 (p. 8) for the Polish speakers.

In the Bulgarian data we observe four different accent types, namely L+H* with late peak alignment, H* with early peak alignment, !H* with early peak alignment, and H+!H*/L*. The boundary tones in the test sentences are realized as L-L%.

[2] For Polish speaker KA only half the data in each condition was analyzed.

Speaker	Focus	Accent type							
		H+!H*		!H*		H*		L+H*	
		norm	fast	norm	fast	norm	fast	norm	fast
BA	broad	0	0	18	0	7	20	0	4
	non-contr.	0	0	1	0	42	40	7	9
	contrastive	0	0	0	0	3	31	69	42
EK	broad	24	24	0	0	0	0	0	0
	non-contr.	4	8	0	0	3	12	32	29
	contrastive	0	0	0	0	2	0	67	69

Table 2:Accent types used by the two Bulgarian subjects in the different focus conditions.

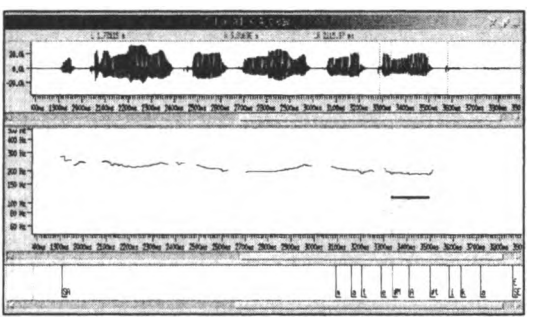


Figure 1: Realization of H+!H*/L* in final position (Bulgarian speaker EK)

In the case of broad focus in both normal and fast speech, speaker EK used a pitch accent which can be analyzed as either H+!H* (a down-stepped high target preceded by a high tone) or H+L* (a low target preceded by a high tone). There were also 12 realizations of this pitch accent type when narrow non-contrastive focus was on the last content word. Because of the sentence-final position and the following low boundary tones L-L%, it is impossible to distinguish between the two accent types or mark the position of the peak in the signal (see Fig.1). For this reason we shall exclude the broad focus data for this speaker.

In fast speech the same H* accent type is used by speaker BA in the majority of the narrow non-contrastive and broad foci. This focus-associated accent H* is manifested as a small rise (from the middle of the speaker's voice range) on the onset of the accented syllable, where the H target is a local peak aligned around the beginning of the syllable rhyme. The tonal movement from the high target to the low boundary target is not phonologically specified. It is realized as a linear interpolation, i.e., a transition between tonal targets. The way the H* is realized is different in

final position (see Fig. 2) than in non-final position (see Fig. 3) and depends on how long the stretch is between the accent and the boundary tone. In non-final position the fall to the low phrase accent (L-), associated with the metrically strong syllable in the foot following the accented syllable is usually more gradual, while in the final position it is steeper, since L- must be realized on the same syllable.

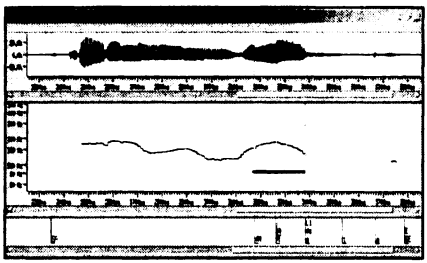


Figure 2: Realization of H* in final position

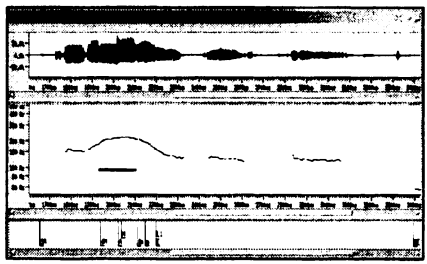


Figure 3: Realization of H* in non-final position

In the case of focus on the last content word in the utterance, there is an ambiguity between the broad focus and the narrow non-contrastive focus. This ambiguity was resolved by subject BA in the frequency domain. The pitch range of the narrow non-contrastive focus-associated H* was significantly higher than that used in the broad focus.

The H* accent was also used by speaker BA in 31 cases in the fast speech rate and the narrow contrastive focus condition. Surprisingly, she disambiguated between narrow contrastive and non-contrastive focus in initial position by using significantly higher f_0 peak values for non-contrastive than for contrastive focus. In final position the same tendency is observed but it is not significant. The non-intuitive distribution of peak heights is counteracted by a slightly later peak alignment for the contrastive foci. This tendency does not reach a significant level, however.

Speaker BA mostly realized broad focus in normal speech with an early downstepped !H* peak (18 occurrences) on the last content word in the utterance. The difference between the downstepped accent types (!H*) and the same pitch accents without the downstep (H*) resides in (a) the height and (b) the alignment of the peak. In the downstepped accent the peak is distinctly lower than that of a preceding H-tone and is aligned in the beginning of, or just before, the syllable onset (see Fig 4).

In the realization of the pitch accent in the contrastive focus this speaker preferred L+H* with phonologically specified late peak alignment. Phonetically, the bitonal L+H* is manifested as a high peak preceded by a gradual rise from a valley in the lowest part of the pitch range. The L is aligned at the very beginning or slightly before the onset

of the accented syllable, and the H at the end of the accented or in the first post-accentual vowel (see Fig. 5).

In contrast to speaker BA, speaker EK showed a strong tendency to realize L+H* in both narrow non-contrastive and contrastive focus conditions. This subject disambiguated between the two focus conditions not by peak alignment but by a higher peak in narrow contrastive than in narrow non-contrastive focus conditions. However, the main effect of focus type on peak height is not significant.

With respect to the acoustic properties of H* and L+H*, there are conflicting views in the intonational research concerning whether these accents are categorically different or just two extremes of a simple accent type. Contrary to claims by Pierrehumbert (1980) and Pierrehumbert and Hirschberg (1990) that only L+H* can be preceded by a low target, Ladd and Schepman (2003) provide statistical evidence that this is also true for H*. A related issue is whether these two accents are associated with different meanings. With regard to our Bulgarian data we can argue that the domain of interpretation of H* and L+H* overlap. Both accent types can signal either new information or a presence of contrast.

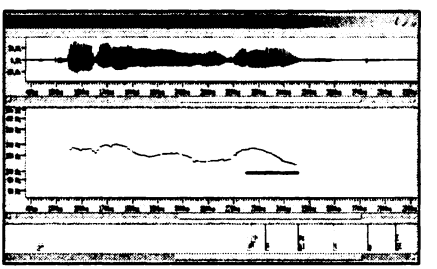


Figure 4: Realization of !H* in final position (Speaker BA)

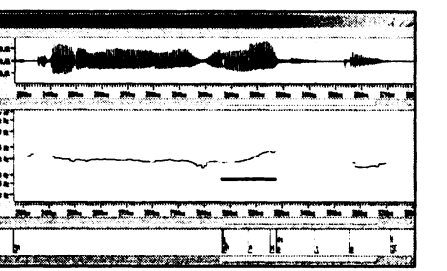


Figure 5: Realization of L+H* in final position (Sp.eaker BA)

Speaker	Focus	Accent type							
		!H+L*		H+L*		H*+L		L+H*	
		norm	fast	norm	fast	norm	fast	norm	fast
WM	broad	14	14	10	10	0	0	0	0
	non-contr.	6	1	0	0	27	50	15	14
	contrastive	0	0	0	0	47	46	25	26
KA	broad	0	0	0	0	12	12	0	0
	non-contr.	0	0	0	0	12	12	12	12
	contrastive	0	0	0	0	0	0	36	36

Table 3:Accent types used by the two Polish subjects in the different focus conditions.

In the Polish data we observe four different pitch accent types: !H+L*, H+L*, H*+L, and L+H*. The first three are phonetically realized as a fall with an early peak aligned at different positions with respect to the accented syllable. The fourth one (L+H*) represents a rising movement with a late peak. The two Polish subjects differed in their choice of pitch accent type across focus conditions.

For example, in the broad-focus condition at both speech rates, only speaker WM used !H+L* and H+L* accents. These accent types were realized as a fall from a high target in the preceding syllable to a low target situated just after the rhyme onset. The difference between the two pitch accents is that the peak in the downstepped one is perceived as lower in comparison to the preceding high target in the utterance (see Fig. 6 and Fig. 7).

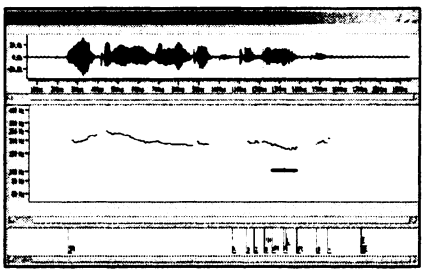


Figure 6: Realization of !H+L* (Polish Speaker WM)

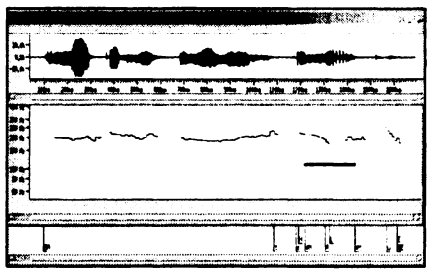


Figure 7: Realization of H+L* (Polish speaker WM)

In contrast to speaker WM, speaker KA used H*+L in broad-focus condition. This accent type was also used by both speakers in the narrow non-contrastive focus condition (there were also seven realizations of !H+L* by speaker WM). In comparison to H+L*, the high target of H*+L is aligned later, just after the rhyme onset (see Fig. 8 and Fig. 9).

When narrow non-contrastive focus is on the final content word in an utterance, the speakers had to disambiguate between this condition and a broad focus with the focus exponent in the same position. While speaker WM achieved this by using two different accent types, (!)H+L* and H*+L, for broad and narrow non-contrastive respectively, speaker KA used the frequency domain. For this speaker we find peak f_0 values for narrow non-contrastive to be significantly higher than the broad focus f_0 values. When narrow non-contrastive focus was in sentence-initial position (subject in focus) both speakers used L+H*. They placed the low target of the L+H* accent just before or at the beginning of the accented syllable. The high target was placed at the end of the accented syllable or at the beginning of the next syllable (see Fig. 10 and Fig. 11).

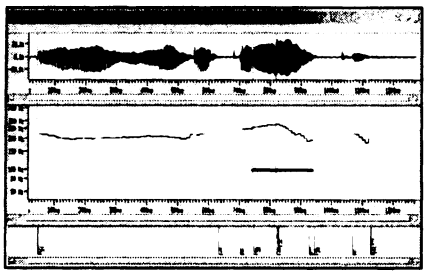


Figure 8: Realization of H*+L (Polish speaker WM)

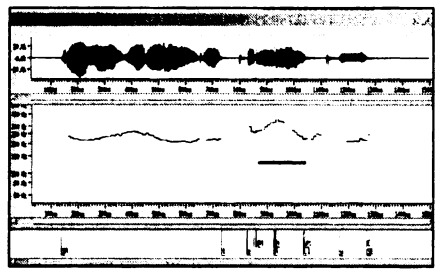


Figure 9: Realization of H*+L (Polish speaker KA)

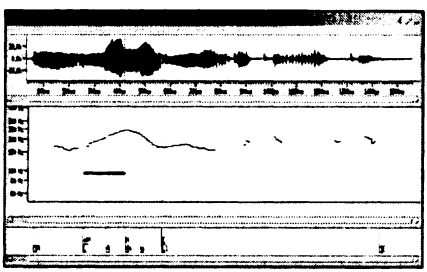


Figure 10: Realization of L+H* (Polish speaker WM)

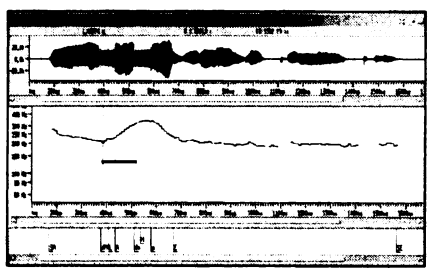


Figure 11: Realization of L+H* (Polish speaker KA)

In narrow contrastive focus speaker WM used both L+H* (51 occurrences) as well as H*+L accents (93 occurrences). In the same condition speaker KA used just L+H* accent type. Because both speakers used L+H* on the sentence-initial word in narrow non-contrastive as well as in contrastive conditions, they needed to disambiguate them. Speaker WM achieved this in the time domain by varying f_0 peak alignment, reaching the peak significantly later in the contrastive condition. Speaker KA on the other hand disambiguated these cases in the frequency domain by using significantly higher f_0 values in narrow contrastive focus.

Additional disambiguation was used by speaker WM in the case of focus on sentence-final items in narrow non-contrastive contrastive focus. This speaker used an H*+L in both cases and significantly shifted the f_0 peak to later in the syllable in the contrastive condition.

3.2 Phonetically driven peak alignment

According to the hypothesis proposed in the Introduction, the peak of the falling vs. rising pitch accent is consistently anchored to particular points in the segmental structure and is language-specific. Accordingly, the

peak alignment, measured as an actual proportion of the syllable/rhyme length (relative alignment), should not be affected by increasing speech rate and the resulting shorter duration of the accented word. On the other hand, the absolute distance of the peak from the syllable/rhyme onset/offset should differ significantly with changing speech rate. To analyze the effects of speech rate on peak alignment we carried out multivariate analyses of variance.

As expected, the statistical analysis of the data for both languages shows that at a 5% significance level speech rate influences the absolute but not the relative peak alignment measure. However, the two languages behave differently under time pressure. As shown in Figure 12, the direction of f_0 peak shift in Bulgarian and Polish diverges with respect to the type of pitch accent. In rising pitch accents with increasing speech rate, the peak is placed earlier in Bulgarian and later in Polish. On the other hand, under the same conditions (fast speech) in falling accents, Bulgarian speakers reach the high target later, Polish speakers earlier.

As the absolute peak alignment differences were found to be significant in the two languages, this sheds light on the nature of the anchoring points of the tonal targets in the segmental structure of these languages. In Bulgarian the anchoring points are syllable onset, rhyme onset, and syllable offset; in Polish they are syllable onset and offset.

Figure 12 also shows cross-language differences in the placement of the high target point: Polish speakers align the peaks earlier than Bulgarian speakers. Because of the different types of falling pitch accents — (!)H+L* and H*+L for Polish vs. (!)H* for Bulgarian — they cannot be directly compared. This is not so in the case of rising pitch accents, where both sets of speakers have the same phonologically specified L+H* but differ on the phonetic level in terms of the peak alignment. On average, the Polish speakers place the peak 24% earlier in the syllable than the Bulgarian speakers.

With respect to the position of the focused item in the utterance, we found the following tendency: the later the focused item in the utterance, the earlier the peak alignment. A possible explanation is the phenomenon of "tonal repulsion". The proximity of the intonation phrase boundary tones leads to temporal readjustments in peak location (Silverman and Pierrehumbert 1990).

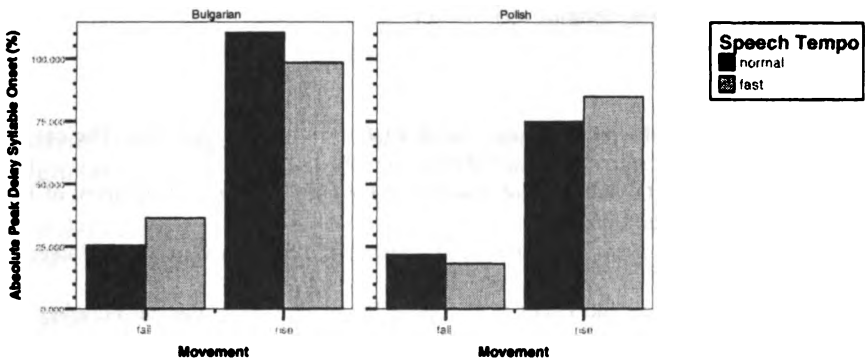


Figure 12: Speech rate and accent type interaction in Bulgarian (left panel) and Polish (right panel).

4 Conclusions

The goal of this study was to investigate how broad and narrow contrastive focus and non-contrastive focus are realized in terms of accent type and the temporal alignment of high tonal targets for different speech rates and positions within the utterance.

The following accent types were found to be used by the Bulgarian speakers: H+!H*/L*, (!)H*, and L+H*. For Polish speakers they were (!)H+L*, H*+L, and L+H*. For both languages we found different accent types in the same focus condition and the same accent types in different focus conditions, which refutes our first hypothesis. In both languages speakers employed both peak alignment and peak height to obtain a phonological contrast between the different focus conditions. The fact that the absolute measures for peak alignment differ significantly with changing speech rate clearly lends support to the claim that speakers carefully control peak alignment in a consistent way. The results show that the segmental anchoring points for Bulgarian are syllable onset, rhyme onset, and syllable offset; for Polish they are syllable onset and syllable offset. With this evidence the prediction of our second hypothesis is confirmed. Our third hypothesis was that the phonetic realization of the phonologically specified pitch accents would differ in both languages. The tonal high target of L+H*, the accent type present in both languages, was found to be aligned significantly earlier by Polish than by Bulgarian speakers, but this may be due to the greater number of post-nuclear syllables in the Bulgarian test sentences.

This study by no means exhausts the factors affecting the phonetics of tonal alignment in Bulgarian and Polish. Further research is needed to

determine what these factors are, which of them are language-specific, and which might be considered universal.

References

Arvaniti, A., D. Ladd, and I. Mennen. 1998. Stability of tonal alignment: The case of Greek prenuclear accents. *Journal of Phonetics* 26: 3–25.

Beckman, M.E., and G. Ayers. 1994. *Guidelines for ToBI Labeling.* Department of Linguistics, Ohio State University.

Crystal, David. 1969. *Prosodic Systems and Intonation in English.* Cambridge University Press.

Frota, S. 2000. Prosody and Focus in European Portuguese: Phonological Phrasing and Intonation. Ph.D. dissertation, University of Lisbon. New York: Garland.

Kohler, K. 1987. Categorical pitch perception. In *Proceedings of the XIth International Congress of Phonetic Sciences (Tallin)*, vol. 5, 331–333.

Ladd, D. Robert. 1996. *Intonational Phonology.* Cambridge University Press.

Ladd, D. R., I. Mennen, and A. Schepman. 2000. Phonological conditioning of peak alignment in rising pitch accents in Dutch. *Journal of the Acoustical Society of America* 107(5),:2685-2695.

Ladd, D. R., and A. Schepman. 2003. "Sagging transitions" between high accent peaks in English: Experimental evidence. *Journal of Phonetics* 31: 81-112.

Miševa, Anastassia. 1991. Intonacionna sistema na bâlgarskija ezik. Sofia: Bâlgarska akademija na naukite.

O'Connor, J. D., and G.F. Arnold. 1973. *Intonation of colloquial English.* London: Longman.

Pierrehumbert, J. 1980. The phonology and phonetics of English intonation. Ph.D. dissertation, MIT.

Pierrehumbert, J., and J. Hirschberg. 1990. The meaning of intonational contours in the interpretation of discourse. In P.R. Cohen, J. Morgan, and M.E. Pollack eds., *Intentions in Communication, 271–311.* Cambridge, MA: MIT Press.

Silverman, K. and J. Pierrehumbert. 1990. The timing of prenuclear high accents in English. In *Papers in Laboratory Phonology I: Between the Grammar and Physics of Speech.* J. Kingston and M. Beckman eds., 71–106. Cambridge: Cambridge University Press.

FASL 13, 13-26
Michigan Slavic Publications
2005

Contrastive Features, Clitic Doubling, and the Left Periphery of the Bulgarian Sentence*

Olga Arnaudova
University of Ottawa

1 Introduction

This paper discusses two types of topics in Bulgarian: 1) inherent base-generated topics in Clitic Left Dislocated structures above the CP level and 2) contrastive topics and foci in the TP-domain of the clause. In section 2 Clitic Left Dislocation (CLLD), a construction which until recently has been overlooked in generative studies on Bulgarian, is shown to involve obligatory clitic doubling and thematic "redundancy". In Section 3 I adopt a view that sentential clitics in Bulgarian are argument variables generated in Specifier positions in the verbal domain. Sections 4 and 5 deal with the syntax and semantics of contrastive topics and contrastive foci—they are never doubled by clitics and are shown to obtain in a "split focus" fashion. Section 6 provides additional evidence for the claim that CLLD topics are distinct from contrastive topics. In section 7 I discuss the possibility that in the case of CLLD saturation is achieved through clitic variables but is incomplete; conse-quently, a "double" (NP or full pronoun) can properly saturate the predi-cate.

2 Clitic Left Dislocated Structures

Clitic reduplication/doubling[1] is cited as one of the distinguishing charac-

* Research for this paper was supported by SSHRC Research Grant # 410-2003-0167 to María Luisa Rivero. Ideas expressed in this paper were presented at the Left Periphery Workshop, ZAS Berlin (2003), at FASL 13, at the Linguistics Mini-Conference, University of Ottawa, and at the Annual Meeting of the Canadian Linguistic Association (2004). Feedback received during these meetings and the comments of a FASL reviewer are gratefully acknowledged.

[1] In this paper, I use the terms clitic resumption and clitic doubling interchangeably as pre-theoretical notions without any structural implications. Therefore doubling should not be understood as "proper clitic doubling" which has been defined for Greek and other languages as a case where the double is an actual argument of the verb (see Philippaki-Warburton et al. 2004 for discussion).

teristics of Bulgarian (see Franks and King 2000 and Rudin 1997 for references and discussion) and has been described as optional.[2] As proposed in Arnaudova 2002, these constructions are cases of Clitic Left Dislocation.[3] In (1), for example, a left dislocated element is obligatorily linked to a coindexed resumptive clitic pronoun.

(1) a. Ivan Marija go vidja.
Ivan Mary Cl ACC. MASC see PAST
'Mary has seen Ivan.'

b. Ivan Marija ja vidja.
Ivan Mary Cl ACC. FEM see PAST
'Ivan has seen Mary.'

The phenomenon of clitic reduplication/doubling is often attributed to the topical features of the nominal expressions (see for example Guentcheva 1994), while traditional grammarians argue that it is (sometimes) used to solve subject-object mismatches as in (1) above. In the next section I compare clitics and pronouns in Bulgarian and adopt the view that the former are argument variables in need of further saturation.

3 Bulgarian Clitics as Argument Variables

Bulgarian clitics are non-tonic short non-emphatic forms of the personal pronouns of the first, second, and third person singular and plural, encoding features of the direct object and marked for Case (*go*–CL,Sg Masc; *ja*–CL, Sg, Fem, *gi*–CL,Pl), the indirect object (*mu*–CL,Sg, Masc, *í*–CL, Sg, Fem; *im*–CL, Pl).[4] Every clitic has a corresponding full pronoun form (*go – nego*; *ja – neja*; *gi – tjax*; *mu – na nego*; *í – na neja*; *im – na tjax*). Clitics do not normally co-exist with full forms of the

[2] In representative grammars of Bulgarian it is acknowledged that we may have to deal with two varieties of Bulgarian and with some kind of avoidance of certain structures in literary Bulgarian due to influence from Russian (see Andrejčin et al. 1977,§522, p. 376).

[3] Clitic Left Dislocation is studied first by Cinque 1990 for Italian (a language where "proper" clitic doubling is not attested) and in many other languages such as Greek (Iatridou 1991) and French (Hirschbühler 1975). Jaeger 2004 and Krapova and Cinque 2003 report that CLLD and "doubling" is also attested in *wh*-questions. In Bulgarian, there are also instances of Clitic Right Dislocations (not discussed here).

[4] To the inventory of sentential clitics belongs also the reflexive clitic SE (see Rivero 2001 for a proposal that SE encodes person/subjecthood and number features). Due to lack of space, I do not discuss in detail the person/number inflection system adopted in this paper but assume that an empty pronominal *pro* also encodes features of number, person and subjecthood.

personal pronouns.[5] The relative order of clitics is strictly indirect object–direct object, as in (2a). But a full pronoun needs to be last, as in (2b) and (2c), and two full pronouns cannot be used to replace both clitics regardless of the order (see (2c)). This shows that in the VP-domain full pronouns are always used for focus marking.

(2) a. Dadox mu gi.
give $_{1P,Past,SG}$ Cl $_{DAT.MASC}$ Cl $_{PL}$.
'I gave them to him.'

b. Dadox gi na nego/na Ivan.
give $_{1P,Past,SG}$ Cl $_{PL}$ to him/to Ivan
I gave them to Ivan.

c. *Dadox tjax na nego/*Dadox na nego tjax.
give $_{1P,Past,SG}$ them to him/ give $_{1P,Past,SG}$ to him them

The controversy over the argument/non-argument status of clitics has been handled differently for various languages depending on advances in the theory itself. In a recent proposal Franks and Rudin (2004) view clitics as K heads taking the noun as a complement. Clitics are claimed to be overt whenever their DP complement is silent, i.e., vacated (for various reasons, uncluding TOPIC and *pro* as topic). They are silent when the DP is overt and in situ. This analysis would predict however that all topics are equal and require an overt clitic. As will become clear from this paper, however, the semantic and distributional properties of contrastive topics are quite distinct from those of clitic left-dislocated (inherent) topics. In what follows I adopt the view that pronominal clitics are generated in Specifier positions as ambiguous X max/min elements and that the verb moves through empty heads with clitics left-adjoining to the verb in accordance with Kayne 1995 (see Bošković 2001). IO and DO clitics check phi-features against the same head but in distinct projections, and the verb and the clitic cluster consisting of auxiliary and pronominal clitics end up in the highest projection in the inflectional domain. Clitics are argument variables, while syntactically they are realized in Spec positions of verbal rather than agreement heads as outlined in (3).

(3) Base-generation of clitics and *pro* prior to cluster formation
[$_{VP}$ *pro/SE* [$_{V'}$ [$_{VP}$ *mu* [$_{V'}$ [$_{VP}$ *gi* [$_{V'}$ [$_{VP}$ *V*]]]]]]

[5] Full pronouns are also possible as salient dislocated elements, as discussed later.

3.1 Contrastive topics

Contrastive topics[6] (CT) participate in constructions which are similar to CT-F constructions discussed for English in Büring 2003. They can involve sets of ordered pairs as in (4a), where the pairs are {*Marija, šapka*} and {*Milena, čanta*}, the CT being the persons and the Fs are the items purchased. The order Subject–Object can be reversed and constructions with D-linked objects as in (4b) are also attested. In this case the order of the pairs is reserved—{*šapka, Marija*}, {*čanta, Milena*}—and the D-linked information are the objects while the persons are the "new information" answering the *wh*-question.

(4) a. Q: Which of these people bought what?
What did Maria and Milena buy?
A: **Marija-CT** kupi šapka-F, a **Milena-CT** (kupi) čanta-F.
Marija(Top) bought hat, while Milena(Top) (bought) bag
'Marija bought a hat and Milena a bag.'

b. Q: Who bought what?
Who bought a hat and who bought a bag?
A: **Šapka-CT** kupi Marija-F, a **čanta-CT** (kupi) Milena-F
hat (Top) bought Marija, while bag (Top) (bought) Milena
'Marija bought a hat and Milena a bag.'

As shown in (5), the contrastive (D-linked) element and the focused element are obligatorily separated by the verb, which shows that they appear in a split chain. The sentences in (5) are ungrammatical on a neutral intonation; if (5b) receives stress on *šapka* then it becomes grammatical, given that *Marija* would be interpreted as left-dislocated.[7]

(5) a. *Šapka Marija kupi, a čanta Milena kupi.
hat Mary bought, while bag Milena bought

b. *Marija šapka kupi, a Milena čanta kupi.
Mary shapka bought, while Milena bag bought

In each set in (4a/b) there is an F-marked constituent and a Contrastive Topic constituent characterized by a B-accent, similarly to English (see

[6] I exclude from the discussion additional discourse-related contrast/emphasis and consider only contrast built into the grammar of the language.

[7] A reviewer points out that *Decata mama šte vodi na cirk* 'Mother is going to bring the children to the circus' is grammatical, but this is again a case of (hidden) CLLD structure where the object clitic *gi* between *šte* and *vodi* is dropped due to the influence of literary use.

Büring 2003). One possibility is that the value for the F-marked constituent in CT constructions may be fixed for each ordered pair because it does not to involve alternatives in a set (see also next section),[8] while the value marking the contrastive topic varies as in (6) (see Cohen, 2004).

(6) {Mary bought hat, Ani bought hat, Milena bought bag, John bought bag}.

The ordered pair in Bulgarian can include also non-argument members as shown below in (7). In this case an argument which clearly does not raise for Case or check its feature by the operation Agree (Chomsky 2001), as shown by the ungrammatical (7b), raises to value the Contrastive feature and enters into a pair relation with a place or time adjunct.

(7) a. Vali dâžd. (phi-features of *dažd* checked in situ)
rains/pours rain.
'It is raining.'

b. ??Dâžd vali. *Contrastive topic
rain rains/pours
'It is raining.'

c. Dâžd vali vâv Winnipeg. CT—F
rain rains/pours in Winnipeg
'It is raining in Winnipeg.'

3.2 Clitic left dislocation

Left-dislocated topics on the other hand are inherent topics and take up salient entities in discourse which are not necessarily contrastive and do not need to appear in a set.[9] Recently it has been claimed that this construction is also attested in *wh*-questions, where an animate *wh*-word is resumed by a clitic (see Jaeger 2004 and Krapova and Cinque 2003 for examples and discussion). Multiple CLLD elements do not answer *wh*-questions related to any of the dislocated elements in particular, and their order can be reversed without any obvious consequences for the interpretation of the sentence.

[8] Büring 2003 adopts the view that in the pairs the value of focus also alternates.

[9] It is true that Topic-Focus pairs, are possible also with CLLD constructions, as also noted in Arregi (2003) for Spanish. This is achieved when a focused element is found in the lower clausal domain like *Ivan* in (10). In my view, however, these cases only superficially resemble their counterparts in the constructions with contrastive topics and involve accidental pairs {*knigite, Ivan*}/{*Ivan, knigite*} between the salient topic and the focused element inside the clause.

(8) Left-dislocated topics T—T

a. **Ivan** **knigite** včera *(gi) vârna.
Ivan (Top) books-the (Top) yesterday $CL_{ACC.PL}$ $return_{PAST}$

b. **Knigite** **Ivan** včera *(gi) vârna.
books-the (Top) Ivan (Top) yesterday $CL_{ACC.PL}$ $bring_{PAST}$
'Ivan returned the books yesterday.'

(9) Context for (8 a/b):
Who returned what yesterday? What did Ivan return? *Who returned the books?
√What happened? (but with salient 'Ivan' and 'books' in mind)

(10) Left dislocated T (F is clause-internal)
Knigite-T gi vârna Ivan-F.
books-the (Top) them-cl bringPast Ivan (Foc)
(a risunkite -T gi vârna Emil-F.)
while pictures-the Cl returned Emil.
'Ivan returned the books (and Emil returned the pictures).'

In this section I have shown that in Bulgarian contrastive topics are semantically related to ordered (sets of) pairs and value a contrastive feature, while CLLD-ed topics are inherently topical and are not ordered.

4 CF and CT: A Case of Split Focus?

In what follows I propose that while the pairing T–F in CLLD constructions is accidental, in CT–F (and Constrastive Focus-Topic) constructions it appears to be related to argument saturation and T–F relations in a split–focus fashion (see also Rooth 1985 on discontinuous focus).

4.1 Contrastive focus

Consider first the distinction between contrastive focus and non-contrastive (information focus), which is also discussed in Kiss's 1998 study on Hungarian focus. In the first case, shown in (11), the set of alternative people (restricted or unrestricted) Ivan met is evoked, and one member, Marija, is exhaustively selected from all the alternatives. The answer is true if only Marija was the person Ivan met and nobody else. If there are other people whom Ivan met yesterday, the sentence is false.

(11) Contrastive (exhaustive) focus
Marija-CF (*ja) posreštna včera Ivan-T.
Mary- CF *CL_{ACC} met yesterday Ivan-T.
'It was Mary Ivan met yesterday.'

The second case, shown in (12), exemplifies information focus, which is unnatural with a context question such as 'Is it Ani that Ivan met?'. The answer is true also if there are other people Ivan met in addition to Mary clearly showing that Mary does not belong to a set of alternatives from which one is exhaustively chosen.

(12) Information (non-exhaustive) focus
Včera (*ja) posreštna Ivan-T Marija-F.
yesterday *CL met Ivan-T Mary-F
'Yesterday, Ivan met Mary.'

4.2 CF is the reversed case of CT

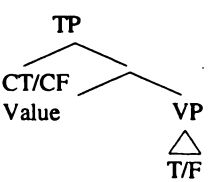
Cohen (2004) defines a B-semantic value related to CTs and this is exactly a case where the topic value varies with respect to a fixed focus value, as shown in (13).

(13) $U[[\ [x]\ B\ loves\ [y]\ F\ ]]^{B}$ =
{ John loves Mary, Fred loves Mary,....} (Cohen, 2004)

The proposal is then that this is the reversed case of CF, where one alternative is linked to a non-contrastive topic value:

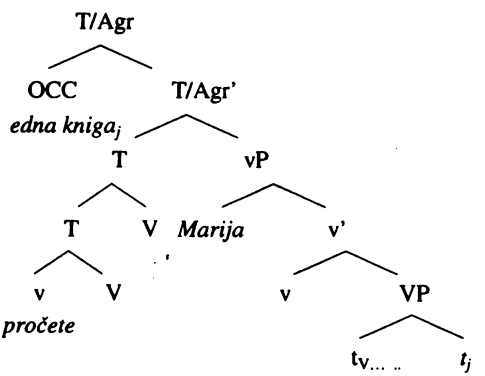
(14) $U[[\ [x]\ CF\ loves\ [y]\ T\ ]]^{CF}$ =
{ John loves Mary, Fred loves Mary,....}

On this view foci and topics can be united under a split chain hypothesis having a non-contrastive member in the vP-domain as the other part of the pair. This is shown in (15):

(15)


In all these cases, feature valuing to T occurs (cf. OCC in Chomsky 2001).[10] This is shown in more detail in (16) for *Edna kniga pročete Marija* 'Mary read a book' where the subject *Marija* remains in the vP and is the non-contrastive member of the pair while the EPP/OCC feature of the object *edna kniga* is valued in Spec, T/Agr.

(16)



5 Semantic Type of CLLD: "Double" and Syntactic Properties

In this section I provide evidence that CLLD topics are situated in a domain above the TP-level containing contrastive topic/focus. First, there is a restriction on CLLD elements: while indefinites are possible when specific, generic, or referential (see (17)), non-specific indefinites and bare plurals are never allowed in this position (see (18)).[11] Non-specific indefinites are found only with contrastive topics or contrastive focus, as shown.

(17) Indefinite generic

---

[10]Alternatively, both elements can remain in the vP/VP (and consequently keep their non-contrastive values). Their order can be also reversed by p-movement (as in (i)), if the Nuclear Stress Rule (NSR) assigning stress to the lowest element in the clause and the F-marked constituent have contradictory results. (see Zubizarreta 1998 for more discussion, and Arnaudova 2002 for prosodic movement in Bulgarian).

[11] Clitic reduplication/doubling is not attested with any type of noun when both the clitic and noun compete for the same focus/predication domain:

(i) ??Vidjaxa go čoveka/ nego/učebnika/ edin učebnik/učebnik
(they) saw Cl-$_{ACC}$ man-the/him/ textbook-the/a textbook/ textbook.

If the verb or, more precisely the VP, is stressed and there is an intonational break after the verb, the sentence in (i) becomes acceptable, pointing towards a Clitic Right Dislocation analysis.

Edna interesna kniga može da ja četeš cjal den.
one interesting book can DA Cl_{ACC} (you)read whole day.
'You can read an interesting book all day long.'

(18) a. *Paket go izgubixa učenicite.
package Cl_{ACC} lost students-the.
Intended: 'The students lost a package.'

b. *Paketi gi izgubixa učenicite.
package Cl_{ACC} lost students-the.
Intended: 'The students lost packages.'

In the judgement of some, CLLD in Bulgarian displays selective island sensitivity: it freely violates *wh*-type islands (see (19)) but not strong islands, such as complex NP islands as in (20) and adjunct constraints as in (21). For other speakers, however, there are no island effects and this would be a clear indication of the base-generation of the double.[12]

(19) Knigata ne znae kakvo da ja pravi.
book-the Neg (he/she)knows what DA CL do
'He(she) does not know what to do with the book.'

(20) #Marija sreštnax mâža kojto ja običa.
Mary (I) met man-the who Cl loves
'I met the man who loves Mary.'

(21) #Vestnika zaspa dokato go četeše.
newspaper-the slept while Cl $read_{Imp.Past}$
'He/she fell asleep while he/she was reading the newspaper.'

As shown in (22a), the WCO effects are not observed, when *vsjako dete* is not related to a lower copy/trace to the right of the subject *majka mu* but to a clitic. On the other hand, in CT/CF constructions as in (22b) WCO effects are not obviated since the variable *vsjako dete* is related to a trace.

[12] A reviewer raises a question why such a variation in judgments (indicated by #) occurs. The presence or absence of island effects with strong islands seems to be associated with the degree of colloquial language involved: acceptance of strong island effects might be in fact correlated with higher colloquial status. Even if island effects were partial, a base-generation analysis would still be on the right track (see the discussion in Cinque 1990 of similar selective island effects of CLLD in Italian).

(22) a. [Vsjako dete]$_i$ majka mu$_i$ go običa.
each child mother his Cl likes
'The mother loves each of her children.'
'Each child is loved by its mother.'

b. *[Vsjako dete]$_i$ običa majka mu$_i$.
each child likes mother his
Intended: 'The mother loves each of her children.'

Scope properties (ambiguity) are not preserved for CLLD elements, a fact that would be compatible with a proposal that there is no reconstruction to thematic positions. Compare unambiguous (23) with ambiguous (24a). With CTs a distributive marker *po* is used to disambiguate the sentence as in (24b).

(23) Edna kniga, ja pročete vsjako dete.
a book CL_{ACC} $read_{Past}$ each child
a book > each child
*each child > a book
'Each child read a certain book.'

(24) a. Edna kniga pročete vsjako dete.
a book read-Past each child
one book > each child
each child > a book
'Each child read a (certain) book'

b. Po edna kniga pročete vsjako dete.
DIST a book read each child
*one book > each child
each child > a book
'Each child read a (different) book'

CLLD are not found with generalized quantifiers while CT/CF are.

(25) *Prekaleno mnogo knigi gi pročete Ivan.
too many books CL_{ACC} $read_{PAST}$ Ivan.
'Ivan read too many books.'

(26) Prekaleno mnogo knigi pročete Ivan.
too many books $read_{PAST}$ Ivan.
'Ivan read too many books.'

No Extraction out of dislocated doubles is possible (see (27)), while with CT/CF as in (28) extraction is quite common.

(27) *Na Felini, go vidjax filma.
of Felini Cl_{ACC} see_{PAST} movie-the

(28) Na Felini vidjax filma.
of Felini see_{PAST} movie-the
'I saw Felini's movie.'

Consider now the Minimality effects with focused phrases. In the presence of a contrastively focused constituent in the left periphery of the clause, dislocated subjects need to be in a position above the focused constituent:

(29) a. ??TOZI PRINCIP Čomski opisa.
this principle Chomsky described

b. Čomski, TOZI PRINCIP opisa.
Chomsky this principle described
'It is this principle that Chomsky has described.'

Similarly, dislocated objects cannot appear lower than contrastively focused subjects:

(30) a. ??IVAN Marija ja obvini
Ivan Mary Cl-ACC $accuse_{PAST}$

b. Marija IVAN ja obvini.
Mary Ivan Cl-ACC $accuse_{PAST}$
'It was Ivan who accused Mary.'

The Minimality constraints and the syntactic evidence presented above suggest that the distribution of CLLD in the clause is as in (31):

(31) CLLD-Topic CT/CF *CLLD-Topic clitic/*pro*+verb VP

In this section I have provided evidence that dislocated elements are not base-generated in positions related to V and do not raise to Spec,T/Agr. This results in a number of syntactic differences with CT/CF structures.

6 Two Types of Predication in Bulgarian

In what follows I propose that there are two ways to achieve saturation in Bulgarian: arguments may be realized either as full-fledged nouns or as inflectional markers/argument variables. The higher level contains full NPs or pronouns, which saturate the predication containing clitic variables. Topic-focus chains containing contrastive elements are found only in the lower domain and saturate the predication directly.

In previous analyses of CLLDs across different languages (Iatridou 1991 and Cinque 1990, among others) the left-hand noun is perceived as the subject of predication, which takes a predicate containing a variable, the clitic, and an open position that permits a constituent to behave as a predicate:

(32) $[_{XP}$ DP $[_{IP}$ cl.....]]

Consider now (33) where under neutral intonation *Ivan* can be either a dislocated object (a) or subject (b):

(33) a. Ivan go vidjaxa.
Ivan CL_{ACC} (they) saw
'As for Ivan, they SAW him.'

b. Ivan dojde.
Ivan $come_{3P,Past,Sg.}$
'As for Ivan, he came.'

For some x (x= Ivan)....they saw x, x came etc.

In (34) the referent is picked up again by the description similarly to the relation between a so-called E-type pronoun and its antecedent (see Evans 1980):

(34) there is an x (x=Ivan)
the x (such that x=Ivan) came/was seen etc.

While CT-CF are linked to internal restrictor domains, external restrictor domains define a separate background existential presupposition related to discourse and identifying an entity (an inherent topic or event). This external domain has been equated semantically with the subject of predication (Reinhart 1980) or the higher predication domain and argument externalization (Zubizarreta 2000, Arnaudova 2002, 2003), while syntactically it has been proposed that it is realized as an adjunct (see for example Warburton et al. 2004) or as elements found in specifier positions of topic operators (Zubizarreta 2000).

I propose that the CLLD and contrastive structures in Bulgarian discussed in this paper exemplify two different types of argument saturation. In the case of CLLD, saturation is achieved through clitic variables but is incomplete (compare restricted saturation types discussed

in Chung and Ladusaw in press). Consequently, a double can properly saturate the predicate.

(35) [$_{CLLD}$ Petar na Marija edna kniga [$_{TP}$ *pro* [$_{TP'}$ í ja dade]]].
Petar to Marija a book pro CL_{DAT} CL_{ACC} gave.
Lit. 'Petar to Mary a book, he gave it to her.'

(36) λx λy λz (x gives y to z) <e,t>
∃x, x= PETAR.... <e>
∃y, y= book.... <e>
∃z, z= to Mary.... <e>

This explains why non-specific indefinites of semantic type <e,t> cannot saturate the predicate:

(37) * Non-specific indefinites <e, t>

As a result, the dislocated element is felt to be an argument but is removed from the domain of the predication, providing an independent description of the referent. The presence or absence of the dislocated element does not alter the focus-topic structure of the lower predication domain, which is on the event or on an internal argument inside it.

7 Summary

The claim advanced in this paper is that doubling in Bulgarian is a special case of argument saturation, while contrast involves topic–focus chains with no clitics present in the derivation. Contrastive topic/focus constructions in Bulgarian can be united under the view that they involve ordered pairs where the higher element values a contrastive feature (cf. OCC in Chomsky 2001), while the element in the VP is a noncontrastive topic or focus.

References

Andrejčin, Ljubomir, Konstantin Popov, and Stojan Stojanov. 1977. *Gramatika na bâlgarskija ezik*. Sofia: Nauka i izkustvo,.

Arnaudova, Olga. 2002. On the interaction between focus and intonation in the Bulgarian sentence. In *Current Issues in Formal Slavic Linguistics*, eds. Gerhild Zybatow et al. 365-376 Frankfurt/Main: Peter Lang.

Arnaudova, Olga. 2003. Clitic left dislocation and argument structure in Bulgarian. In *Proceedings of FASL-10*, ed. J. Toman. 23-46. Michigan Slavic Publications.

Arregi, Karlos. 2003. Clitic left dislocation is contrastive topicalization. U. Penn Working Papers in Linguistics, Volume 9.1, *Proceedings of the 26th Annual Penn Linguistics Colloquium.*

Bošković, Željko. 2004. Clitic placement in South Slavic. *Journal of Slavic Linguistics* 12:37-87.

Büring, Daniel. 2003. On D-trees, beans, and B-accents. *Linguistics & Philosophy* 26.5: 511-545.

Cinque, Guglielmo. 1990. *Types of A' dependencies*. Cambridge, MA: MIT Press.

Chomsky, Noam. 2001. Beyond explanatory adequacy. *MIT Occasional Papers in Linguistics* 20.

Chung, Sandra, and William. A. Ladusaw. In press. *Resriction and Saturation*. Cambridge, MA: MIT Press.

Cohen, Ariel. 2004. Fronted quantificational adverbs. In *Proceedings of the Dislocated Elements Workshop, ZAS Working Papers in Linguistics* 35, eds. B. Shaer, W. Frey, and C. Maienborn.

Franks, Steven, and Tracy. H. King. 2000. *A Handbook of Slavic Clitics*. Oxford University Press.

Franks, Steven and Catherine Rudin. 2005. Bulgarian clitics as K^0 heads. This volume.

Guentcheva, Zlatka. 1994. *Thematisation de l'object en bulgare*. Bern: Peter Lang.

Hirschbühler, Paul. 1975. The source of lefthand NPs in French. In *Materials on Left Dislocation*, eds. E. Anagnostopoulou, H. van Riemsdijk, and F. Zwart. Amsterdam: John Benjamins.

Iatridou, Sabine. 1991. Clitics and island effects. Ms., Department of Linguistics and Philosophy, MIT, Cambridge, Mass.

Jaeger, Florian. 2004. Topicality and superiority in Bulgarian *wh*-questions. In *Proceedings of FASL-12*, eds. O. Arnaudova, W. Browne, M.-L. Rivero, and D. Stojanovič. 207–227.

Kayne, Richard. S. 1995. *The Antisymmetry of Syntax*. Cambridge, MA: MIT Press.

Kiss, Katalin É.. 1998. Identificational focus versus Information focus. *Language* 74:245–268.

Krapova, Iliyana and Guglielmo Cinque. 2003. On the order of *wh*-phrases in Bulgarian multiple *wh*-questions. Paper presented at FDSL-5, Leipzig.

Philippaki-Warburton, Irene, Spyridoula Varlokosta, Michalis Georgiafentis, and George Kotzoglou. 2004. Moving from theta-positions: Pronominal clitic doubling in Greek. *Lingua* 114: 963-989.

Reinhart, Tanya. 1981. Pragmatics and linguistics: An analysis of sentence topics. *Philosophica* 27: 53-94.

Rivero, María Luisa. 2001. On impersonal reflexives in Romance and Slavic and semantic variation. In *Romance Syntax, Semantics and Their L2 Acquisition: Selected papers from the 30th Linguistic Symposium on Romance Languages*, Amsterdam: Benjamins.

Rudin. Catherine. 1988. On multiple questions and multiple *wh*-fronting. *Natural Language and Lingustic Theory*. 6: 445-502.

Zubizarreta, María Luisa. 1998. *Prosody, focus and word order*. Cambridge: MIT Press.

Zubizarreta, María Luisa. 2000. The clitic projection in questions, CatWPL 7. 253-277.

arnaudova_olga@yahoo.com

FASL 13, 27-41
Michigan Slavic Publications
2005

Argument Structure, Case, and Double-Object Syntax

Leonard H. Babby
Princeton University

1 Introduction

This article deals with the mapping between argument structure (AS) and syntactic structure, which is a central problem of syntactic theory. It is often unclear whether an alternation is the result of a syntactic or AS operation: e.g., in early transformational grammar, passivization was assumed to be a syntactic rule; it is now seen as an affix-driven operation on a verb's (V) basic AS that has predictable syntactic effects. I argue that morphosyntactic alternations like active–passive are canonically the result of a *lexical* operation on V's initial AS and the projection of both its initial and derived ASs to syntactic structure.

I begin by considering the relation between (1a) and the corresponding double-object structure in (1b), arguing that the simplest analysis—the one with the fewest ad hoc assumptions—involves an affix-driven operation on V's AS that has systematic syntactic effects. I also argue that understanding the relation between sentences like (1a) and (1b) depends crucially on an explicit theory of Case.

(1) a. John$_1$ gave the book$_2$ to Bill$_3$.
b. John$_1$ gave Bill$_3$ the book$_2$.
c. *John gave Bill the book to.
d. Who$_3$ did John$_1$ give the book$_2$ to?

(2) a. The book$_2$ was given to Bill$_3$ (by John$_1$).
b. Bill$_3$ was given the book$_2$ (by John$_1$).
c. *Bill$_3$ was given the book$_2$ to (by John$_1$).
d. *The book$_2$ was given Bill$_3$ (by John$_1$).

Consider (1) and (2). Subscripts refer to the arguments' theta roles: 1 (= θ_1) is V's external theta role, which canonically maps onto syntactic structure as the nominative NP in spec-position of the functional projection (vP) containing VP ([$_{vP}$ NP$_1$ [$_{v'}$ v VP]); 2 is the internal theta role that maps onto the accusative "direct object" NP in spec-VP ([$_{VP}$ NP$_2$ V']); and 3 is the oblique ("indirect") internal theta role, which

maps as the sister of V ($[_{V'}$ V $NP_3]$). It has been routinely assumed that (1b) is *syntactically* derived from the structure underlying (1a), and therefore attention has focused on motivating a syntactic rule (Dative Shift) that raises NP_3 to a position higher than, preceding, and c-commanding NP_2.

The following sentences demonstrate the similarities and differences between the syntax of double-object Vs and *spray/load* Vs, both of which involve VP-internal alternations. Both types of V license "double passives" (cf. (2) and (5)) and show that preposition stranding is possible only under *wh*-movement (cf. (1d) and (4)). Russian examples are given in (6). I shall argue that the alternations illustrated by (3a-b) and (6a-b), like (1a-b), do not involve syntactic movement.

(3) a. The workers loaded the lumber on the barge.
b. The workers loaded the barge with the lumber.
c. *The workers loaded the lumber on the barge with.
d. *The workers loaded the barge with the lumber on.

(4) a. the barge that the workers loaded the lumber on
b. the lumber that the workers loaded the barge with

(5) a. The lumber was loaded on the barge by the workers.
b. The barge was loaded with the lumber by the workers.

(6) a. Rabočie gruzili les na baržu.
workers$_{NOM}$ loaded lumber$_{ACC}$ on barge
'The workers loaded the lumber on the barge.'

b. Rabočie gruzili baržu lesom.
workers$_{NOM}$ loaded barge$_{ACC}$ with-lumber$_{INST}$
'The workers loaded the barge with lumber.'

An explicit theory of double-object syntax must answer the following questions:

• What is the relation between (1a) and (1b)? I argue that the relation is derivational but not syntactic.

• What is the syntatic structure of the double-object sentence in (1b) and its passive counterpart in (2b)? More specifically, does *Bill* in (1b) occupy the same syntactic position as *the book* in (1a), as proposed in Larson 1988? I argue that *Bill* and *the book* in (1b) are in different spec-positions.

• Which Cases are assigned to *Bill* and *the book* in (1b)? I argue that they are both in sub-vP spec-positions, where accusative Case is assigned.

• If *Bill* in (1b) does not occupy the same position as *the book* in (1a), how are we to account for the double passive in (2a-b)? I argue that passivization universally involves only dethematization of V's external theta-role; movement of the direct object to subject position is epiphenomenal (cf. the transitive impersonal passives with accusative direct objects in Ukrainian).

• What happens to the preposition *to* in (1a) in a derivational explanation of the relation between (1a) and (1b); i.e., why isn't *to* stranded in the derivation of (1b) as it is in the derivation of (1d)? I argue that these data relate to the fact that *wh*-movement preserves Case while NP-movement entails a change of Case.

2 The Double Object Construction: Syntactic Approaches

Most analyses of double object syntax are devoted to accounting for the observation that, while NP_2 asymmetrically c-commands NP_3 in (1a), NP_3 c-commands NP_2 in (1b) (see Barss and Lasnik 1986, Larson 1988, Bowers 1993, Beck and Johnson 2004, Kayne 1984). Larson 1988 argues that (1a) and (1b) are related syntactically. He bases his analysis on the observation that the internal structure of VP is "clauselike," with NP_2 (*the book*) the "subject" in spec-VP and NP_3 (*Bill*) the "object." This structure, schematically represented in (7), underlies (1a).

(7) $[_{VP}\ NP_2\ [_{V'}\ V\ [\text{to}\ NP_3]]]$

The double-object structure in (1b) is derived from (7) by the VP-internal analogue of syntactic passivization: NP_3 (*Bill*) raises to spec-VP and NP_2 (*the book*) is demoted from spec-VP and adjoined to V'. This produces the double-object structure in (8). The preposition *to* in (8) must be deleted by a special rule, avoiding the ungrammatical (1c). Since there is no passive morphology involved and passivization is not a device for raising objects, Larson's analysis is highly problematic. But his derivation does result in (8b), where $Bill_3$ asymmetrically c-commands $the\ book_2$.

(8) a. $[_{VP}\ NP_3\ [_{V'}\ [V]_V\ NP_2]]$
b. John_1 gave $[_{VP}\ \text{Bill}_3\ [_{V'}\ [[_t]V]_V\ \text{the book}_2]]$

While Larson proposes a *passive*-like rule to derive a double-object structure in which NP_3 c-commands NP_2, Bowers (1993) employs a *causative*-like derivation to accomplish the same thing. Bowers' lower predicate phrase (PrP) is given in (9) (his (120)). Note that the indirect object (our NP_3) *Bill* is base-generated in the subject (spec) position of PrP and thus starts out by c-commanding *the book*, the direct object in

spec-VP. The PrP in (9) is the complement of an abstract (null) causative V+caus in (10) that heads a VP that is itself the complement of the upper PrP. *Give* must raise through the empty Pr head [e] in (9) and adjoin to $[+caus]_V$ in (10) to check its [+caus] morphological feature before raising to the upper $[e]_{Pr}$ position. *Bill* raises from the spec-position of the lower PrP in (9) to the empty spec-VP position in (10). The surface structure of *John gave Bill the book* is thus represented by (11) (Bowers' (121)).

(9) $[_{PrP}$ Bill $[_{Pr'}$ $[e]_{Pr}$ $[_{VP}$ the book $[_{V'}$ [give]V]]]]
[+CAUS]

(10) $[_{PrP}$ John $[_{Pr'}$ $[e]_{Pr}$ $[_{VP}$ $[e]_{NP}$ $[_{V'}$ $[+caus]_V$ PrP]]]]

(11) $[_{PrP}$ John $[_{Pr}$ $give_i$ $[_V$ e]]$_j$ $[_{VP}$ $Bill_k$ t_j $[_{PrP}$ t_k t_j $[_{VP}$ the book t_i]]]]

This derivation accounts for the c-command relations, absence of a stranded preposition (see *(1c)), and for the Case of both *Bill* and *the book*: both are in spec-VP positions in (11) and are thus both assigned accusative Case. While Bowers' causative analysis has a number of obvious advantages over earlier analyses, it is not the optimal solution because it is unnecessarily complex. There is a far simpler way to account for the c-command relations and the other facts. Bowers' analysis is also empirically inadequate since it fails to account for the fact that in languages where double-object constructions have overt affixes these affixes are not causative affixes (see (14)). I argue below that double-object constructions are more like applicatives than either passives or causatives, but they are nevertheless not English applicative constructions (see §6.0).

3 Double Object Syntax: An Alternative Approach

My hypothesis is that the syntax of double-object constructions can be explained naturally if we posit a functional projection fP between vP and VP. $Bill_3$ in (1b) is in spec-fP ($[_{vP}...[_{fP}$ *Bill* $[_{f'}$ f VP]]...]). fP is absent in (1a) and f is null in English. According to this proposal, (1a) is represented as in (12) and (1b) in (13). Only the extended lexical projections are given.

(12) $[_{vP}$ John $[_{v'}$ $gave_i$ $[_{VP}$ the book $[_{V'}$ t_i [to Bill]]]]]

(13) $[_{vP}$ John $[_{v'}$ $gave_i$ $[_{fP}$ Bill $[_{f'}$ f_i $[_{VP}$ the book $[_{V'}$ t_i ?]]]]]]

Most of the properties of double-object constructions alluded to above are accounted for by (13) (but see "?" in V'): (i) $Bill_3$ precedes and

asymmetrically c-commands *the book*$_2$; (ii) both *Bill* and *the book* are in spec-positions and are thus assigned accusative Case by the head of the immediately dominating functional head (cf. Bowers 2002); and (iii) *Bill* in (1b)/(13) does not occupy the same position as *the book* in (1a)/(12). (iv) The double-passive of (1a-b) in (2a-b) is entirely straightforward: if passivization is universally an affix-driven AS operation that suppresses V's external theta role, then movement of the direct object to subject position is a syntactic effect, not part of passivization per se. The sentences in (2) demonstrate that in English the highest (most local) NP in a spec-postion raises to subject position in the passive, which is *the book*$_2$ in (1a) and *Bill*$_3$ in (1b). The Case of *book* in *Bill was given the book* (2b) is not a problem since it is not the object of passive *given;* it is assigned accusative just as in (1b), in spec-VP by the head of a functional projection. The ad hoc inherent Case analysis proposed in Chomsky 1981 is thus eliminated (cf. Bowers 1993). Finally, **The book was given Bill* (2d) is predictably ill formed because the more distant *book* rather than the more proximate *Bill* has been raised to subject position, a MLC violation.

Two questions arise at this point: What category is the functional head f in (13), and Is there independent empirical evidence supporting its existence? My proposal is that f in (13) is an affixal head (f = af), which is null in English. But in Indonesian, which has the same double-object alternation as English, the double-object affix af is overt: see *-kan* in (14b), the structure of which is represented in (15). *Ali* is in spec-afP (*kan*P) and *membawakan* raises from its head position in V through the head af to v (*mem-* is a transitivizing affix; see Bowers 2002 for discussion).

(14) a. Saja membawa suratitu [kepana Ali]$_{PP}$.
I bring letter the to Ali
'I$_1$ bring the letter$_2$ to Ali$_3$.'

b. Saja membawakan Ali suratitu (*kepan).
I bring+kan Ali letter the (*to)
'I$_1$ bring Ali$_3$ the letter$_2$.'

(15) [$_{vP}$ Saja [$_{v'}$ membawakan$_i$ [$_{afP}$ Ali [$_{af'}$ af$_i$ [$_{VP}$ surat itu [$_{V'}$ t$_i$]]]]]]

4 Case, Prepositions, and Alternations

We can now explain why *to* is not stranded in the derivation of (1b) as it is in (1d) *Who*$_3$ *did John*$_1$ *give the book*$_2$ *to*? We know that "?" in (13) cannot be *to* plus the trace of *Bill* because (1c) is ungrammatical. My hypothesis is that the explanation lies in the domain of Case theory,

which I will summarize in terms of Russian, where the three types of cross-linguistically attested Case have systematic morphological realizations (see Babby 1994a).

The *structural* Cases (S-Case) nominative and accusative have the following criterial properties: S-Case's occurrence is predictable and is therefore not specified in V's AS. It is assigned /checked depending on NP's syntactic configuration, provided that it is not also in the domain of another, more specific type of Case (see the Elsewhere Condition). S-Case is assigned only to NPs in spec-position by a proximate functional head. The NP's theta role plays no role in S-Case assignment: e.g., while *Bill*$_3$ cannot be assigned S-Case in (1a)/(12), where it projects from AS to the sister-of-V complement position in the syntax, it is assigned accusative Case in (1b)/(13), where it is in spec-position of afP. It is thus common for an NP with S-Case in one sentence to alternate with other S-Cases (as in active–passive pairs), with other types of Case, and with PPs in related sentences (see Th-Case below).

Lexical Case (L-Case) is an unpredictable lexical property and must accordingly be specified in the L-Case-assigning head's AS. In Russian, prepositions, adjectives, and Vs can select L-Case. Since it is a lexical property of a head, L-Case canonically has a morphological realization (Freidin and Babby 1984; see Franks 2002 for a different analysis); this is why L-Case-marked NPs do not enter into alternations. For example, when an L-Case-assigning V passivizes, its object does not alternate with the nominative:

(16) a. Mne_{DAT} pozvoljali ryt'sja v biblioteke. (active)
'They-allowed me to-dig-around in the-library.'

b. Mne_{DAT} pozvoljalos' ryt'sja v biblioteke. (passive)
'I (lit. me) was-allowed to-dig-around in the-library.'

c. *Ja_{NOM} pozvoljalsja ryt'sja v biblioteke.' (passive)

We can claim that L-Case is universal only if we recognize that abstract Case can map onto either a Case affix or an adposition, which has been routinely assumed. Thus Beck and Johnson refer to *of* as a "Case particle" and Larson (1988:369) notes that in sentences like (1a), "*to* represents Case marking" and that suppression of *to* is thus suppression of Case (see also Bowers 2004:7, Freidin 1992). The so-called loss of the Old Russian locative Case and its replacement by the "prepositional Case" is, in this light, merely a remapping between abstract locative Case and its morphological realization; no Case has been lost. The claim that abstract Case features map onto either an affix or adposition will play an important role in the rest of the paper.

Theta Case (Th-Case), the third type of Case, differs from S- and L-Case as follows: Th-Case (i) is predictable in terms of the theta role assigned to NP; (ii) it is thus not specified in V's AS; (iii) since it is not a specified lexical property, it can, like S-Case and unlike L-Case, enter into alternations with nominative or accusative NPs in related sentences (see (18), (19)); (iv) it is realized as an oblique Case affix or PP only on an NP_3 that projects from AS onto the sister-to-V, complement position in the syntax [V' V NP3]. If NP_3 projects to a spec-position, it is realized as nominative or accusative S-Case, as in (18), (19), and (20). Thus, limiting our discussion to argument NPs, S-Case is realized only in spec-positions and Th-Case only in the sister-to-V (unspec) position; they are thus in complementary distribution. The dative Case on "indirect" objects is just a special case of Th-Case assigned to an animate NP3 whose theta role is goal or experiencer, as in (1) and (19). But L-Case can be assigned to any one of V's three argument positions: subject (spec-vP), direct object (spec-VP) or "oblique" object (merged in sister-to-V position). Given that it is a lexical property, L-Case always takes precedence over the other two types of Case. Th-Case and L-Case, which are both realized as oblique morphological Case suffixes or as PPs, can be formally distinguished, since the former but not the latter can enter into alternations (cf. (18), (19), and (20) vs. (16)). Below we explore Th- and S-Case alternations in Russian and English in some detail, since they suggest a simple solution to the preposition-stranding problem in double-object sentences (see (1) and (2)).

The AS of *soderžat'* 'contain' is represented in the diathesis in (17), which encodes the nominative–PP alternation in (18). The upper tier represents V's theta roles (theta-selection); in the lower tier are the categorial arguments (subcategorization) that the theta roles are linked to. An "argument" is thus one of the three theta-role/C-selection linkings in the V's diathesis. Diathetic operations may alter the basic diathesis before it is projected to the syntax in a number of highly restricted ways (see Babby 1998, 2004b for details). Argument 2 in (17) is a theme role and the 3 theta role of *soderžat'* is the location role; *soderžat'* in the meaning 'contain' does not select an external theta role (agent) and the external N(P) is thus unlinked in (17). The Roman numerals enable us to refer to the four basic diathetic positions and have no theoretical significance. I use "N" in the diathesis, which is lexical representation, since NPs are build up in syntax.

(17)

-	2	3	-
N	N	N	V
i	ii	iii	iv

(18) a. Kniga$_3$ soderžit [mnogo poleznoj informacii]$_2$.
'The-book$_{NOM}$ contains [a lot of useful information]$_{ACC}$'

b. [V knige$_3$]$_{PP}$ soderžitsja [mnogo poleznoj informacii]$_2$.
'[A lot of useful information]$_{NOM}$ is-contained [in the book$_{LOC}$]$_{PP}$.'

Since the external N in (17) is not assigned a theta role and Russian, unlike English, does not project unlinked NPs to the syntax, either the 2 or 3 role must link (advance) to the external N position (i-position) in the diathesis, which projects to spec-vP as the nominative subject. If *kniga*$_3$ links to N in the i-position and projects to the nominative subject, NP$_2$ (*mnogo poleznoj informacii*) remains in situ and projects to spec-VP where accusative Case is checked, giving (18a). But if it is [*mnogo poleznoj informacii*]$_2$ that externalizes, N(P)$_3$ remains in situ in the diathesis and projects to the sister-to-V complement position in the syntax, where it is realized as the appropriate Th-Case, i.e., as the PP *v knige* 'in the book', just as in English, since *soderžat'* selects a locative 3 role. I assume that the suffix *-sja* in (18b) is a functional head that suppresses V's external theta role, if there is one, blocks assignment of accusative Case, and provides a landing site in the spec-position of its syntactic projection for NP$_2$ to move to on its way to the subject position. Thus the function of *-sja* is parallel to the double-object suffix posited above: both come between vP and VP and both suffixes provide an empty spec-position in their syntactic projections for an internal argument of V to advance to—the direct object 2-argument in the former, the oblique 3-argument object in the latter (space does not permit me to pursue this analysis here; see Babby 1975, 2004c; Franks 1985). Note too that (18b) is not passive. Since there is no external theta role to begin with in (17), *-sja* functions here only to license the advancement of NP2 (cf. the discussion of *korčit'* and *korčit'sja* 'writhe' in Babby 1998, 2004d).

Alternations like (18a-b) suggests a natural solution to the question posed above: Why doesn't *to* strand in (1b) (cf. (1c-d))? We have just seen in our discussion of (18a-b) that it is not necessary to explain what happens to the preposition *v* 'in' in (18a) where *kniga*$_3$ is the nominative subject: *kniga*$_3$ externalizes (advances from iii to i) *in the diathesis* and then projects to the subject spec-position in vP from the diathesis' external position. This means that NP3 never occupies the syntactic sister-to-V position in the syntax and is thus never realized as Th-Case, which is a PP headed by *v* when NP3 is linked to the locative role. In other words, [*kniga*]$_{NP3}$ is not first realized syntactically as the PP *v knige*, the Th-Case complement of V, and then raised out of this PP, stranding *v*, to the higher, S-Case-licensing spec-position. Rather *kniga*$_3$ projects directly from its (derived) external position in the diathesis to

the nominative subject position in spec-vP.

My hypothesis is that the advancement of $Bill_3$ in the derivation of double-object sentences like (1b) also takes place in the AS (diathesis), not in the syntax, and, therefore, $Bill_3$ is not first projected to the sister-to-V position where it is realized as *to* $Bill_3$ (Th-Case) and only then raised to the spec-position of afP. In other words, *to* is not stranded in (1b) because there is no point in the derivation where it occurs in the syntax and we need no ad hoc rule to delete it; *to* in (1a) is the Th-Case realization of Bil_{l_3}, which is projected to the sister-to-V position in the syntax: $[_{VP}$ *book*$_2$ $[_{V'}$ V $[_{PP}$ *to* $Bill_3]]]$. We return to double-object constructions below.

The diathesis underlying the alternation in (19a-b) below is identical to the diathesis in (17), except that *vspomnit'* selects an experiencer 3 theta role (which is canonically realized as the dative Th-Case) while *soderžat'* selects a location 3 theta role (which is realized as a PP headed by *v* 'in'). "3" here thus designates the third theta role selected by ditransitive verbs and thus differs from verb to verb; it is a variable that receives its value by the concrete verb that heads the diathesis. By the same token, the value of the 1 and 2 theta roles also depends on the particular verb heading the diathesis. Thus 1, 2, and 3 are variables ranging over possible theta roles that receive concrete values from a concrete V's theta-selection in the diathesis.

(19) a. My vspomnili staruju pesnju.
we$_{3.NOM}$ remembered old song$_{2.ACC}$
'We remembered the old song.'

b. Nam vspomnilas' staraja pesnja.
us$_{3.DAT}$ remembered+sja old song$_{2.NOM}$
'(lit.) The old song remembered to us.'

Verbs like *napolnit'* 'to fill' select an optional external agent theta role (*my* 'we' in (20a)). When it is not selected, the diathesis is identical to (17), only *napolnit'* selects a 3 theta role that designates material /substance, which in Russian maps onto the instrumental Th-Case when it projects to the sister-to-V position ($[V\ NP_3]_{V'}$); in English it is realized as $[with\ NP_3]_{PP}$ since all Th-Cases in English map onto PPs. (See Babby 1994b for details.)

(20) a. My$_1$ napolnili jamu$_2$ vodoj$_3$.
we.$_{NOM}$ filled.$_{PL}$ pit.$_{ACC}$ water$_{INST}$
'We filled the pit with water.'

b. Voda$_3$ napolnila jamu$_2$.
water.$_{NOM}$ filled.$_{SG.FEM}$ pit.$_{ACC}$
'Water filled the pit.'

c. Jama$_2$ napolnilas' vodoj$_3$
pit.$_{NOM}$ filled+sja water.$_{INST}$
'The pit filled with water.'

In (20a) the agent is linked to the external categorial argument (*my*) and the internal theta roles therefore cannot externalize: the 3 argument projects from its initial iii position in the diathesis to the sister-of-V position in the syntax and is realized as instrumental Th-Case *vodoj*. In (20b), the optional external agent theta role is not selected and *voda*$_3$ externalizes in the diathesis and projects from there to spec-vP as the nominative subject; the 2-argument remains in situ and projects as the accusative direct object *jamu*. In (20c), it is *jama*$_2$ that externalizes (cf. *-sja*) and projects to spec-vP; the 3-argument remains in situ and projects as the instrumental Th-Case oblique object, just as in (20a) (see Babby 2004d).

So far we have been considering only alternations involving externalization of the 2 or 3 theta role. The diathetic formalism predicts the existence of many other types of alternation (see Babby 2004b). For example, consider the alternation in (21a-b). When *kolot'* has the diathesis in (22), it has the meaning 'to experience stabbing pains'; the value of the 3 theta role here is location (locus of pain); cf. (18a-b).

(21) a. Spinu$_3$ kolet.
back.$_{ACC}$ hurts
'My back hurts = (lit.) (it) stabs my back.'

b. V spine$_3$ kolet.
in back.$_{LOC}$ hurts
'My back hurts = there is a stabbing pain in my back.'

(22) - - 3 -

- (N) N V
i ii iii iv

(22) has no external argument and thus projects to the syntax as a subjectless sentence. If the optional unlinked internal N in the ii position is selected, *spinu*$_3$ links to it and projects from there to the spec-VP position, where accusative S-Case is assigned; see (21a). If the optional unlinked N in (22) is not selected, *spina*$_3$ remains in situ (in its initial iii

position) in the diathesis and projects to the sister-to-V complement position, where Th-Case is assigned. As we saw above, locative Th-Case is realized in Russian (and English) as the PP head by *v* 'in' in (21b).

5 *Spray/load* Verbs in Russian and English

We are now ready to account for internal-alternation Vs like *spray /load*, which as we saw in §1 share certain crucial properties with double-object Vs, i.e., double passives and P-stranding under *wh*-movement; see (3)-(6). Given our representation of AS, *spray/load* Vs can be analyzed as a special type of 3-to-ii advancement V with the diathesis in (23). The unlinked N in the ii-position here is obligatory (cf. (22)), and there are two 3 theta roles associated with N in the iii position in the V's initial diathesis (a locative role and a substance/material role), one of which must link to the unlinked N in the ii-position before the diathesis can project a well-formed syntactic structure (see Franks 1985 for a similar idea). Two theta roles cannot be assigned to the same NP in the syntax (the Theta Criterion).

(23)

1	-	3_{loc}	3_{mat}	-
N	N	N	V	
i	ii	iii	iv	

If the locative role (3_{loc}) links to the unlinked N in (23), the material 3 role (3_{mat}) remains in situ in position iii and projects to the sister-to-V position, where it is realized as the appropriate Th-Case: instrumental Th-Case in Russian and a *with*-phrase in English: *The workers$_1$ loaded the barge$_3$ with lumber$_3$* (see (3a) and (6a)). If, alternatively, the 3_{mat} role is linked to the unlinked N in the ii position in (23), it is the 3_{loc} role that remains in situ in the iii position and projects to the sister-to-V positon in the syntax, where the locative Th-Case is realized as the PP: *The workers$_1$ loaded lumber$_3$ on the barge$_3$* (see (3b) and (6b)). The structure of (3a-b) is given in (24) and (25). Note that the only syntactic movement involved is head movement of V.

(24) The workers loaded$_i$ [$_{VP}$ the lumber [$_{V'}$ t_i [**on** the barge]]]

(25) The workers loaded$_i$ [$_{VP}$ the barge [$_{V'}$ t_i [**with** lumber]]]

The crucial difference between *spray/load* and double-object Vs is that in the former the unlinked N in the ii position provides the position for one of the 3 roles to link to, while in the case of double-object verbs, where the ii position is assigned a 2 theta role in the initial diathesis and

is thus not "available", a higher position for the 3 argument must be *created* by affixing af (*-kan* in (14)), whose projection in the syntax provides a spec-position for the 3 argument to move to. P-stranding is not a problem since, as in all the above derivations, the 3 argument is not first projected to the sister-of-V position, where it is realized as a PP (Th-Case), and then the NP_3 extracted from the PP, leaving the P behind.

The reason that the P can be stranded in English under *wh*-movement is now obvious (see (1d) and (4)). Here the *wh*-NP_3 is first projected to the sister-of-V position where it is realized as a PP (Th-Case). Then *wh*-NP_3 moves out of PP to spec-CP, stranding P ($[_{PP}$ P $t_3]$), which in effect preserves NP_3's Case, since the P is its Case marker. But this is exactly what we expect: *wh*-movement does not involve a change of grammatical relations and Case. I have in effect argued here that the syntactic rule of "NP-Movement" (A-movement), which changes grammatical relations and the Cases that express them, is in fact an AS operation. My hypothesis is that all grammatical-relation changing rules are lexical rules that operate on AS (see Williams 1994). I assume that the reason that Russian does not have a double-object construction is that it does not need it. The focusing that is accomplished in English by double-object constructions, clefting, *there*-insertion, etc. is accomplished in Russian primarily by scrambling. My intuition is that "free" word order and preposition stranding are not compatible, but it is not clear how to derive this observation from primative universal principles of syntactic structure.

6 Double Object Syntax

The explanation of double-object syntax in alternations like (1a-b) that I am proposing can be summarized as follows:

• (1a) has the structure in (12), repeated as (26), in which *the book*$_2$ asymmetrically c-commands *Bill*$_3$.

(26) $[_{vP}$ John $[_{v'}$ gave$_i$ $[_{VP}$ the book $[_{V'}$ t_i [PP to Bill]]]]].

• The derivation of the double-object structure in (1b) involves merging VP with an afP, whose spec-position provides a landing site for NP_3, i.e., [afP NP_3 [af' af VP]]. See (13), repeated here as (27), where *Bill*$_3$ asymmetrically c-commands *the book*$_2$, which remains in situ in spec-VP.

(27) $[_{vP}$ John $[_{v'}$ gave$_i$ $[_{afP}$ Bill $[_{af'}$ af$_i$ $[_{VP}$ the book $[_{V'}$ t_i ?]]]]]].

More specifically, $[_{afP}$ NP_3 $[_{af'}$ af $[_{VP}$ NP_2 V']]] merges with v, giving (28). See (14) where af is overt.

(28) $[_{vP}\ NP_1\ [_{v'}\ v\ [_{afP}\ NP_3\ [_{af'}\ af\ [_{VP}\ NP_2\ V']]]]$

• $[to\ Bill_3]_{PP}$ in (26) is the English "dative" Th-Case realization of the *goal* theta role that the ditransitive verb *give* assigns to its oblique NP3 argument (its "indirect object"). The Th-Case of NP_3 depends directly on the particular theta role (goal, experiencer, beneficiary, location, etc.) assigned to it by the ditransitive verb that selects it. Th-Case is realized only in the $[V'\ V\ NP_3]$ unspec position. Thus when $Bill_3$ advances to spec-afP in (27) it is realized as S-Case, which is not sensitive to the NP's theta role.

• $Bill_3$ in (1b)/(27) is assigned (checks) accusative Case in spec-afP and $book_2$ is assigned accusative in spec-VP. S-Case is assigned only to arguments in spec-positions by the head of the immediately dominating functional projection. The crucial property of the functional head *-sja* is that it does *not* assign (check) S-Case (see Babby 2004c for details).

• There is no preposition *to* in (1b)/(27) (see *(1c)) because *Bill* is not first projected from the diathesis of *give* to the sister-toV position in the syntax, where Th-Case is realized (cf. (26)), and then *raised* syntactically to spec-afP, stranding *to*. My hypothesis is that $Bill_3$ advances to the unlinked position *in V's diathesis* that is introduced by the composition of V and af, which is a lexical (diathetic) operation, and then projects to spec-afP in the syntax. Thus the "?" in (27) turns out to be nothing at all, neither a trace nor a deleted P; it is a relic of earlier Dative Shift analyses when all alternations were conceived of as the product of syntactic rules. In other words, the double-object suffix, which is overt in Indonesian, creates a new unlinked position in V's AS that $Bill_3$ advances to in the diathesis and from which it projects directly to spec-afP in the syntax.

• We can now characterize what differentitates double-object, *spray-load*, and applicative sentences. In the case of *spray/load* Vs, one of the two "doubled" NP_3 arguments in V's base diathesis (see (23)) advances/links to the unlinked N in ii position, which projects to spec-VP, where accusative is assigned; the other NP3 remains in situ, projects as the complement of V, and is realized as Th-Case (see (24)-(25)). The derivation of a double-object construction involves augmenting V's base diathesis with a dedicated af, which creates a new position in the diathesis to the left of the base ii-position to which $Bill_3$ advances and from which it projects to spec-afP in the syntax. In the derivation of applicative sentences, which are also typically affix-driven, *a new internal argument* it added to the V's initial diathesis. Applicativization is thus a lexical operation that is the diathesis-internal analogue of productive affixal causativization, which adds a new external argument to V's initial diathesis (see Turkish in Babby 2004a). Thus the double-

object affix introduces a *new unlinked N position* in V's diathesis for the 3 argument to link with, while the applicative affix introduces a new argument, i.e., a new theta role linked to a new N.

• In sentences like the following, the dative NP is an adjunct, not a new argument: Ona_{NOM} *otkryla* emu_{DAT} $dver'_{ACC}$ '(lit.) She opened him the-door = She opened the-door for-him.' Russian does not need a double-object construction because it has other means of expressing the foregrounding and focusing associated with double-object constructions, e.g., scrambling and animate dative adjuncts.

• The antipassive in ergative languages appears to be the mirror-image of the double-object construction: The antipassive affix deletes the N that the 2-theta role is linked to in V's initial diathesis (ditransitivization) and as a result the 2 theta role relinks to the N in the derived diathesis' iii-position. The diathethetic architecture correctly predicts that the 2-role linked to N in the iii position projects to the sister-to-V complement position in the syntax and its Th-Case realization will depend on its theta role, giving a "reverse" S-Case – Th-Case alternation. This prediction is borne out (see Palmer 1994 for data; Babby 2004b, chap. 1).

• In the derivation of (1d) (*Who_3 did John give the book$_3$ to*), the preposition (dative Case marker) *to* is stranded because who_3 remains in its base 3 position in the diathesis and thus projects to the sister-to-V position, where it is realized as English "dative" Th-Case, i.e., the PP *to* $who(m)_3$; who_3 then moves to spec-CP *in the syntax*, stranding *to*. *Wh*-movement cannot be a diathetic operation and it does not alter grammatical relations, while what is called NP-Movement is, I claim, a diathetic operation (see Williams 1994). Thus, under this hypothesis, syntactic movement typically preserves Case and grammatical relations (cf. scrambling and *wh*-movement) whereas AS operations entail a change of Case and grammatical relations.

• Implicit in this theory of AS are the following crucial corollaries: grammatical relations are encoded in the diathesis in terms of each argument's relative position: V merges first with NP_3, its closest argument, then this expression merges with NP_2, etc. Thus merge and project are synonymous. In other words, binary-branching, bottom-to-top syntactic derivations are a direct reflection of the one-by-one, right-to-left merging of V and its arguments, which is determined by the 2x4 architecture of the diathetic representation of argument structure. I assume that the relative order of the arguments in the diathesis is determined by something like Baker's UTAH (see Baker 1997).

References

Babby, L. 1975. A transformational analysis of transitive *-sja* verbs in Russian. *Lingua* 35: 297-332.

Babby, L. 1994a. Case theory. In *Noam Chomsky: Critical Assesments*, vol. I, tome II, ed. C. Otero, 630-652. Routledge.

Babby, L. 1994b. A theta-theoretic analysis of adversity impersonals in Russian. In *Formal Approaches to Slavic Linguistics: The MIT Meeting*, ed. S. Avrutin and S. Franks, 25-67. Ann Arbor: Michigan Slavic Publications.

Babby, L. 1998. Voice and diathesis in Slavic. Paper presented at the Comparative Morphosyntax Conference, Indiana University, June, 1998.

Babby, L. 2004a. Argument structure: Impersonals and causatives. Paper presented at the Tromsø Workshop on Argument Structure, November, 2004.

Babby, L. 2004b. Russian morphosyntax: Mapping argument structure onto phrasestructure. Ms., Princeton.

Babby, L. 2004c. Transitivity and antitransitivity. Ms., Princeton.

Babby, L. 2004d (=1989). Subjectlessness, external subcategorization, and the projection principle. *Journal of Slavic Linguistics* 10: 341-388.

Baker, M. 1997. Thematic roles and syntactic structure. In *Elements of Grammar*, ed. L. Haegeman, 73-137. Kluwer.

Barss, A., and H Lasnik. 1986. A note on anaphora and double objects. *Linguistic Inquiry* 17: 347-354.

Beck and Johnson. 2004. Double objects again. *Linguistic Inquiry* 35: 97-124.

Bowers, J. 1993. The syntax of predication. *Linguistic Inquiry* 24: 591-657.

Bowers, J. 2002. Transitivity. *Linguistic Inquiry* 33: 183-224.

Bowers, J. 2004. Toward a unified theory of argument structure and grammatical function changing morphology. Paper presented at the Tromsø Workshop on Argument Structure, November, 2004.

Chomsky, N. 1981. *Lectures on government and binding*. Dordrecht: Foris.

Franks, S. 1985. Matrices and indices: Some problems in the syntax of case. Ph.D. dissertation,, Cornell University.

Franks, S. 2002. A Jakobsonian feature based analysis of the Slavic numeric quantifier genitive. *Journal of Slavic Linguistics* 10: 145-184.

Freidin, R., and L. Babby. 1984. On the interaction of lexical and syntactic properties: Case structure in Russian. In *Cornell Working Papers in Linguistics* 6, ed. W. Harbert, 71-103.

Freidin, R.1992. *Foundations of Generative Syntax*. MIT Press.

Larson. R. 1988. On the double object construction. *Linguistic Inquiry* 19: 335-391.

Kayne, R. 1984. Unambiguous paths. In *Connectedness and Binary Branching*, 129-164. Dordrecht: Foris.

Palmer, F.R. 1994. *Grammatical Roles and Relations*. Cambridge University Press.

Williams, E. 1994. *Thematic Structure in Syntax*. MIT Press.

FASL 13, 42-51
Michigan Slavic Publications
2005

Clause Structure in Early Child Russian

Eva G. Bar-Shalom
University of Connecticut

1 Background

The goal of this paper is to evaluate previous proposals for the presence of functional categories IP and CP in early child language. The data we consider are based on naturalistic parent-child speech interactions of three monolingual Russian children ages 1;8–2;10. Our research questions are addressed by analyzing children's subject–verb agreement, word order for the presence of IP, and *wh*-questions for availability of IP/CP. Additional evidence of CP is provided by sentences containing embedded clauses.

Previous theories of clause structure in young children range from claims of total absence of functional categories (e.g., Radford 1990, 1996[1]) to claims of the presence of all functional categories, but optional omission of tense and agreement in so-called Optional Infinitives (e.g., Wexler 1994, Poeppel and Wexler 1993, Borer and Rohrbacher 2002). There are also theories of gradual acquisition of functional categories or their features (e.g., Clahsen, Eisenheiss, and Penke 1996).

One work arguing for gradual acquisition, Meisel and Muller 1992, suggests that IP, but not CP, is present in early child grammar. According to Clahsen et al. 1996 on the other hand, children's initial clauses contain only a "global" Finite Phrase (FP). The FP projection is characterized by feature underspecification. According to this theory, once the child acquires correct subject–verb agreement, the functional projections hosting agreement will also be in place. Clahsen et al. characterize this aspect of their theory as "morphological bootstrapping". Borer and Rohrbacher 2002 disagree with this view and propose full presence of functional categories and explain the occasional non-adult inflectional pattern in verbs in English as a result of the process of morphophonological learning by young children. Their explanation takes into account the fact that young English-speaking children omit verbal

[1] Radford 1999 proposes a somewhat different theory suggesting that in languages with rich inflection, such as Italian, children may have IP in their initial grammars. This is because verbs in these languages are inserted in the tree fully inflected.

inflection but never use the incorrect one. Once the morphological paradigms are learned, the omissions disappear.

Another aspect of clause structure where presence of functional categories is relevant is word order. Some researchers report adult-like word order (e.g., Sarma 2003 in child Tamil), while others suggest that initial word order is non-adult-like (e.g., Platzak 1996[2]). Since Russian allows different word order possibilities in addition to the basic SVO word order, one question to ask would be whether children only use the canonical SVO order or do they also use other word orders. Since some non-canonical word orders, e.g., OV, exhibit IP adjunction, their presence would also shed light on the question of the presence of IP.

The paper is outlined as follows. In section 2 we present data of subject–verb agreement and discuss the implications for the hypotheses outlined above. In section 3, the subjects' word order is examined – both canonical SVO and more importantly the derived word orders, i.e., VS, OV, etc. In sections 4 and 5, *wh*-questions and embedded clauses are also examined, for presence of IP/ CP in the former structure and CP in the latter structures. Conclusions are presented in section 6.

2 Subject–Verb Agreement

In investigating subject–verb agreement, our goal was to determine whether our subjects have mastered the structural configuration in which the subject NP is in the spec IP position and there is a spec–head relationship between the subject NP and I hosting tense and agreement features marked on the verb.

While investigating our children's initial subject–verb agreement, we calculated their Mean Length of Utterance (MLU) (in words), which ranged from 1.7 to 2.7 in the initial sessions with the three subjects. One of the subjects, Alyona, showed a delayed onset of linguistic development: she began to produce verbs at age 2;6 only, and her MLU at that time was 1.7.

As for the analyzed data, only present and future tense verbs were included, as they agree in person and number with subjects. Past tense on the other hand has subject–verb agreement in number and gender, and gender agreement was not one of the topics we investigated in this paper.

In investigating subject–verb agreement we looked at all utterances containing a subject and a verb and those including objects as well. The

[2] Platzak 1996 proposes that the initial word order in every child language is S-V-Complement, regardless of the word order pattern in the adult language. For example, Guilfoyle 1990 found that Irish children show many instances of Subject-Verb-Complement word order, in spite of the fact that the adult word order is strictly VSO.

analysis shows 100% accuracy in the speech of all three children[3]. In looking at individual subjects' data (shown in Tables 1-3)[4], we observe the same pattern in all the subjects: they showed preference for first-person singular verbs, followed by third-person singular, first-person plural, and second-person singular. Only one child, Svetlana, produced one token of a second-person plural verb. The virtual absence of second-person plural is most likely due to the absence of appropriate contexts for this form.

Table 1: Andrej's[5] subject–verb agreement

	1 p.s.	2 p.s.	3 p.s.	1 p.pl.	2 p.pl.	3 p.pl.
Age 2;1–2;2 (MLU 1.9)	34	5	75	4	-	13
Age 2;3 (MLU 2.2)	28	2	30	2	-	-
Age 2;4 (MLU 2.0)	38	3	30	10	-	1
Age 2;5 (MLU 2.1)	60	7	7	10	-	8
Total	160	17	142	26	-	22

Table 2: Svetlana's subject–verb agreement

	1 p.s.	2 p.s.	3 p.s.	1 p.pl.	2 p.pl.	3 p.pl.
Age 1;8–2;8 (MLU 1.8)	3	-	20	1	-	6
Age 2;2–2;3 (MLU 1.8)	24	6	27	8	-	4
Age 2;4–2;5 (MLU 2.0)	46	6	23	3	1	2
Age 2;6 (MLU 2.2)	24	4	19	6	-	4
Total	97	16	89	18	1	16

[3] As reported in previous research (e.g., Bar-Shalom and Snyder 2001), young Russian children also produce optional infinitives (OI's). Svetlana produced twenty altogether, Alyona produced the highest number—thirty (they were all 'dat'-give' and 'pit'-drink'). Andrej produced twelve OI's. The main point, of course, is that all children also produced finite verbs in the same period, all of them agreeing in person and in number with the subjects.

[4] The numbers in the tables 1-3 refer to all the occurrences of subject–verb configurations. If the subject was not overt but its reference could be determined from the discourse, the agreeing verb was also included in the table.

[5] Andrej's recordings begin at age 2;1, so no information is available about his earlier subject–verb agreement. However, his MLU at this age has not quite reached 2.0, so his data are informative about the early even if not the earliest period of subject–verb agreement.

Table 3: Alyona's subject-verb agreement

	1 p.s.	2 p.s.	3 p.s.	1 p.pl.	2 p.pl.	3 p.pl.
Age 2;6–2;7 (MLU 1.7)	8	-	1?	-	-	-
Age 2;8–2;9 (MLU 2.6)	30	3	19	7	-	10
Age 2;10 (MLU 2.7)	1	-	1	-	-	4
Total	39	3	20/21	7	-	14

To ascertain that the accuracy of subject–verb agreement is productive, we examined

(a) agreement with both pre- and post-verbal subjects (cf. Guasti 2004).

(b) We also looked for examples of the same person-number inflections used with different verbs, as well as the same verb used with different inflections.

Examples (1)–(3) serve as support for correct agreement in post-verbal subjects, and examples (4) to (8) illustrate the evidence for the point stated in (b) above:

(1) *Svetlana*
krasitsja tëtja
paints herself woman
'a woman is putting make up on'

(2) *Svetlana*
kapaet doždik
drips rain
'it's drizzling'

(3) *Svetlana*
paravoza sdelaeš ty!
Train $\text{makes}_{\text{FUT}}$ you
'You will make the train'

(4) *Alyona*
umeju (know how $_{\text{PRES 1 P.S}}$) '(I) know how'
umeet (know how $_{\text{PRES 3 P.S.}}$) '(He) knows how'

(5) *Andrej*
delaeš' (do $_{\text{PRES 2 P.S.}}$) '(you) are doing'
delaet (do $_{\text{PRES 3 P.S.}}$) '(he) is doing'

(6) *Andrej*
budu (be $_{FUT\ 1\ P.S.}$) '(I) will be'
budeš' (be $_{FUT\ 2\ P.S.}$) '(you) will be'
budut (be $_{FUT\ 3\ P.PL.}$) '(they) will be'

(7) *Svetlana*
odenu (put on $_{FUT\ 1\ P.S.}$) '(I) will put on)'
odeneš' (put on $_{FUT\ 2\ P.S.}$) '(you) will put on'

(8) *Svetlana*
svarju (cook $_{FUT\ 1\ P.S.}$) '(I) will cook'
varjat (cook $_{PRES\ 3\ P.PL.}$) '(they) are cooking'
varitsja (cook $_{PRES\ 3\ P.S.}$) '(it) is cooking'

To sum up, we provided evidence for the presence of IP in our subjects' speech based on accurate subject–verb agreement in sentences both with pre-verbal and post-verbal subjects, as well as on various person and number agreement with the same verb[6].

3 Word Order

Tables 4-6 below summarize the various word orders each subject produced in the data.

Table 4: Andrej's word order in finite clauses[7].

	VO	VS(O)	OV	SV	OSV	SVO	SOV	OVS
Age 2;1–2;2	-	1	9	8	-	1	-	-
Age 2;3	-	2	3	14	-	1	1	-
Age 2;4	1	2	-	20	1	4	2	-
Age 2;5	-	1	4	19	-	3	4	1
Total	1	6	16	61	1	9	7	1

[6] Our results are similar to those found to Spanish, Catalan, and Italian child languages (Guasti 2004).
[7] SVIO, PPV orders were also found; however, these tables include only direct objects.

Table 5: Svetlana's word order in finite clauses.

	VO	VS(O)	OV	SV	OSV	SVO	SOV	OVS
Age 1;8–2;2	-	1	3	6	-	-	-	-
Age 2;3	3	-	2	2	-	-	-	-
Age 2;4	-	-	1	7	1	1	-	-
Age 2;5	1	-	1	12	1	-	1	-
Age 2;6	-	2	5	11	-	2	1	2
Total	4	3	12	38	2	3	2	2

Table 6: Alyona's word order in finite clauses

	VO	VS(O)	OV	SV	OSV	SVO	SOV	OVS
Age 2;6–2;7	-	1	-	-	-	-	-	-
Age 2;8–2;9	-	-	-	2	-	-	-	-
Age 2;10	7	6	13	5	-	-	1	-
Total	7	7	13	7	-	-	1	-

Most importantly, the results show that all the children used variable word orders in addition to the canonical SV(O) order. For example, Andrej at ages 2;1–2;2 produced sentences with VS, VO and SV(O) orders. In Svetlana's earliest files, we find, VO, VS and SV order.

Further, in Svetlana's and Andrej's data, the SV(O) order predominates, whereas Alyona favors the OV word order. As we mentioned before, Alyona exhibits a delayed onset of language development. This can be seen in her vocabulary (which is not discussed in this paper), the late appearance of verbs in her speech at age 2;6, and the smaller number of sentences in comparison to the two other children.

In addition to the frequency of various word orders, we also examined the appropriateness of particular word orders in different contexts. The data show that young children understand that the Russian word order is determined by discourse factors, such as topic and focus (Yokoyama 1986, King 1996, Bailyn 2003).

3.1 Examples of children's word order

In this section, we provide examples of children's non-canonical word orders OV and IOV. Examples (9)-(11) illustrate focus movement of objects into a preverbal position (Kiss 1998). According to Kiss's criteria, the fronted NPs represent contrastive identificational focus. The NPs in examples (9)-(11) denote entities that were selected by the speaker out of an exhaustive set of referents. These referents are known to the participants in the discourse. This is the same type of focus movement that can be found in Hungarian and Serbo-Croatian

(Stjepanovic 1999). As Stjepanovic (1998) also argues, this focus movement has the same motivation as *wh*-movement in Serbo-Croatian: the fronted NP's are marked with a focus feature.

(9) *Andrej age 2;2 (MLU 1.9)*

	Mom:	Chto	papa	deržit?
		what	papa	holds
		'What is papa holding?'		
OV	*Andrej*:	**Bukvy**	deržit	
		letters	holds	
		'He is holding letters (of the alphabet)'		

(10) *Andrej age 2;2 (MLU 1.9)*

	Mom:	Komu	budeš'	davat'?
		whom	(you) will	give
		'Who are you going to give (it) to'		
IOV	*Andrej:*	**babuške**	budu	davat'
		(to) grandma	will	give
		'I am going to give it to grandma'		

(11) *Alyona age 2;7 (MLU 1.7)*

OV	**Bol'šuju**	ne	xoču
	big	not	want
	'I don't want the big one'		

Thus, the above examples show one particular type of movement that is motivated by discourse considerations.

4 *Wh*-questions

Additional evidence for IP and evidence for CP comes from wh-questions. According to Stepanov 1998, *wh*-questions are formed by focus movement, due to their strong focus feature. In this view, the *wh*-phrase adjoins to IP. As far as the sentence structure of *wh*-questions is concerned, Stepanov suggests that IP is the complement of C, which is marked with [+Q] feature. He follows Chomsky's 1995 claim that which *wh*-phrases are in the minimal C domain. All our subjects produced *wh*-questions with the *wh*-word occurring preverbally, as the following examples indicate.

(11) *Andrej age 2;2*
Čto volk otvetil?
what wolf answered?
'What did the wolf answer?'

Nu **kuda** ty poexal?
Emph. where you went?
'but where did you go?'

(13) *Alyona age 2;10*
Mam, **čto** kupil mne?
mam, what bought me?
'Mom what did he buy for me?'

5 Embedded Clauses

Additional evidence for CP comes from embedded clauses as examples (14) and (15) illustrate. Svetlana's first embedded clause appears at age 2;4 and Andrej's at 2;3. Both examples (14) and (15) are subjunctives. Other types of embedded clauses appear later, e.g., a complement clause was produced by Svetlana at 2;7. Unlike in English (Radford 1996), omissions of complementizers are never found in embedded clauses. Thus, there is no doubt of the presence of C hosting the complementizers.

(14) *Svetlana age 2;4 (MLU 2.0)*
čtoby ne balovalis'
so that not (they)fooled around
'So that they wouldn't fool around'

(15) *Andrej age 2;3 (MLU 2.2)*
Čtoby krokodil ne krasil
so that crocodile not painted
'So that the crocodile wouldn't paint'

6 Conclusions

In this paper we examined the early clause structure of young Russian children with respect to functional categories. We found early evidence of fully specified IP, as our discussion of accurate and productive subject-verb agreement and presence of *wh*-questions indicates. Additional evidence for IP is seen in sentences with non-canonical word orders, such as those with focus movement to preverbal position. *Wh*-clauses, which are also formed by focus movement, serve as further

evidence for both IP and CP. Additional evidence for CP can be seen in the use of embedded wh-clauses with overt complementizers in Svetlana's and Andrej's speech.

To conclude, based on this study, there is no indication that the functional categories IP and CP are absent or underspecified in the early grammar of our subjects. Thus, our findings run parallel to those reported for other inflectionally rich languages, such as Spanish, Catalan, and Italian (cf. Guasti 2004).

The combined evidence from all these languages suggests that functional projections are not inherently difficult for children to acquire. The fact that children sometimes make mistakes in subject–verb agreement in German (e.g., Clahsen et al. 1996) may be due to the language-specific properties of the input, rather than the absence or non-adult-like structure of functional categories in early child language.

References

Bailyn, J. 2003. Does Russian scrambling exist? In *Word Order and Scrambling*, ed. S. Karimi. **Oxford:** Blackwell.

Bar-Shalom, E., and W. Snyder 2001. Descriptive imperatives in child Russian early correct use of verbal morphology". In *BUCLD Proceedings* 25, eds. A. H.-J. Do, L. Dominguez, and A. Johansen. Somerville, MA: Cascadilla Press.

Borer, H., and B. Rohrbacher 2002. Minding the absent: Arguments for the full competence hypothesis. *Language Acquisition* 10(2): 123-175.

Bošković, Z. 1997. Fronting *wh*-phrases in Serbo-Croatian. In *Formal Approaches to Slavic Linguistics*, eds. M. Lidseth and S. Franks. Michigan Slavic Publications, Ann Arbor, Michigan.

Bošković, Z. 2004. Topicalization, focalization, lexical insertion, and scrambling,.*Linguistic Inquiry* 35.4: 613-638.

Chomsky, N. 1995. *The Minimalist Program.* Cambridge, MA: MIT Press.

Clahsen, H., S. Eisenheiss, and M. Penke 1996. Lexical learning in early syntactic development. In *Generative Perspectives on Language Acquisition,* ed. H. Clahsen. Amsterdam: Benjamins.

Guasti, M. 2004. *Language Acquisition,* Cambridge, MA: MIT Press. .

King, T. 1996. *Configuring Topic and Focus in Russian,* Stanford, CA: CSLI Publications. .

Kiss, E. K. 1998. Identificational versus information focus. *Language* 74: 145-173.

Meisel, J., and N. Mueller 1992. Finiteness and verb placement in early child grammar: Evidence from simultaneous acquisition of French and German in bilinguals. In *The Acquisition of Verb Placement,* ed. J. Meisel. Dordrecht: Kluwer.

Platzak, C. 1996. The initial hypothesis of syntax: A minimalist perspective on language acquisition and attrition. In *Generative Perpectives in Language Acquisition,* ed. H. Clahsen. Philadephia: John Benjamins.

Poeppel, D., and K. Wexler 1993. The Full Competence hypothesis of clause structure in early German. *Language* 69: 1-33.

Radford, A. 1990. *Syntactic Theory and the Acquisition of English Syntax.* Oxford: Blackwell.

Radford. A. 1996. Towards a structure-building model of acquisition. In *The Acquisition of Verb Placement*, ed. J. Meisel. Dordrecht: Kluwer.

Radford, A. 1999. Children architects or brickies. In *Proceedings of Boston University Conference on Language Development,* eds. D. MacLaughlin and S. McEwen. Somerville, : Cascadilla Press.

Sarma, V.J. 2003. Non-canonical word order: Topic and focus in adult and child Tamil. In *Word Order and Scrambling*, ed. K. Sarimi. Oxford: Blackwell.

Stepanov, A. 1998. On Wh-fronting in Russian. *NELS* 28, GLSA, UMass, Amherst.

Stjepanovic, S. 1998. Short-distance movement of wh-phrases in Serbo-Croatian matrix clauses. Paper presented at the Comparative Slavic Morphosyntax Workshop. Spencer, Ind., June 1998.

Stjepanovic, S. 1999. What do second position cliticization, scrambling and multiple Wh-fronting have in common? Ph.D. dissertation, University of Connecticut.

Wexler, K. 1994. Finiteness and head movement in early child grammar. In *Verb Movement,* eds. D. Lightfoot and N. Hornstein. 305-350. Cambridge Univ. Press.

Yokoyama, O. 1986. *Discourse and Word Order.* Philadelphia: John Benjamins.

FASL 13, 52-67
Michigan Slavic Publications
2005

On Pretonic Length in Belarusian and Ukrainian Nadsnovs'ki Dialects*

Christina Y. Bethin
SUNY at Stony Brook

Recent work focusing on articulatory and perceptual mechanisms as the grounding for phonological grammars (Archangeli and Pulleyblank 1994, Steriade 1994a, b, 2000, Flemming 1995/2000, Kirchner 1998, and others) is especially promising for the analysis of problems at the phonetics-phonology interface. One such phenomenon is vowel reduction/neutralization as analyzed by Crosswhite (1999/2001, 2004), Barnes (2002), Padgett and Tabain (2003). A fundamental position in these analyses is that the critical factor for the full expression of vowel contrasts is vowel duration. If there is insufficient duration, vowel contrasts cannot be fully realized and reduction or neutralization will take place (Steriade 1994a, b, Crosswhite 1999/2001, Barnes 2002, Padgett 2004).[1] The functional reason for this is that the shorter duration of unstressed syllables leads to perceptual difficulties (Lindblom 1963, Barnes 2002, Flemming 1995/2002, Padgett and Tabain 2003), limiting the expression of a wide range of vowel height contrasts. Thus we would not expect to find longer vowels in unstressed position than we find under stress, and we should not expect to find neutralized vowels that are longer than stressed vowels (1).

(1) Predicted durational relations in vowel reduction systems
Duration and stress coincide: CVCV́: (not *CV:CV́)

But in the geographical corner where Belarus, Russia, and Ukraine meet today (west of Mosal'sk in Russia, east of Mazyr' and south of Homel' in Belarus, north of Chernihiv in the Snov River basin of Ukraine) are the Nadsnovs'ki dialects, which have an unusual type of word prosody. Speakers here are characterized as having a protracted,

* This is a shortened version of the paper presented. Thanks to FASL 13 editors and audience as well as to John Alderete for helpful discussion and comments.

[1] Hereinafter, the term neutralization will be used to refer to the pronunciation of /o/ as [a], also known as vowel reduction (BR *akann'e*, *R akan'e*, *U akannja*).

musical way of speaking (Vojtovič 1972:27). Because these dialects have vowel neutralization of /o/ and /a/ in unstressed syllables, they are known as vowel reduction dialects. The outstanding characteristics of these dialects are extra vowel lengthening in the immediately pretonic syllable and variations in pitch across the word (2).

(2) Nadsnovs'ki dialects
Cɛ:CV́ ~ CɛCV́, Ca:CV́ ~ CaCV́

Bila [Belaja] (1974:26) measured the duration of unstressed /a/ and /ɛ/ in immediately pretonic position before stressed non-low vowels in the sentence context of a conversational style (3).[2]

(3) Vowel duration in msec and in percentages relative to total vowel duration in the word (from Belaja 1974:26)

a. Narrative intonation of CVCV́ words (7 speakers)

	unstressed V	stressed V	% total duration
vazý	240 ms	140 ms	63%/37%
vaz'í	240 ms	130 ms	65%/35%
vazú	240 ms	80 ms [sic]	66%/22%[sic]
vazu̯ó̯u̯	170 ms	200 ms	46%/54%
vaz'i̯é̯t	200 ms	170 ms	54%/46%

b. List intonation of CVCV́ words (1 speaker)

	unstressed V	stressed V	% total duration
katý	260 ms	300 ms	46%/53%
kat'í	240 ms	240 ms	50%/50%
kaž̃ú	248 ms	320 ms	43%/56%
katu̯ó̯u̯	196 ms	340 ms	36%/63%
kat'i̯é̯t	180 ms	220 ms	43%/55%
katá	140 ms	340 ms	29%/70%

Data in (3a) show that under narrative intonation the immediately pretonic vowel is actually longer than the vowel under stress (except in the triphthong). Data in (3b) show that under phrase-final (list) intonation, the stressed vowel is barely longer than the pretonic one. Under the same conditions in Standard Ukrainian the final stressed vowel would be two or three times as long as the pretonic vowel, e.g., CVCV́ has a ratio of 36% to 64% of total vowel duration (Toc'ka in Bilodid 1969:127-30), so the contrast is striking.

[2] Data in Belaja 1974 are not as complete as one might wish. Seeking to establish the existence of pretonic length, Belaja compares vowel durations of stressed and immediately pretonic vowels primarily in cases where the stressed vowel is high and the pretonic one is non-high.

How significant is this duration? Bila's (Belaja 1974:26) data show that the duration of pretonic /a/ ranges from 140 ms before a stressed /a/ to 260 ms before a stressed /y/. This pretonic length is perceptually salient, so much so that early fieldworkers in whose dialect increased duration coincided with stress took pretonic long vowels in this dialects to be actually stressed (Broch 1916:9, Kurylo 1924:37, Kryvicki 1959:102). In an experiment with school children in the Nadsnovs'ki dialect area, Bila (Belaja 1974:23) required them to mark the place of stress in words with pretonic long vowels. In 51% of the cases, the pretonic long syllable was marked as stressed; in 49% the etymological stress was marked.

It is crucial to note that lengthening depends on vowel height and vowel position. First, only non-high vowels may alternate in length (4a). Second, non-high vowels are long only before stressed high vowels (4b). Third, length is found for the most part only in the immediately pretonic syllable (4c).

(4) Conditions on pretonic length: vowel height and position relative to stress

a. *Only non-high vowels alternate in length*

z'ɛml'á 'earth$_{NOMSG}$' z'ɛ:ml'í 'earth$_{GENSG}$'
bylá 'she was' byl'í 'they were'

b. *Vowel length only before a stressed high vowel*

va:dý 'water$_{GENSG}$' vs vadá 'water$_{NOMSG}$'

c. *Length only in the immediately pretonic syllable*

hɔvɔ:rú 'I speak' not: hɔ:vɔrú

Thus: $CV_{[-hi]}\ C\acute{V}_{[+hi]}$ is $CV:_{[-hi]}\ C\acute{V}_{[+hi]}$

This pattern bears some resemblance to the dissimilative akan'e/ jakan'e dialects of southwestern Russia and northeastern Belarus, where the behavior of the immediately pretonic vowel depends on the quality of the stressed vowel, and to Contemporary Standard Russian, which treats the immediately pretonic syllable differently than it does other unstressed syllables.[3] Both dissimilative akan'e and moderate akan'e have been analyzed as having shorter duration in unstressed position (Crosswhite 1999/2001, Barnes 2002). But the Nadsnovs'ki dialects actually have longer vowels in pretonic syllables. The questions then are, How do these dialects get pretonic length? and What is the relationship of this length to vowel reduction and to stress?

I analyze two Nadsnovs'ki dialect types, the speech of Malyja

[3] For a more complete description of Russian dialects see Avanesov and Orlova 1965, Kasatkin et.al. 1989:43-55; for analyses see Halle 1965, Davis 1970.

Aucjuki in Belarus (Kryvicki 1959, Vajtovič [Vojtovič] 1972) and the speech of Xorobryči and other settlements in the Horodnjans'kyj and Ščors'kyj districts of Ukraine (Kurylo 1924, Bila 1970, Belaja 1974).[4] Type I has vowel reduction in unstressed position except in the immediately pretonic syllable; Type II has vowel reduction everywhere, which means that the neutralized vowel may sometimes be lengthened. Vowel length is not contrastive in these dialects. The four-level height contrast under stress becomes a three-level one and includes the merger of /o/, /ɔ/ and /a/ in unstressed position (5).

(5) a. Type I. Belarusian (Malyja Aucjuki, Kalinkovičski district, Homel' oblast)
Under stress: i/y, u, e, o, ɛ, ɔ, a
Immediately pretonic: i/y, u, ɛ, ɔ, a
Elsewhere: i/y, u, (ɛ), a (/ɔ/ to [a], some /ɛ/ to [a])

b. Type II. Ukrainian (Xorobryči and other settlements in the Ščors'kyj and Horodnjans'kyj districts, Chernihiv oblast)
Under stress: i, y, u, e̯, o̯, ɛ, ɔ, a (/i/, /y/ contrast)
Immediately pretonic: i, y, u, ɛ, a (/ɔ/ to [a])
Elsewhere: i, y, u, ɛ, a (/ɔ/ to [a])

The presence of two height contrasts in the mid-vowel range under stress actually serves to identify the lexical/etymological place of stress. This is particularly important because it means there is some marker for prominence that is not necessarily duration.

The two types of dialects differ slightly in where they make the cut-off between high and non-high vowels for purposes of pretonic length. They also differ in permitting vowel neutralization in the immediately pretonic syllable. In the Belarusian type the [+/-high] contrast is across the mid-vowel range, as in (6a). In the Ukrainian dialects there is more variation in the mid-high-vowel range, with /e̯/ more often and /o̯/ rarely counting as [+high] (Belaja 1974:24).

(6) *a* *Type I (Belarus)*

i/y	u	[+high]
e	o	[+high]
ɛ	ɔ	[-high]
	a	[-high]

b. *Type II (Ukraine)*

i y	u	[+high]
e̯	o̯	[+/-high]
ɛ	ɔ	[-high]
	a	[-high]

In the Type I Belarusian dialects the immediately pretonic vowel is short before a stressed non-high vowel (7a), long before a stressed high

[4] Sinjavs'kyj (1934) found similar phenomena further to the west in Ljubeč, as did Žylko (1953), who studied Ukrainian Chernihiv dialects bordering on the Brahinski, Lojevski, and Homel'ski districts of Belarus.

or mid high vowel (7b). High vowels do not lengthen (7c). Borrowings conform (7d).

(7) Type I. Belarusian dialect of Malyja Aucjuki (Vojtovič 1972, Kryvicki 1959)

a. Pretonic short vowels before stressed non-high vowels

s'ɛstrá	'sister'
rɛká	'river'
b'ɛróza	'birch'
sɔlónyj	'salty'
rɔdn'éju	'kindred', f acc sg
p'atá	'heel'
davéj	'give!'

b. Pretonic long vowels before stressed high vowels

s'ɛ:strú	'sister', acc sg
z'ɛ:ml'í	'earth, land', gen sg
dvɔ:rú	'courtyard, yard', dat sg
kɔ:l'éna	'knees'
na:šýla	'she sewed on'
ka:pústa	'cabbage'
za:vód	'factory'

c. High vowels do not lengthen

byk'í	'steer', pl
krušýna	'crumb'

d. Borrowings follow pattern

bryha:dz'ír	'brigadeer'
p'iɔ:n'ér	'pioneer'
xvɔ:m'ílija	'family name'
m'il'icyɔ:n'ér	'militia', sg

Vowel neutralization appears sporadically but often before /a/ (8a), and generally elsewhere, though there are still many cases of /ɔ/ in unstressed syllables, especially before /ɔ/, as shown in (8b). Elsewhere vowel reduction also involves /e/ which appears as [a], much as it does in the Belarusian type of full akan'e.

(8) a. *Vowel neutralization in unstressed position*

baradá	'beard', cf. U borodá
paxavála	'she buried', cf. U poxovála
hóladu	'hunger', gen sg, cf. U hɔlodu
xlóp'ac	'boy', cf. U xlópec'
vós'an	'autumn', cf.U ós'in', osennju

b. *No vowel neutralization in unstressed position*

xɔlɔdɔ́k	'cool place', cf. U xolodók
hɔvɔ:rú	'I speak', cf. U hovor'ú
b'ɛlɔ:rús	'Belarus'
mɔlɔ:dz'íca	'young woman', cf. U molodýc'a
vɔ́s'ɛn'	'autumn'
sɔ́rɔk	'forty', cf. U sórok

In the Ukrainian Nadsnovs'ki dialects, on the other hand, vowel reduction of /ɔ/ to [a] is much more regular, even in the immediately pretonic syllable (9). Pretonic /a/ is short before a stressed low vowel (9a), long before a stressed high vowel (9b).

(9) Type II. Ukrainian dialect of Xorobryči and other settlements in Ščors'kyj and Horodnjans'kyj districts, Chernihiv oblast (Kurylo 1924, Bila 1970, Belaja 1974)

a. *Pretonic short vowels and vowel neutralization before stressed non-high vowels*

pastajála	'she stood awhile', cf. U postojála
malad'éc	'young man', cf. U molodéc'
padru̯os	'he grew up', cf. U pidrís, from older pod-
pal'ɛt'i̯elɔ	'it flew away', cf. U polet'ilo
čɛtvérh	'Thursday', cf. U četvér, četverhá, gen sg

b. *Pretonic long vowels and vowel neutralization before stressed high vowels*

čala:v'i̯ék	'man', cf. U čolovík
na:slúxalas'	'she heard enough', cf. U naslúxalas'a
a:dv'íkla	'she became unaccustomed to', cf. U odvýkla
ka:róu̯,	'cows', gen pl, cf. U koróu̯
sta:rýx	'old', gen, prep pl
ha:rbúzy	'melons', cf. U harbúzy
pl'ɛ:tý	'braid!', cf. U pletý
v'ɛ:l'íka	'big', f sg, cf. U velýka
st'ɛrɛ:hú	'I guard', cf. U sterežú
pav'ɛ:zút'	'they will drive', cf. U povezút'

Here a neutralized vowel lengthens in the immediately pretonic syllable (9b), contrary to the predictions of duration-based accounts of vowel neutralization, which means that neutralization is not simply correlated with shorter duration.

To summarize, both the Belarusian and the Ukrainian Nadsnovs'ki dialects have length in the immediately pretonic syllable if the stressed vowel is high. Neither type permits length in high vowels. The Belarusian dialect preserves vowel height contrasts in the immediately pretonic syllable. The Ukrainian type has vowel neutralization (akan'e) in the immediately pretonic syllable and elsewhere, but the

reduced/neutralized vowel itself may lengthen under the right conditions. Given reduction/ neutralization of /a/ and /o/ in other unstressed positions, both dialects are characterized as vowel reduction (akan'e) types.

Several researchers (Kurylo 1928, Vojtovič 1972, Belaja 1974, Nazarova 1977:246-55) suggest that pretonic length is the result of "quantity dissimilation" and that it is related to the dissimilative akan'e/jakan'e found in Russian and Belarusian dialects. In the dissimilative dialects the quality of the immediately pretonic vowel depends on the quality of the stressed vowel.

(10) Dissimilative akan'e/jakan'e dialect patterns

a. Don pattern

Immediately pretonic	Stressed vowel
[a]	i/y, u
[ə] or [i]	e, o, ɛ, ɔ, a

b. Obojansk pattern

Immediately pretonic	Stressed vowel
[a]	i/y, u, e, o
[ə] or [i]	ɛ, ɔ, a

c. Žizdra pattern

Immediately pretonic	Stressed vowel
[a]	i/y, u, e, o, ɛ, ɔ
[ə] or [i]	a

Crosswhite (1999/2001) derives the relevant alternations from moraic distinctions and requirements on prosodic footing coupled with sonority considerations. Her thesis is that syllables within a prosodic foot are moraic and those outside the foot are non-moraic. The correlation between stress and duration is formalized by a constraint on mora value, Stress to Weight (or WSP in Crosswhite 1999), which favors two moras under stress.[5] Prosodic feet are iambic and bimoraic. Relevant constraints are given in (11).

(11) Stress to Weight: Stressed vowels are bimoraic.
Ft-BIN (μ): Feet are binary under a moraic analysis.
* μμ /V: Long vowels are not permitted.

[5] Crosswhite (1999/2001) employs the Weight to Stress (WSP) and defines it as "stressed vowels should be bimoraic." The moderate akan'e pattern of CSR treats all vowels, including the stressed vowels, as short. Pretonic syllables are thus all footed with the stressed syllable to meet the bimoraic foot requirement and there is no vowel-quality effect on the preceding syllable, where the vowel is moraic. See Halle 1965 for a different, feature-based analysis.

The patterns of dissimilative akan'e/jakan'e may be derived from variable rankings of the relevant prosodic constraints as shown in (12). Vowels not parsed into a prosodic foot are non-moraic and can be only schwa or, after palatalized consonants, [i].

(12) a. Don type:
Ft-BIN (μ), * μμ/i,u ›› Stress to Weight ›› * μμ/e,o; μμ/ɛ,ɔ; μμ/a
(High vowels cannot be long, even when stressed. Other vowels are long when stressed.
Moraic vowel = [a], non-moraic vowel = [ə]/[i].)
Prosodic feet: (Cá $_{\mu\mu}$), (Cé $_{\mu\mu}$), (Có $_{\mu\mu}$), (Cé $_{\mu\mu}$), (Cɔ́ $_{\mu\mu}$) = [CəCV́]
and (CV $_{\mu}$ Cí $_{\mu}$), (CV $_{\mu}$ Cú $_{\mu}$) = [Cací, CaCú]

b. Žizdra type:
Ft-BIN (μ), *μμ/i,u; *μμ/e,o; *μμ/ɛ,ɔ ›› Stress-to-Weight ›› μμ /a
(Most vowels cannot be long, even when stressed. Only /a/ is long when stressed. Moraic vowel = [a], non-moraic vowel = [ə]/[i].)
Prosodic feet: (Cá $_{\mu\mu}$) = [CəCá]
and (CV$_{\mu}$Cé $_{\mu}$), (CV $_{\mu}$Có $_{\mu}$), (CV $_{\mu}$ Cɛ́ $_{\mu\mu}$), (CV$_{\mu}$ Cɔ́$_{\mu}$),
(CV$_{\mu}$ Cí $_{\mu}$), (CV$_{\mu}$ Cú $_{\mu}$) = [CaCV́]

In Crosswhite's analysis the nature of the vowel in the immediately pretonic syllable is directly dependent on the ability of the stressed vowel to be long (bimoraic) and to constitute a foot on its own. The main point is that stress and duration coincide. Given the prohibition on long vowels in general (no phonemic length contrast) in these systems, there is never length outside the stressed syllable. And even under stress only certain non-high vowels may be long.

The Nadsnovs'ki dialects present a real challenge because length occurs outside the stressed syllable, and the Stress-to-Weight constraint cannot account for it. But length in the immediately pretonic position does depend on the nature of the stressed vowel, so the pretonic syllable must be prosodically connected to the stressed syllable. Yet here the durational adjustment is not one between a single mora and no mora in pretonic position as it is in the dissimilative types, but appears to be a question of significant duration, one which could be represented as a difference between one or two moras in that position: $(\sigma_{\mu}\sigma_{\mu\mu}) \sim (\sigma_{\mu\mu}\sigma_{\mu})$.

These dialects could be formally related to the dissimilative types by augmenting Crosswhite's (1999/2001) analysis to include other prosodic foot structure constraints (13a,b) and by ranking them above the constraints in (11).

(13) a. Ft-BIN (σ): Feet are binary in terms of syllabic analysis.
b. *$(\sigma_{\mu}$–$\sigma_{\mu})$ or * (L–L): The branches of a prosodic foot may not both be light.

The problem with this approach is that it is somewhat stipulative in that it produces pretonic length by a type of "quantity dissimilation" constraint (13b). The proposal made here instead is that the central factor in these dialects is tone mapping and that pretonic length is the consequence of mapping word stress to a fixed tonal contour. The tonal contour coincides as much as possible with the stressed syllable. Because it cannot fully coincide with the stressed syllable and because it falls short in different ways depending on the quality/sonority of the vowel in question, its articulation produces alternations in vowel duration. Length alternations may be directly motivated by tone mapping requirements, and there is no need for a quantity-dissimilation constraint.

What evidence is there for contour tone mapping? Researchers consistently observe that the Nadsnovs'ki dialects have a distinctive musical intonation on a pretonic long vowel. The Belarusian dialect atlas (1963:274-75) transcribes the data from Malyja Aucjuki (#886 on the maps) with a pitch rise and fall on the pretonic syllable before a high or high mid vowel, e.g., võlý, snõpý, tõb'í, kõp'éjka, but not before a low vowel, e.g., vodá, doróga. Vajtovič (Vojtovič 1972:19) writes "pretonic /o/ usually preserves its quality, is pronounced protractedly, as if singing . . . with a raising of the voice pitch at the beginning of the word followed by its fall (giving the impression of a rising–falling intonation on the pretonic vowel). In the syllable corresponding to the stressed syllable in the literary language, the pitch lowers even more, as if falling off sharply [trans. CYB]." If we take the observations of fieldworkers to represent the real nature of prosody in these dialects, then it is a question of mapping phonological stress as an output tone contour rather than as intensity. The transition from one tone level to another produces a phonetic pitch rise or pitch fall, as the case may be.

(14) Tonal contour: [LHL], where L=low tone, H=high tone

The mapping of this contour is consistent with principles of tone licensing in prominent position (Goldsmith 1987, DeLacy 2002, Myers 1997, Zoll 2003, Zhang 2001). A syllable with stress is prominent and thus can license tone, i.e., tone and stress coincide. There must also be a requirement that the tonal contour in the input appear in the output (MAX-IO) and that the original sequence of tones be maintained without interruption (LINEARITY, CONTIGUITY). The mechanism of tonal association is the unmarked one-to-one correspondence (Tone to Mora). These constraints and general Stress Faithfulness are given in (15).[6]

[6] Stress faithfulness is a family of constraints based on the work of McCarthy (1995), Alderete (1999, 2001), and others. It serves to maintain the place and the presence of Stress by MAX (Prominence) (No deletion of prominence), DEP (Prominence) (No

(15) Prosodic constraints

MAX - IO (Tone): Tone in the input must appear in the output.

LINEARITY (Tone): Input precedence relations in a tone melody are preserved in the output.

LICENSE Tone/Stressed syllable: Tone and stress coincide in a syllable. (Unstressed syllables do not have tone.)

TONE-to-MORA: A tone is associated to a mora in one-to-one correspondence. (No contour tones on short vowels.)

STrESS FAITH: Stress and the position of stress in the input (output) correspond to stress and the position of stress in the output (input).

Unlike in tone languages where tone mapping occurs throughout the word, the tonal contour in these dialects is licensed only on the stressed syllable. But the tonal contour cannot be completely accommodated there, given the tonal mapping constraints, and tone is deployed also on the syllable before the stressed one. Every unstressed syllable with tone incurs a violation of LICENSE Tone, so the MAX (Tone) and Tone-to-Mora constraints must be ranked more highly. The grammar ranks the tonal mapping constraints also above most of the *μμ/V constraints. As a result it is much more important to realize the tonal contour as fully as possible than it is to have short vowels or to have tone perfectly matched with stress, shown in detail in the tableau (16). TONE to MORA ranks above a general DEP-μ constraint, thus permitting additional duration only if tone mapping requires it.

(16) Tone mapping in general

/CVCVCV/ [LHL]	Stress Faith, Max Tone	Tone to μ	License Tone/Stress	DEP (μ)
a. CV_{μ} CV_{μ} CV_{μ} L H L			**!	
☞ b. $CV_{\mu}CV_{\mu}CV_{\mu\mu}$ L HL			*	*
☞ c. $CV_{\mu}CV_{\mu\mu}CV_{\mu}$ LH L			*	*
d. $CV_{\mu}CV_{\mu}CV_{\mu}$ L	**!			
e. $CV_{\mu}CV_{\mu}CV_{\mu}$ LHL		*!		

insertion of prominence), NO FLOP (Prominence) (Corresponding prominences have corresponding sponsors and links) (Alderete 2001:216, 230), and HEAD IDENTITY (F) (Corresponding segments contained in a prosodic head must be identical for features) (Alderete 1999:36, and others). There must also be a syllable binarity constraint and one enforcing prosodic prominence of some type (CULMINATIVITY) ranked high in this grammar. Zoll's 2003 COINCIDE constraints do not rule out a candidate with all short vowels and one tone on each.

This grammar selects two equally good candidates (16b) and (16c), both of which violate the requirement that tone and stress coincide in a syllable. The selection of these two options is exactly what occurs in the Nadsnovs'ki dialects. The candidate in (16b) is the prosodic structure of a word with a non-high stressed vowel; (16c) is the choice made when the vowel under stress is high. This means that the prohibition against length in high vowels, *μμ/V [+hi], is ranked higher than the requirement to have tone and stress coincide, and it is also higher than Stress to Weight as shown in the following tableaux (17).

(17) Tone mapping in CaCí and CiCá

/CVCaCí/ [LHL]	Stress Faith, Max Tone, Tone to μ	*μμ/V [+hi]	License Tone/Stress	Stress to Weight
a. $CV_{\mu}Ca_{\mu}C\acute{i}_{\mu}$ L H L			**!	*
b. $CV_{\mu}Ca_{\mu}C\acute{i}_{\mu\mu}$ L HL		*!	*	
☞ c. $CV_{\mu}Ca_{\mu\mu}C\acute{i}_{\mu}$ LH L			*	*

/CVCiCá/ [LHL]	Stress Faith, Max Tone, Tone-to-μ	*μμ/V [+hi]	License Tone/Stress	Stress to Weight
a. $CV_{\mu}Ci_{\mu}C\acute{a}_{\mu}$ L H L			**!	*
☞ b. $CV_{\mu}Ci_{\mu}C\acute{a}_{\mu\mu}$ L HL			*	
c. $CV_{\mu}Ci_{\mu\mu}C\acute{a}_{\mu}$ LH L		*!	*	*

When the vowels are of equal height, then Stress-to-Weight and the remaining *μμ/V or DEP (μ) come into play, as shown in (18).

(18) Tone mapping in CaCá and CiCí

/CVCaCá/ [LHL]	Stress Faith, Max Tone, Tone to μ	*μμ/V [+hi]	License Tone/ Stress	Stress to Weight	DEP (μ)
a. $CV_{\mu}Ca_{\mu}C\acute{a}_{\mu}$ L H L			**!	*	
☞ b. $CV_{\mu}Ca_{\mu}C\acute{a}_{\mu\mu}$ L HL			*		*
c. $CV_{\mu}Ca_{\mu\mu}C\acute{a}_{\mu}$ LH L			*	*!	*
d. $CV_{\mu}Ca_{\mu\mu}C\acute{a}_{\mu\mu}$ L HL			*		**!
e. $CV_{\mu\mu}Ca_{\mu}C\acute{a}_{\mu\mu}$ L HL			*		**!

/CVCiCí/ [LHL]	Stress Faith, Max Tone, Tone to μ	*μμ/V [+hi]	License Tone/ Stress	Stress to Weight	DEP (μ)
☞ a. $CV_{\mu}Ci_{\mu}C\acute{i}_{\mu}$ L H L			**	*	
b. $CV_{\mu}Ci_{\mu}C\acute{i}_{\mu\mu}$ L HL		*!	*		*
c. $Cv_{\mu}Ci_{\mu\mu}C\acute{i}_{\mu}$ LH L		*!	*	*	*
d. $CV_{\mu}Ci_{\mu\mu}C\acute{i}_{\mu\mu}$ L HL		**!	*		**
e. $CV_{\mu\mu}Ci_{\mu}C\acute{i}_{\mu}$ L H L			**	*	*!

This grammar makes the prediction that contour tone is not possible on high vowels because they cannot be bimoraic under this ranking. Pretonic length is motivated by tone-to-mora mapping and by the requirement that the tonal contour must be fully pronounced. Because the stressed syllable in these dialects has a sharp fall in tone, the mapping of the contour is such that it aligns with the right edge of the stressed syllable per ANCHOR Right (Tone, Stress) (19).

(19) R-ANCHOR (Tone contour, stressed syllable): The right edge of the tonal contour corresponds to the right edge of the stressed syllable.

The alignment of low tone with the stressed syllable is supported by the pitch contour found on initial syllables (no pretonic position), where stress is implemented as high-toned and falling (Broch 1916: 7-8), as in

(20). High vowels, because they are always short, do not have a tone contour.

(20) Tone mapping on CáCV with stress on the initial syllable

/CáCi/ [LHL]	Stress Faith, Tone to μ	R-ANCHOR (Tone, Stress)	Max Tone	License Tone/Stress
a. CáμμCiμ LH L		*!		*
b. CáμμCiμ LHL	*!			
☞ c. CáμμCiμ HL			*	
d. CáμμCiμ LH		*!	*	

It turns out that the tone-mapping analysis also provides an explanation for both the absence and the presence of vowel reduction in the pretonic syllable. If the presence of tone makes a syllable more prominent, then it could be protected from vowel reduction. This seems to be the case for the Type I Belarusian dialects (21a). But if stress alone is perceived to define a metrically strong position, then vowel reduction could take place in the metrically weak, unstressed position. This appears to be the option chosen by the Type II Ukrainian dialects with their widespread neutralization of /ɔ/ and /a/, including in the immediately pretonic syllable (21b).

(21) a. Type I. Belarusian
Tonal domain: [σ σ]
[LHL]

b. Type II. Ukrainian
Stress: (σ́)

What is particularly striking about the Ukrainian dialects is that pretonic length may be actually instrumental in producing the kind of vowel reduction we find here. Nazarova (1977:250) points out that vowel reduction in Ukrainian is not generally related to shorter duration. Note that we see only the lowering of /ɔ/ to [a] (akan'e) in these dialects and no raising of /ɛ/ to [i] or ikan'e, as in Contemporary Standard Russian (CSR). The absence of any reduction in the front mid vowel may be an important clue to the process here. Compare the two vowel reduction possibilities in (22).

(22) Ukrainian dialects
CɔCÝ akan'e: /ɔ/ › [a]
C'ɛCÝ no change

CSR
CoCÝ akan'e: /o/ › [a]
C'e/oCÝ ikan'e: /e/, /o/ › [i]

The presence of vowel lowering and no vowel raising may be directly tied to articulatory processes. The pronunciation of a rounded vowel requires sufficient jaw closure so that the lips can be rounded. This means the rounded vowel has shorter duration than an unrounded low vowel. Crosswhite (1999:40) observes that "extremely colored vowels will be phonetically quite short—close jaw position corresponds to low inherent duration." Given that the pronunciation of /a/, on the other hand, requires more time for the lowering of the jaw, then the lowering of /ɔ/ to [a] is actually facilitated by extra duration. The prediction of this functional analysis is that ikan'e should not be found in systems with pretonic length, and this seems to be true. If there is vowel reduction in the front vowel at all, it takes the form of vowel lowering, as in Standard Belorusian. There are sporadic cases of vowel reduction of the front vowel in the Nadsnovs'ki dialects, and they lower /ɛ/ to [a] rather than raise it to [i], e.g., [b'adá] 'trouble,' [xlɔ́p'ac] 'boy, youth' (cf. U [xlópec']), as predicted (Nazarova 1977:237).

I have proposed that the phonetic mapping of phonological stress in the Nadsnovs'ki dialects is implemented by a LHL tonal contour. Duration in the pretonic syllable hinges on tone licensing constraints which are phonetically grounded. It is the expression of the full tonal contour which requires sufficient duration. This type of phonetic grounding entails sensitivity to the inherent physical properties of sounds, as they occur both in isolation and in context. Length is easier to express on vowels that are inherently long, such as mid vowels and /a/, and less likely to be maintained on the inherently shorter high vowels. Consistent with their phonetic properties, the high vowels do not participate in the length alternation. The length produced by tonal mapping in the immediately pretonic syllable is also consistent with the loss of labial articulation involved in changing /ɔ/ to [a], making vowel neutralization here due to increased rather than abbreviated duration.

References

Alderete, J. 1995. Faithfulness to prosodic heads. Ms, University of Massachusetts at Amherst.

Alderete, J. 2001. Dominance effects as transderivational anti-faithfulness. *Phonology* 18.2:201-53.

Archangeli, D., and D. Pulleyblank. 1994. *Grounded Phonology*. MIT Press.

Atlas ukrajins'koji movy, 3 vols. 1984-88. Kiev: Naukova Dumka.

Avanesov, R. I., and V. G. Orlova, eds. 1965. *Russkaja dialektologija*. 2 ed. Moscow: Nauka.

Barnes, J. 2002. Positional neutralization: A phonologization approach to typological patterns. Ph.D. dissertation, UC-Berkeley.

Belaja, A. S. [Bila]. 1974. K xarakteristike kvantitativno-prosodičeskix različij v

Nadsnovskix govorax na Černigovščine. In *Obščeslavjanskij lingvističeskij atlas: Materialy i issledovanija*, 1971, ed. R. I. Avanesov et al., pp. 22-31. Moscow: Nauka.

Bila, O.S. 1969. Dovhi holosni v zoni ukrajins'ko-bilorus'kyx miždialektnyx kontaktiv. In *Praci XIII respublikans'koji dialektolohičnoji narady. Tezy dopovidej*, ed. by V. I Hilelax. pp. 133-34. Kiev: Naukova Dumka.

Bilodid, I. K., ed. 1969. *Sučasna ukrajins'ka literaturna mova: Vstup, Fonetyka*. Kiev: Naukova Dumka.

Bondarko, L. V., L. A. Verbitskaja, L. R. Zinder. 1966. Akustičeskie xarakteristiki bezudarnosti. In *Strukturnaja tipologija jazykov*, ed. V. V. Ivanov. Pp. 56-64. Moscow: Nauka.

Broch, O. 1916. Govory k zapadu ot Mosal'ska. Petrograd: Imperatorskaja Akademija Nauk.

Broselow, E., Su-I Chen, and M. Huffman. 1997. Syllable weight: A convergence of phonology and phonetics. *Phonology* 14:47-82.

Crosswhite, K. 1999/2001. Vowel reduction in Optimality Theory. Ph.D. dissertation, UCLA. [Published by Routledge, 2001.]

Crosswhite, K. 2004. Vowel reduction. In *Phonetically-Based Phonology*, ed. B. Hayes, R. Kirchner, and D. Steriade, pp. 191-231. Cambridge: Cambridge University Press.

Davis, P. 1970. A classification of dissimilative jakan'e dialects of Russian. *Orbis* 2.19:360-75.

DeLacy, P. 2002. The interaction of tone and stress in Optimality Theory. *Phonology* 19:1-32.

Dyjalektalahičny atlas belaruskaj movy. 1963. 2 vols. Minsk: Instytut movaznaustva AN BSSR.

Flemming, E. 1995/2002. Auditory representations in phonology. Ph.D. dissertation, UCLA. [Published by Routledge, 2002.]

Goldsmith, J. 1987. Tone and accent, and getting the two together. *Berkeley Linguistic Society* 13: 88-104 (cited in Zoll 1997).

Gordon, Matthew. 1999. Syllable weight: Phonetics, phonology, and typology. Ph.D dissertation, UCLA.

Halle, M. 1965. Akan'e: The treatment of unstressed, non-diffuse vowels in southern Great Russian dialects. In *Symbolae Linguisticae in Honorem Georgii Kuryłowicz*, pp. 103-09. Cracow: PAN.

Kasatkin, L. L., ed. 1989. *Russkaja dialektologija*, 2nd. rev. ed. Moscow: Prosveščenie.

Kirchner, R. 1998. An effort-based approach to consonant lenition. Ph.D. dissertation, UCLA.

Kryvicki, A. A. 1959. Fanetyčnyja asablivasci adnoj z gavorak poudnja Belarusii. *Praci instytuta movaznaustva AN BSSR* 6: 98-104. Minsk: AN BSSR.

Kurylo, O. 1924. Fonetyčni ta dejaki morfolohični osoblyvosti hovirky sela Xorobryčiv davniše Horodnjans'koho povitu, teper Snovs'koji okruhy na Černihivščyni. *Zbirnyk istoryčno-filolohičnoho viddilu* 21. *Praci etnohrafičnoji komisiji*. Kiev: Vseukrajins'ka Akademija Nauk.

Lindblom, B. 1963. Spectrographic study of vowel reduction. *Journal of the Acoustical*

Society of America 35:1773-81.
Matusevič, M. I. 1976. *Sovremennyj russkij jazyk. Fonetika.* Moscow: Prosveščenie.
McCarthy, J. 1995. *Extensions of faithfulness: Rotuman revisited.* University of Massachusetts at Amherst ms.
McCarthy, J. 2002. *A thematic guide to Optimality Theory.* Cambridge: Cambridge University Press.
Myers, Scott. 1997. OCP effects in Optimality Theory. *Natural Language and Linguistic Theory* 15:847-92.
Nazarova, N. T. 1977. Akan'e v ukrajinskix govorax. In *Obščeslavjanskij lingvističeskij atlas. Materialy i issledovanija*, 1975, ed. by R. I. Avanesov et al., pp. 211-60. Moscow: Nauka.
Padgett, J. 2004. Formal and functional aspects of Russian vowel reduction. Paper presented at Formal Approaches to Slavic Linguistics, 13. February 27-29, 2004.
Padgett, J., and M. Tabain. 2003. Adaptive dispersion theory and phonological vowel reduction in Russian. Unpublished ms. UC Santa Cruz and Maquarie University, Sydney.
Sinjavs'kyj, O. 1934. Zamitka pro movu s. Ljubeča na Černihivščyni. *Movoznavstvo* 1:91-97.
Steriade, D. 1994a. Licensing by Cue. UCLA ms.
Steriade, D. 1994b. Positional neutralization and the expression of contrast. Unpublished UCLA ms.
Steriade, D. 2000. Paradigm uniformity and the phonetics/phonology boundary. In *Papers in Laboratory Phonology* 5: *Acquisition and the Lexicon*, ed. M. Broe and J. Pierrehumbert, pp. 313-34. Cambridge: Cambridge University Press.
Vojtovič, N. T. 1972. K voprosu o putjax razvitija akan'ja v vostočnoslavjanskix jazykax, I. In *Obščeslavjanskij lingvističeskij atlas. Materialy i issledovanija*, 1970, ed. R. I. Avanesov et al, pp. 17-39. Moscow: Nauka.
Vojtovič, N.T. 1974. K voprosu o putjax razvitija akan'ja v vostočnoslavjanskix jazykax, II. In *Obščeslavjanskij lingvističeskij atlas. Materialy i issledovanija*, 1971, ed. R. I. Avanesov et al., pp. 32-41. Moscow: Nauka.
Zhang, Jie. 2001. The effects of duration and sonority on contour tone: Distribution-typological survey and formal analysis. Ph.D. dissertation, UCLA.
Zoll, C. 2003. Optimal tone mapping. *Linguistic Inquiry* 34.2:225-68.
Žylko, F. T. 1953. Perexidni hovirky vid ukrajins'koji do bilorus'koji movy v pivnično-zaxidnyx rajonax Černihivščyny. *Dialektolohičnyj bjuleten'* 4:7-20.

christina.bethin@stonybrook.edu

FASL 13, 68–79
Michigan Slavic Publications
2005

What Children Definitely Know about Definiteness: Evidence from Russian*

Dina Brun
Yale University

In this paper I present the results of a series of elicitation experiments investigating the ability of Russian-speaking children to use their knowledge of information structure in expressing (in)definiteness of nominals. Russian, a language lacking obligatory overt determiners, employs word order to denote (in)definiteness of nominals. Following is a system of definitions to be used throughout the paper. These definitions are based on the theory of referentiality proposed by Fodor and Sag (1982):

(1) a. A nominal is **definite** if it is (i) be identifiable (i.e., have a fixed referent in the (model of) the world) by the speaker and (ii) be believed by the speaker to be identifiable by the hearer.
b. A nominal is **indefinite** if it fails to satisfy at least one of the above conditions.

Using these definitions gives us the following advantages. First, a semantics-based definition of (in)definiteness allows us to cover cross-linguistic phenomena occurring in languages with different grammatical realizations of this feature. Secondly, it permits us to solve the problems in treating all definite nominals as "strong" (i.e., presuppositional) and indefinite as "weak" (i.e., existential) (Milsark 1977; see Brun 2001 for a detailed discussion of these problems).

1 Expression of (in)Definiteness in Adult Russian

Russian is a language with a (relatively) free word order. However, the formation of a sentence is restricted by a number of different constraints. For instance, the information structure of a sentence plays a crucial role in the ordering of constituents. The following correlation between word

* An earlier version of this paper appeared in the Proceedings of Atelier des Doctorants en Linguistique—2003. A travel grant from CCSU which has allowed me to participate in FASL 13 is gratefully acknowledged. The author is grateful to the two anonymous reviewers as well as the audiences of FASL 13 and Yale Linguistic Colloquium for valuable comments and suggestions.

order and (in)definiteness may be observed[1]: Independently of the grammatical function, subject or object, preverbal nominal elements are interpreted as definite, and postverbal nominals are interpreted as indefinite. For illustration, consider the following example:

(2) a. Mal'čik činit igrušku
boy$_{NOM}$ fixes toy$_{ACC}$
'The boy is fixing a toy.'

b. Igrušku činit mal'čik
toy$_{ACC}$ fixes boy$_{NOM}$
'A boy is fixing the toy.'

As mentioned above, the distribution of nominal elements depends on the organization of information within a sentence (i.e., its Information Structure (IS); see Isačenko 1966, Bailyn 1995, King 1995, Babyonyshev 1996, Brun 2000, 2001, inter al.) In this article, I use a tripartite IS consisting of a topic (T), discourse-neutral information (NI), and focus (F) (cf. Vallduví 1992.)

In this paper, I consider only so-called non-emotive sentences, i.e., sentences with no phrasal stress (Yokoyama 1986). The IS of these sentences is fixed topic first, followed by neutral information, followed by thea focused constituent. The order in (3A) is the only one acceptable in the context.

(3) Q: Kto činit igruški?
who is-fixing toys$_{ACC}$
'Who is fixing toys?'
A: [$_T$ Igruški] [$_{NI}$ činit] [$_F$ mal'čik].
toys is-fixing boy
'A boy is fixing the toys.'

The second important principle underlying the IS of a sentence is an intuitive one. Focus, as the location of new information, must be present in every sentence. A sentence would not be informative if it lacked the relevant new information not introduced previously in the discourse:

(4) Q: Kto činit igruški?
who is-fixing toys$_{ACC}$
'Who is fixing toys?'

[1] In most of this paper, I discuss so-called bare or unmarked nominals, i.e., the ones where the proposed correlation between word order and (in)definiteness is most transparent and the dependency is unaffected by other factors. I will address the question of lexical marking for (in)definiteness later in the article.

A: [$_F$ Mal'čik]./ #[$_T$ igruški]./ #[$_{NI}$ činit]./ #[$_{NI}$ činit] [$_T$ igruški].
(a) boy (the) toys is-fixing is-fixing toys

The data in (3-4) shows that the verb, a typical location of neutral information, is the boundary between definite and indefinite nominals in non-emotive sentences, with definite nominals preceding the verb, while indefinite nominals follow it.

2 The Experiments

I would like to posit the following research questions. First, are children acquiring Russian aware of the correlation between (in)definiteness and the position in a sentence observed in adult Russian? Second, is it possible to determine whether such information is in fact present in child grammar? In what follows, I present the results of experimental studies attempting to resolve these questions.

2.1 Study I: Natural speech data

In this subsection, I discuss the results of a pilot study (Avrutin and Brun 2001) investigating the knowledge of (in)definiteness/word order correlation in the spontaneous speech of four monolingual Russian-speaking children. The production of children between the ages of 1;7 and 2;3 was recorded in 30-minute sessions with 2.5 week intervals in family settings in Moscow, Russia. Utterances included in this analysis were all characterized by neutral intonation (i.e., lack of phrasal stress/contrastive focus). All proper names and pronouns were excluded from the analysis and only common nouns were included in final counts.

In order to determine the status of a NP in spontaneous child speech with respect to (in)definiteness, the researcher has to rely strongly on the context in which the utterance in question has been produced. In particular, this study used adult utterances that preceded the child's response and indicated whether the referent of the nominal in the child's utterance has been mentioned previously or was completely new to the conversation. The comments of the researcher present during the recording were also helpful.

An additional source of reference regarding the interpretation of nominals came from certain overt modifiers of NPs available in Russian. These include the following markers denoting definite interpretation: demonstrative pronouns *èto* 'this', *to* 'that' or possessive pronouns *moj* 'my', *tvoj* 'your', *ix* 'their'. Markers denoting indefinite interpretation are, in turn, indefinite pronouns prefixed with the particle *koe-* (e.g., *koe-kto* 'somebody') or suffixed with the particles *-nibud'* (e.g., *čto-nibud'* 'anything') or *-to* (e.g., *kto-to* 'somebody', *kakoj-to* 'some') and some adjectives (*raznye* 'different', *vsjakij* 'anyone', etc.).

To summarize the discussion so far, the distinction between definite and indefinite corresponded in this study to adult intuition in a given context. An absolute measure of the child-intended interpretation was impossible given the nature of the data.

Let us now turn to the results of this study. For subjects, 531 utterances corresponding to the criteria provided above were included in the analysis. Out of this total, 379 utterances contained definite subjects and 152 contained indefinite subjects. The following table illustrates the distribution of subjects with respect to word order:

Table 1. Distribution of subjects (from Avrutin and Brun, 2001:73)

Order	Preverbal Subject		Postverbal Subject	
Adult Interpretation	Tokens	%	Tokens	%
Definite	341	**90.0**	38	10.0
Indefinite	49	32.2	103	**67.8**

It can be seen that children in this study do show sensitivity to the (in)definiteness of subjects: most definite subjects are placed preverbally, (χ^2 (1) = 38.1, $p \leq .001$), while most indefinite ones appear postverbally (χ^2 (1) = 6.54, $p \leq .025$).

Moving on to the distribution of objects, out of the total of 460 utterances containing overt objects, 271 had definite interpretation and the remaining 189 had indefinite interpretation:

Table 2. Distribution of objects (from Avrutin and Brun 2001:73)

Order	Preverbal Object		Postverbal Object	
Adult Interpretation	Tokens	%	Tokens	%
Definite	245	**89.4**	29	10.6
Indefinite	18	9.7	168	**90.3**

Hence, the picture is even clearer with objects than with subjects: children are aware of the correlation between (in)definiteness of objects and word order. Most definite objects are placed preverbally (χ^2 (1) = 36.75, $p \leq .001$), while most indefinite ones are postverbal (χ^2 (1) = 38.78, $p \leq .001$).

While children overall show sensitivity to the structural position of definite and indefinite subjects, there is still a rather high number of non-adult (preverbal) placements of indefinite subjects (32.2%). Why should this be so? Recall that the definite/indefinite distinction in this study corresponds to the adult intuition about a given context. It can be proposed that children sometimes make a pragmatic error of considering

something known to the hearer and hence definite. Thus, the error is not syntactic in nature, but rather reflects a pragmatically erroneous presupposition of what is, or is not, definite (cf. Schaeffer and Matthewson 1999, Schaeffer 1997, Hyams 1996, Karmiloff-Smith 1980 inter al.).

(5) *Sasha (2;0)*

The interviewer enters the apartment. The boy greets her at the door. The woman notices that Sasha has a black eye:

Adult:	Sašen'ka	otkuda,	u	tebja	takoj	sinjak?
	$Sasha_{DIM}$,	from-where	at	you	such	bruise
	'Sasha, where did you get such a bruise?'					
Sasha:	**Mal'čik**	**zloj**	udaril	na	ploščadke.	
	boy	**mean**	$hit_{3RD\text{-}SG\text{-}PST}$	on	playground	
	'The mean boy hit me on the playground.'					
Adult:	Kakoj	mal'čik?				
	what	boy				
	'What boy?'					
Mother:	PONJATIJA	ne	imeju!			
	idea	NEG	have			
	'I don't have a CLUE!'					

Alternatively, it may be suggested that children use specificity rather than definiteness to determine the position of the nominal in a sentence. The requirement for the referent of a nominal to be known to the speaker has to be satisfied for a definite nominal as well as a specific nominal. However, only definiteness requires that the speaker take into consideration the familiarity of the referent to the hearer. In fact, specificity has been suggested to play a role in the adult system of nominal reference for Russian (e.g., Ionin 2003, Babyonyshev and Brun 2001). I will return to this hypothesis later in the paper.

One observes from these data is that preverbal placement of indefinite nominals occurs significantly less frequently with objects than with subjects (only 9.7% of preverbal indefinite). Why is there such a difference between subjects and objects? As Avrutin and Brun (2001) suggest, the error is due to the more discourse-prominent role of subject, compared to object. Subjects (i.e., DPs base-generated as external arguments of the verb), as weak topics, are more open to discourse presupposition than objects[2] (see Partee 1992). Note, however that the observed

[2] The term weak topic is used by the author in the sense that a nominal functioning as subject in its original position in a sentence is more prominent as compared to, for instance, non-topicalized object, but less prominent as compared to topicalized object or subject. The latter elements are considered to be strong topics.

contrast undermines the idea that specificity rather than definiteness is parametrized by the child as a criterion for word order.

Finally, in adult Russian lexical marking for (in)definiteness overrides the effects of word order (Nesset 1999, Brun 2000). Since such lexical marking is observed in child speech and is used to determine the interpretation of NPs, one can ask whether the same effect can be seen in children. A preliminary answer to be further explored in the rest of the paper is that the children in this study do use the correlation between discourse functions and (in)definiteness successfully. However, the distribution of marked nominals in their speech is very close to that of unmarked: children seem to rely on information structure to denote (in)definiteness more than adults.

Let me now briefly summarize a shortcoming of this study. The design of the data used for this study, namely, the spontaneous speech format, does not allow the researcher to clarify the interpretation intended by the child. Hence, the researcher has to rely on adult native speaker judgments, which allows room for misinter-pretation with respect to the reading intended by the child. Another limitation of this format is the impossibility of determining the interpretation which resulted in data exclusion in some cases. Therefore, an experiment where the interpretation intended by the child is controlled within the experimental design was required to confirm the findings.

2.2 Elicited imitation study

The elicited imitation study had two main goals: to confirm previous findings that children between two and three are aware of the correlation between word order and the (in)definiteness of a NP and can successfully implement this correlation in their speech, and secondly, to investigate the interaction between lexical marking for (in)definiteness and word order.

Thirty-five monolingual Russian-speaking children between 2;0 and 3;4 (mean age 2;11) participated in this study. The experiment was designed as an elicited imitation paradigm where subjects were asked to repeat sentences one at a time.

Experimental sentences represented 10 pairs of sentences (five unaccusative and five unergative predicates) with subjects lexically marked for definiteness (6) vs. indefiniteness (7). They differed minimally by (a) the word-order-based location of the subject vs. (b) the location of the subject independent of word order.

(6) Definite subject

a. *Word-order-based placement of subject*

Ta kukuruza varitsja v bol'šoj kastrjule.
that corn cooks in large pot
'**That corn** is cooking in a large pot.'

b. *Non-word-order-based placement of subject*

V bol'šoj kastrjule varitsja **ta kukuruza**.
in large pot cooks **that corn**
'**That corn** is cooking in a large pot.'

(7) Indefinite subject

a. *Word-order-based placement of subject*

Razbilas' na melkie kusočki **kakaja-to lampa.**
broke on small pieces **some lamp**
'**Some lamp** broke into small pieces.'

b. *Non-word-order-based placement of subject*

Kakaja-to lampa razbilas' na melkie kusočki.
some lamp broke on small pieces
'**Some lamp** broke into small pieces.'

Fifty-four utterances (8%) were excluded from the results due to subjects' refusals to follow the instructions of the experimenter. There remained 646 utterances included in the analysis:

Table 3. Success rate in elicited imitation task

Subject placement	# of utterances	# of successful repeats	% of successful repeats
W-O-based	323	294	**91%**
Non-W-O-based Preverbal Indef	159	70	**44%**
Non-W-O-based Postverbal Def.	164	85	**52%**

The following changes to the target utterances were observed: movement of the nominal to the appropriate position predicted by the correlation, drop of lexical markers, and use of sentence stress to indicate contrastive focus on indefinite NPs allowing it to appear in the position reserved for elements with inferable referents (see King 1995 and Brun 2002 for discussion of Russian contrastive focus). A control group of

four adults performed at 98% for word-order-based subject placement and at 93% for non-word-order-based subject placement.

Based on the data in Table 3, I conclude that children are aware of the correlation between word order and (in)definiteness, since they differentiate between a sentence constructed according to this correlation and a sentence violating the correlation. They also understand the usage of lexical markers for (in)definiteness. Finally, children, as opposed to adults, rely on the word order/(in)definiteness correlation significantly more than they rely on lexical marking in expressing (in)definiteness of a NP (χ^2 (1) = 31.45, $p \leq .001$).

2.3 Elicited production study

In this experiment, my goal was to test children's ability to employ pragmatic and discourse information in building syntactic structures. In addition, I wanted to check the hypothesis that a pragmatic mistake is responsible for "inappropriately definite" subjects in child speech. Finally, I wanted to see whether the results of the spontaneous speech study (Avrutin and Brun 2001) would be replicated with respect to objects.

For this study, I tested the same 35 monolingual Russian speaking children as in the Elicited Imitation Experiment described above. An elicited production method was used: subjects were shown a picture and then were asked to describe it to a puppet, which was either present or absent during the presentation of the picture. The experiment was preceded by a practice session.

The experimental script contained 20 pictures: 10 depicted actions with simple transitive predicates (e.g., a boy pushing a girl, a crow pecking a parrot, etc.), and 10 depicted actions with unaccusative predicates (e.g., a snowflake melting, a broken lamp, etc.). For this experiment, I was interested in the nominals initially occupying the internal argument position which would require movement in order to surface preverbally (i.e., subjects of unaccusative predicates or direct objects in transitive constructions).

(8) *Procedure*

(a) The child and a toy monkey are situated in front of the experimenter. The experimenter shows them a picture and then turns it over.

Experimenter:

"Please tell the monkey what happened in the picture."

(b) The child is seated in front of the experimenter. The experimenter shows the child a picture and then turns it over. Then a toy monkey "rushes in" from behind the experimenter's back.

Monkey:

"Oh-oh, what did I miss?"

Experimenter:
"Please tell the monkey what happened in the picture."

The analysis included a total of 700 items classifiable into four groups: (i) 175 subjects of unaccusative verbs with the puppet present (expected preverbal placement); (ii) 175 objects of transitive verbs with the puppet present (expected preverbal placement); (iii) 175 subjects of unaccusative verbs with the puppet absent (expected postverbal placement); (iv) 175 objects of transitive verbs with the puppet absent (expected postverbal placement). Table 4 presents the results of this experiment:

Table 4. Expected word orders in elicited production experiment

	Subject		Object	
Adult Interpretation	Token	%	Token	%
Definite	169 (i)	97	154 (ii)	88
Indefinite	98 (iii)	56	149 (iv)	85

Once again, we can see that the only significant deviation from the expected pattern dictated by the correlation between (in)definiteness and word order is found with respect to indefinite subjects: only 56% of indefinite subjects occur in the appropriate postverbal position. The remaining 44% are misplaced preverbally to pattern with definite subjects. Notably, no such pattern is observed with indefinite objects.

Finally, I tested a control group consisting of three adult native Russian speakers who performed with an overall 96% accuracy for the predicted word orders, both with objects and subjects.

Eighteen monolingual Russian-speaking children between 2;11 and 3;9 (mean age 3;6) participated in this test. The subjects were presented with short stories acted out by puppets. They were then asked to tell a toy monkey, absent during the presentation of the story, what had happened in the play. By removing the monkey from the scene during the presentation of the story I was able to control for the interlocutor's familiarity with the referents in the child's utterance from the point of view of the child.

(9) *Procedure:*
Experimenter: "This is a story about an ice-cream cone."
Condition (i): A puppet takes an ice-cream cone and puts it in the bag.
Condition (ii): A puppet is holding a bag. (Note: the child only hears about the ice cream but doesn't see it.)
The ice cream inside the bag is melting and drops are falling on the floor.

Experimenter: "Could you please tell the monkey what's going on."
Expected response (adults): indefinite subject in both conditions:
(V sumke) taet moroženoe.
(in bag) melts icecream
'Ice cream is melting (in the bag).'

The experimental script included six items: each of the two groups of children was exposed to three stories with auditory and visual introduction of the subject (Condition 10-i) and to three stories with just the auditory introduction of the subject (Condition 10-ii) for a total of 54 items in each group. A total of 12 samples were excluded from the results due to the format of the answers (six matching items from each condition). Final data included 48 utterances per condition.

Condition I. Auditory + visual referent introduction:
27 (66%) non-adult definite word orders.

Condition II. Auditory only referent introduction:
2 (4%) non-adult definite word orders.

These data suggest that the children's incorrect assumption about the hearer's knowledge is connected with the mode of introduction of a referent: auditory only vs. auditory plus visual. The proportion of errors is significantly higher with visual input than with solely auditory input: χ^2 (1) = 64.38, $p \leq .001$. No such contrast is observed with adults, who in a control study show 96.5% of postverbal placement of indefinite nominals in Condition I and 95% in Condition II.

While at this point of my research, I cannot provide a fully developed account of the contrast found in children, I can suggest, as one of the possibilities, that the higher rate of definite assumptions may be due to the immature Theory of Mind (see Astington 1993) in children under four years of age. In particular, crucially for our task it is easier for a young subject to incorrectly assume the familiarity of others with an object in cases where the object is visually presented than in cases where the object is just named in the absence of a real physical image of the referent. Obviously, this tentative explanation requires further investigation.

3 General Conclusions

Even though adult Russian provides no obligatory overt lexical evidence to indicate (in)definiteness, children at an early age know and use the mapping between the structural position and a particular interpretational

property of a nominal, e.g., (in)definiteness. Based on the evidence presented in these studies, I propose that this mapping is part of an innate (or very early acquired) knowledge of the syntax–discourse interface rules. The fact that children rely more at first on the word order/ (in)definiteness correlation than on the lexical marking available in Russian provides an additional evidence for the early emergence of this mapping.

Children make significantly more mistakes with subjects than with objects in placing indefinite nominals in the preverbal position. I suggest that the higher rate of errors here is due to pragmatic factors, that is, to the child's erroneous presupposition that the referred-to individual is known to the listener and hence definite. The assumption that subjects as weak topics are more naturally presupposed than objects explains the contrast. In addition, this contrast eliminates the hypothesis that specificity rather than definiteness is used by the child to determine the position of the nominal.

This error may reflect a lack of extra-linguistic development, or, as another possibility, the inability to compute other speakers' perspective due to the lack of processing resources. Further investigation may reveal a correlation between the modality of introduction of referent (i.e., visual vs. auditory) and the mistake rate. This issue requires additional research.

References

Avrutin, S., and D. Brun. 2001. The expression of specificity in a language without determiners: Evidence from child Russian. *Proceedings of BUCLD 25*: 70-81. Somerville, MA: Cascadilla Press.

Astington, J. 1993. The child's discovery of the mind. Cambridge, MA: Harvard University Press.

Babyonyshev, M. 1996. Structural connections in syntax and processing: Studies in Russian and Japanese. Ph.D. dissertation, MIT.

Babyonysev, M., and D. Brun. 2001 Specificity matters: A new look at the new genitive of negation. In *Proceedings of Tenth Annual Workshop on Formal Approaches to Slavic Linguistics* 11, ed. J. Toman. 46-66.

Bailyn, J. F. 1995. A configurational approach to Russian "free" word order. Ph.D. dissertation, Cornell University.

Brun, D. 2003. Expression of (in)definiteness in child Russian: Experimental Evidence. *Proceeding of Atelier des Doctorantsen Linguistique-2003.*

Brun, D. 2001. Information structure and referential status of NP in Russian. In,*Theoretical Linguistics* 27.2/3, eds. von Heusinger, K and K. Schwab. Special Issue: NP Interpretation and Information Structure, 109-135. Berlin: DeGruyter.

Brun, D. 2000. Discourse structure and definiteness in Russian. In *Proceedings of ConSOLE 8*, eds. C. Czinglar, K. Köhler, E. Thrift, E. J. van der Torre and M. Zimmermann. 45-60. Vienna, Austria.

Fodor, J. D., and I. A. Sag. 1982. Referential and quantificational indefinites. *Linguistics and Philosophy* 5: 355-398.

Hyams, N. 1996. The underspecification of functional categories in early grammar. In *Generative perspectives on language acquisition*, ed. H. Clahsen. Amsterdam: Benjamins.

Ionin, T. 2003. Article semantics in second language acquisition. Ph.D. dissertation, MIT.

Isačenko, A. 1966. O grammatičeskom porjadke slov. *Voprosy jazykoznanija* 6: 27-34.

Karmiloff-Smith, A. 1980. Psychological processes underlying pronominalization and non-pronominalization in children's connected discourse. In *Papers from the Parasession on Pronouns and Anaphora, CLS,* eds. J.Kreiman and E. Ojeda. 222-250.

King, T. H. 1995. *Configuring topic and focus in Russian.* Stanford, CA: CSLI Publications.

Milsark, G. 1977. Toward an explanation of certain peculiarities of the existential construction in English. *Linguistic Analysis* 3: 1-30.

Nesset, T. 1999. The realization of (in)definiteness in Russian, *Poljarnyj Vestnik* 2.

Partee, B. 1992. Topic, focus and quantification. *Proceedings of the 1991 SALT conference*, eds. S. Moore and A. Winner. 159-188. Cornell University.

Schaeffer, J. 1997. Direct object scrambling in Dutch and Italian child language. Ph.D. dissertation, UCLA.

Schaeffer, J. and L. Matthewson 1999. On determiner choice in English child language. Paper presented at GALA 1999, Potsdam.

Schafer, R., and J. de Villiers. 1999. Imagining articles: What *a* and *the* can tell us about the emergence of DP. In. *Proceedings of BUCLD 24*, eds. S.Catherine Howell, S. A. Fish, and T. Keith-Lucas.

Vallduví, E. 1992. *The informational component.* New York: Garland.

Yokoyama, O. 1986. *Discourse and word order.* Amsterdam: Benjamins.

FASL 13, 80–91
Michigan Slavic Publications
2005

An Experiencer Analysis of Subject Idioms in Russian

Angelina Chtareva
University of Arizona

Within the framework of Distributive Morphology (DM) a strong prediction is made about the impossibility of subject idioms, i.e., idioms consisting of a lexically fixed subject and a verb. This prediction follows from theoretical assumptions about the special status of the external argument and its relationship to the verb (Marantz 1984, Kratzer 1996) and a strict locality requirement on the availability of special meanings (Marantz 1997). The existence of subject idioms in a language thus poses a problem for DM and calls for explanation. This paper examines subject idioms in Russian and explains, in a way which is consistent with the mainstream theory of predicate-argument structure, why they are possible. My analysis demonstrates that these idioms are not true subject idioms because their subjects are not external arguments but are base-generated internal arguments. Russian subject idioms thus do not present a problem for DM.

1 Subject Idioms in Russian

In Russian there are number of idioms that seem to be true subject idioms. The sentences in (1)-(5) have an idiom (italicized) with the transitive verbs *(s)xvatit'* 'grab', *ukusit'* 'bite', *zaest'* 'eat up', *mučat'* 'torment', *oxvatit'* 'seize', an idiomatic subject marked with nominative case, and a non-idiomatic object marked with accusative case. The subject is either animate as in (1-2) or inanimate as in (3)-(5); the non-idiomatic object is always a person. Crucially, these sentences are not passive, but active constructions with the objects scrambled to the sentence-initial position.

(1) Ivana *čut' kondraška ne (s)xvatila.*
Ivan$_{ACC}$ almost kondrashka$_{NOM}$ not grabbed
'Ivan was frightened to death.'[1]

[1] *Kondraška* is by origin a personal name, but in this idiom it does not refer to a person. In its archaic idiomatic usage the word used to refer to paralysis, but most native speakers

(2) *Kakaja muxa* tebja *ukusila*?
What fly_{NOM} you_{ACC} bit
'Why are you so angry?'

(3) Ivana *zaela sovest'*.
Ivan_{ACC} ate-up $\text{conscience}_{\text{NOM}}$
'Ivan had a guilty conscience.'

(4) Ivana *mučali somnenija*.
Ivan_{ACC} tortured $\text{doubts}_{\text{NOM}}$
'Doubts tormented Ivan'.

(5) Ivana *oxvatil strax*.
Ivan_{ACC} seized fear_{NOM}
'Fear seized Ivan'.

At the first glance the idioms in (1)-(5) can be characterized as true subject idioms in Marantz's sense, since they are verbal idioms which have a fixed logical subject and a free internal argument position. Such idiomatic combinations should be structurally impossible for reasons outlined in the next section[2].

2 Why Are Subject Idioms Problematic for DM?

Within the DM model there is no lexicon in the sense of a storage of sound-meaning correspondences. Any expression whose meaning is not predictable from its morphosyntactic structural description is understood as an idiom (Marantz 1997). Such understanding of the term includes conventional idioms, which are defined as "groups of words in a particular syntactic arrangement that receive a 'special' interpretation" (Harley and Noyer 1999:8). All idioms require Encyclopedia entries, which connect the output of the grammar to non-compositional meanings. Thus, within the framework of DM no distinction is made between the derivation of idiomatic (in the conventional sense) and non-idiomatic sentences. Idiom chunks undergo all the syntactic and morphological processes that do other roots. When all merge-and-move operations on abstract morphemes are completed and the bundles of

---

are not aware of this meaning anymore. In 19th century literature, the word appears in an idiom *X xvatil kondraška* meaning 'X was paralyzed'. The idiom in (1) is a modern-day variant of this archaic idiom. It cannot undergo word order alterations other than OSV with the focus stress on *Kondraška*, since it immediately follows the focus marker *čut'*.

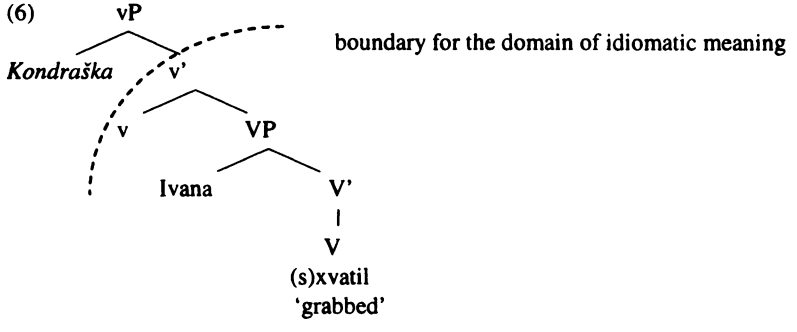
[2] The idioms in (4)-(5) seem to be less frozen and more compositional than the ones in (1)-(3).

features are shipped to LF, roots receive special meanings from the Encyclopedia depending on their syntactic context. For example, the verb *kick* in the context of *to_____ the bucket* receives from the Encyclopedia the special meaning 'die'.

DM makes a prediction that true subject idioms (verbal idioms with a frozen external argument and an open object position) should not exist. This prediction is based on the assumption that the external argument is introduced by a separate head (Voice/ v), which serves as a locality domain for special meanings, i.e., "nothing above this head may serve as the context for the special meaning of any root below this head, and vice versa" (Marantz 1997:208).

Marantz's locality requirement on idiomatic interpretation predicts that if the idiomatic sentences in (1)-(5) indeed have an external argument, they could receive only a non-idiomatic interpretation, since the external argument in Spec-vP cannot serve as the context for the idiomatic interpretation of the verb root. The prediction comes true for the idiomatic sentences in (1)-(2), since their subject can be interpreted as an animate noun, in which case these sentences have a literal interpretation. Consider the idiom in (1): if the subject *Kondraška* is the external argument and is projected by little v, the verb *(s)xvatit'* 'grab' will not receive the special meaning 'frighten' since it does not appear in the immediate context of *kondraška*, and the sentence will receive a non-idiomatic interpretation 'Some person Kondraška grabbed Ivan'.

(6)



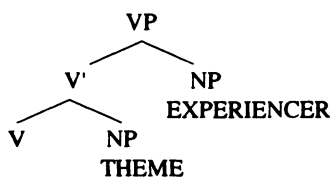
The other set of problems comes from theta assignment: with non-idiomatic transitive predicates the external argument receives its thematic role Agent from the Agent-projecting head v. But in (1) the thematic roles are not Agent and Theme but Experiencer and Causer. In fact, in all the above examples the non-idiomatic object is the Experiencer of an emotional state induced by the idiomatic predicate consisting of a transitive verb and an idiomatic subject which has the role of Causer. Based on the semantics of these idiomatic sentences, we

can hypothesize that they involve psychological causative verbs known in the literature as Object Experiencer (ObjExp) verbs. These verbs demonstrate special syntactic behavior, leading some linguists (Belletti and Rizzi 1988 (henceforth B&R), Pesetsky 1995, et al.) to conclude that their main property is the absence from their theta-grid of the external argument[3].

3 Analysis

I argue that the idiomatic sentences presented in (1)-(5) above should be analyzed as ObjExp predicates with no external argument, but rather with two internal arguments, Theme/Causer and Experiencer, both of which are generated within the VP. For the purposes of this paper, I will adopt B&R's) unaccusative analysis of such predicates in Italian. B&R argue for the configuration of arguments schematized in (7).

(7) Base-generated structure of ObjExp verbs in B&R (1988)



This relative position of arguments is argued for on the basis of the fact that in Italian as well as in English the Experiencer in the object position can bind an anaphor contained within the subject, giving the backward binding paradigm exemplified in (8):

(8) Each other$_i$'s remarks annoyed John$_i$ and Mary$_j$.

For the Experiencer to be able to bind the anaphor within the subject, argue B&R, the Experiencer must c-command the Theme, at least at the level of D-structure, thus suggesting the configuration in (7). In Russian, we also observe the backward binding paradigm in the case of ObjExp verbs. The next section demonstrates that the idiomatic predicates under discussion pattern with non-idiomatic ObjExp predicates with respect to binding.

---

[3] The terminology differs from author to author: Theme (B&R), Cause (Grimshaw 1990, Kratzer 1996), Causer (Pesetsky 1995), Stimulus (Arad 1998).

4 Evidence from Backward Binding

The backward-binding paradigm is attested in Russian with ObjExp verbs. Consider the binding of the reciprocals *drug druga* 'each other' in (9). The Experiencer can bind an anaphor inside the subject with ObjExp predicates (9a-b) but not of a regular transitive predicate (9c):

(9) a. Ivana i Mariju radujut uspexi drug druga.
[Ivan$_{ACC}$ and Mary$_{ACC}$]$_i$ gladden success$_{NOM}$ [each other]$_i$
'Ivan and Mary were gladdened by each other's success.'

b. Ivana i Mariju bespokojat problemy drug druga.
[Ivan$_{ACC}$ and Mary$_{ACC}$]$_i$ worry problems$_{NOM}$ [each other]$_i$
'Ivan and Mary are worried by each other's problems.'

c. *Roditeli drug druga ne priglasili Ivana i Mariju.
Parents$_{NOM}$ [each other]$_i$ not invite [Ivan$_{ACC}$ and Mary$_{ACC}$]$_i$
'Ivan and Mary weren't invited by each other's parents.'

Both (9a-b) have ObjExp verbs and the Experiencers, *Ivan* and *Marija*, bind the reciprocals inside the nominative subjects. In (9c), on the other hand, the reciprocals are not licensed, since the object NP cannot bind into the subject NP of a transitive predicate[4]. This is the pattern attested in Italian and English ObjExp predicates as well.

Another instance of this pattern comes from cases when the anaphor is within the nominative subject. The accusative *Peter* binds the anaphor within the subject only in the case of an ObjExp predicate (10a) but fails to do so in the case of a regular transitive predicate (10b), which follows the usual c-command requirement on the antecedent-anaphor relation.

(10) a. Sluxi o sebe bespokojat Petra.
[Gossip$_{NOM}$ about self$_i$] worry [Peter$_{ACC}$]$_i$
'Gossip about him worries Peter.'

b. *Sluxi o sebe ploxo xarakterizujut Petra.
[Gossips$_{NOM}$ about self$_i$] badly characterize [Peter$_{ACC}$]$_i$
'Gossip about him poorly characterizes Peter.'

---

[4] As pointed out by an anonymous reviewer, (9c) is ungrammatical on the alternate word order as well:

(i) * Ivana i Mariju ne priglasili roditeli drug druga .
[Ivan$_{ACC}$ and Mary$_{ACC}$]$_i$ not invite parents$_{NOM}$ [each other]$_i$

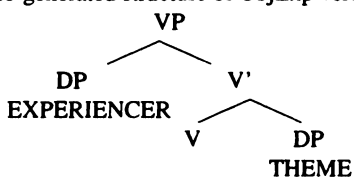
The primary piece of evidence in favor of a psychological analysis of the idiomatic verbs in question comes from the difference in binding between idiomatic and non-idiomatic usages of the same verb. When the verb *ovladet'* 'capture' is idiomatic and psychological, the backward binding paradigm is attested (11a), which is not the case when this verb is used as a regular transitive verb (11b).

(11) a. Strax za armii drug druga ovladel Moskvoj i Pskovom.
[Fear$_{NOM}$ for armies each other$_i$] captured [Moscow and Pskov]$_i$
'Fear for each other's armies seized Moscow and Pskov'.

b. *Armii drug druga ovladeli Moskvoj i Pskovom.
[Armies$_{NOM}$ each other$_i$] captured [Moscow and Pskov]$_i$
'Each other's armies captured Moscow and Pskov.'

On the basis of these instances of anaphor binding by non-nominative arguments, we can conclude that in Russian ObjExp predicates the Experiencer can bind an anaphor within Theme/Causer. Such a binding paradigm suggests the following configuration for ObjExp predicates in Russian, similar to the one B&R propose for Italian.

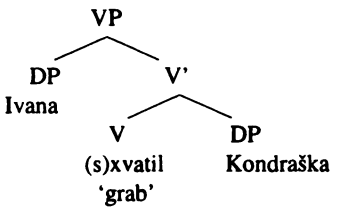
(12) Base-generated structure of ObjExp verbs in Russian[5]



Going back to the idiomatic predicates in (1)-(5), we observe that the same thematic relations which hold for non-idiomatic ObjExp predicates also hold for the idiomatic ones. Notice that the Experiencer analysis of idiomatic predicates allows for idiom chunks to be base-generated in the most local of all configurations: the verb and its complement. Under such an analysis the idiomatic chunks are merged first and the idiomatic verb assigns the theta-role Theme/Causer to its idiomatic complement; its other theta-role, Experiencer, is discharged to a DP merged into its specifier.

[5] The base-generated position of the Experiencer is language specific: to the left in Russian and German (B&R, p. 342), to the right in Italian. Kondrashova (1993) also suggests this configuration for Russian dative Experiencers in dative-subject constructions like *Maše$_{DAT}$ žalko Mišu$_{ACC}$* 'Maša is sorry for Miša'.

(13) Base-generated position of arguments in *Ivana čut' Kondraška ne sxvatil* = 'Ivan was frightened to death.'



Binding tests applied to these expressions again confirm that the Experiencer is positioned higher in the tree than the Theme/Causer. Two of the idioms can be modified with a PP containing reciprocals *drug druga* 'each other' within the Theme/Causer and these reciprocals are bound by the Experiencer:

(14) Ivana i Mariju mučali somnenija o čestnosti drug druga.
[Ivan and Maria]$_i$ tormented [doubts about honesty each other]$_i$
'Ivan and Maria were tormented by doubts about each other's honesty.'

(15) Ivana i Mariju oxvatil strax za buduščeje drug druga.
[Ivan and Maria]$_i$ seized [fear for future each other$_i$]
'Ivan and Maria were seized by fear for each other's fu.'

So far we have seen that the idiomatic predicates in question pattern with ObjExp predicates with respect to binding.

5 Evidence for the Experiencer Analysis from Word Order

This section provides additional evidence from word order in support of the ObjExp analysis of Russian subject idioms with transitive verbs.

5.1 Word order of sentences with ObjExp idiomatic verbs

It is standardly accepted in the literature on Russian word order that the discourse-neutral order is SVO (Nom-V-Acc)[6]. I demonstrate that while this is true for sentences with regular transitive verbs, sentences with ObjExp verbs behave differently. Consider the sentences in (16a-c): they

[6] Since the terms "subject" and "object" can be ambiguous between the base-generated and surface position of arguments, I use case-marking labels in my discussion of word order.

all are responses to a question that is usually used to yield discourse neutral, null-theme utterances as answers:

(16) *Question*: Čto slučilos'?
'What happened?'
Regular transitive verb:
a. Ivan polučil telegrammu. Nom-V-Acc
$Ivan_{NOM}$ received $telegram_{ACC}$
'Ivan received a telegram.'

ObjExp tansitive verbs:
b. Ivana rasstroili novosti. Acc-V-Nom
$Ivan_{ACC}$ upset $news_{NOM}$
'Ivan was upset by the news.'
c. Ivana bespokojat roditeli. Acc-V-Nom
$Ivan_{ACC}$ worry $parents_{NOM}$.
'Ivan is worried about his parents.'

These data indicate that Nom-V-Acc is indeed a discourse-neutral order for regular transitive verbs, but for transitive ObjExp verbs Acc-V-Nom is discourse-neutral. The affirmative idiomatic sentences introduced in (1)-(5)[7] and repeated in (17), pattern with ObjExp verbs. They all have Acc-V-Nom order when pronounced with neutral intonation. The sentence in (17a) has a "frozen" focused word order[8] and does not follow the pattern.

(17) *Question*: Čto slučilos'?/ Čto proisxodilo?
'What happened?'/'What was going on?'
a. Ivana čut' kondraška ne (s)xvatil. Acc-Nom-V
$Ivan_{ACC}$ almost $kondrashka_{NOM}$ not grabbed
'Ivan was frightened to death'.

b. Ivana zaela sovest'. Acc-V-Nom
$Ivan_{ACC}$ ate-up $conscience_{NOM}$
'Ivan had a guilty conscience'.

---

[7] Sentence in (2) is interrogative and is excluded.

[8] The idiom in (17a) is "'frozen'" in that it resists scrambling and can only appear in Acc-*Nom*-V order with a focus stress on the subject. This focus stress is not identificational in the sense of Kiss (1998), since it doesn't involve picking an element out of a set, but is rather emotive in the sense of King (1995), who describes it as emphatic stress on a constituent in "emotive" speech.

c. Ivana mučali somnenija. Acc-V-Nom
Ivan$_{ACC}$ tortured doubts$_{NOM}$
'Ivan was tormented by doubts'.

d. Ivana oxvatil strax. Acc-V-Nom
Ivan$_{ACC}$ seized fear$_{NOM}$
'Fear seized Ivan'.

It is worth noting that even in the "frozen" idiom in (17a), the Experiencer occupies the sentence-initial position, a feature common to all idioms discussed in this paper. What is essential here is that the idioms in (17b-d) pattern with ObjExp verbs: in a discourse-neutral context the word order is Acc-V-Nom or Experiencer-Verb-Theme.

5.2 Experiencer and EPP checking

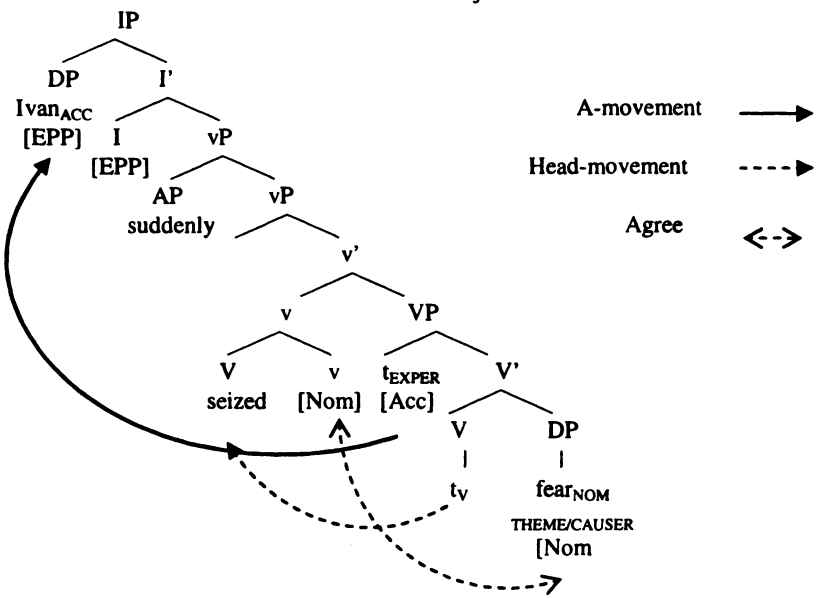
Why do Experiencers always appear sentence-initial in sentences with ObjExp predicates? One possible explanation is based on Bailyn's (2003) analysis of scrambling in Russian. He demonstrates that the object of a transitive verb can undergo A-movement to Spec-IP for EPP checking. I propose to extend this analysis to ObjExp predicates: the Experiencer raises to Spec-IP to check the EPP feature of Infl, since it is positioned higher in the tree than Theme/Causer and thus is the closer target. On the basis of these assumptions, we can now suggest a complete derivation for the idiomatic sentences in (1)-(5). Consider (5) repeated as (18) below but modified by an adverb *vnezapno* 'suddenly' to demon-strate that the Experiencer has indeed moved out of vP (taking the adverb as marking the vP boundary).

The diagram in (18b) shows that the Experiencer and the Theme/Causer are base-generated within VP, in Spec-VP and as sister to V respectively. Accusative case on the Experiencer DP is assigned by the main verb[9]; nominative case is licensed on the Theme/Causer under Agree by little v. The EPP feature of Infl is checked by the Experiencer *Ivan* since it is the closer target.

(18) a. Ivana vnezapno oxvatil strax.
Ivan$_{ACC}$ suddenly seized fear$_{NOM}$
'Ivan was suddenly seized by fear.'

[9] I follow B&R (1988) in their argument that in ObjExp predicates the Experiencer is inherently marked with accusative case by the verb.

b. Full derivation of a sentence with a subject idiom



5.3 Interaction with Negation

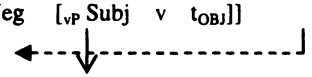
In section 5.1 we saw that sentences with ObjExp predicates differ from regular transitive sentences in word order. Another difference between the two kinds of predicates emerges when negation is introduced into the sentence. In sentences with non-idiomatic transitive verbs, negation is grammatical with SVO (Nom-V-Acc) order but not with OVS (Acc-V-Nom) order. Crucially, these facts obtain only with discourse-neutral intonation.

(19) a. Ivan ne kupil knigu. Nom-Neg-V-Acc
Ivan$_{NOM}$ not bought book$_{ACC}$
'Ivan didn't buy the book.'

b. [$_{TP}$ Subj T Neg [$_{vP}$ t$_{SUBG}$ v Obj]]

(20) a. *Knigu ne kupil Ivan. *Acc-Neg-V-Nom
Book$_{ACC}$ not bought Ivan$_{NOM}$
'As for the book, Ivan didn't buy it.'

b.* [$_{TP}$ Obj T Neg [$_{vP}$ Subj v t$_{OBJ}$]]



A possible explanation for the ungrammaticality of (20a) goes along the lines of Bailyn's (2003) analysis of Generalized Inversion, according to which the verb must raise to T when Spec-IP is filled with a non-nominative constituent. In the case of (20a), Neg blocks this movement, rending the sentence ungrammatical, as schematized in (20b). However, with ObjExp verbs negation is grammatical in the Acc-V-Nom order.

(21) a. Ivana ne bespokojat novosti. Acc-Neg-V-Nom
Ivan$_{ACC}$ not worry news$_{NOM}$
'Ivan is not worried by the news'.

b. [$_{TP}$ Experiencer T Neg [$_{vP}$ v [$_{VP}$ t_{EXP} t_V Causer]]

As shown in (21b), in the ObjExp predicate the verb does not raise to T and thus negation does not present a problem. Crucially, the idiomatic predicates under investigation pattern with ObjExp verbs in that they allow negation in Acc-V-Nom order. Consider two of the subject idioms with negation:

(22) a. Ivana bol'še ne *mučali somnenija*. Acc-Neg-V-Nom
Ivan$_{ACC}$ anymore not tormented doubts$_{NOM}$
'Ivan wasn't tormented by doubtsanymore.'

b. Ivana bol'še ne *oxvačivaet strax*. Acc-Neg-V-Nom
Ivan$_{ACC}$ anymore not seized fear$_{NOM}$
'Ivan is not seized by fear anymore.'

In this section, I have presented evidence that idiomatic predicates with transitive verbs pattern with ObjExp predicates in the discourse-related distribution of arguments. In discourse-neutral contexts (Acc-V-Nom for psych-predicates), the Experiencer always occupies sentence-initial position. The sentences with subject idioms also allow negation in Acc-Neg-V-Nom order, like other sentences with ObjExp verbs.

6 Conclusions

This paper provides support for the view of idioms argued for by Distributed Morphology. It demonstrates not only that the predictions made by DM about the locality restrictions on idiomatic interpretation hold for Russian, but also that there is nothing idiosyncratic in the derivation of idioms: they follow the same syntactic operations that their non-idiomatic counterparts do. It is the type of predicate, ObjExp or regular transitive, which determines whether the idiomatic meaning is

available, since only in the first case is the locality restriction on the idiomatic interpretation observed.

References

Arad, Maya. 1998. Psych notes. *UCLA Working Papers in Linguistics* 10: 1-22.

Bailyn, John. 2003. Does Russian Scrambling Exist? In *Word Order and Scrambling,* ed. Simin Karimi, 156-176. Oxford: Blackwell.

Belletti, Adriana, and Luigi Rizzi. 1988. Psych-verbs and theta-theory. *Natural Language and Linguistic Theory* 6: 291-352.

Grimshaw, Jane. 1990. *Argument Structure.* Cambridge, MA: MIT Press,

Harley, Heidi, and Rolf Noyer. 1999. State-of-the-article: Distributed Morphology. In *GLOT International* 4.4: 3-9.

King, Tracy. 1995. *Configuring Topic and Focus in Russian.* Stanford, CA: CSLI Publications.

Kiss, Katalin. 1998. Identificational Focus versus information Focus. *Language* 74.2: 245-273.

Kondrashova, Natalia. 1996. The Syntax of Existential Quantification. Ph.D. dissertation, University of Wisconsin, Madison.

Kratzer, Angelika. 1996. Severing the external argument from its verb. In *Phrase Structure and the Lexicon,* eds. Johan Rooryck and Laura Zaring, 109-37. Dordrecht: Kluwer.

Marantz, Alec. 1984. *On the Nature of Grammatical relations.* Cambridge, MA: MIT Press.

Marantz, Alec. 1997. No escape from syntax: Don't try morphological analysis in the privacy of your own lexicon. In *University of Pennsylvania Working Papers in Linguistics,* ed. A. Dimitriadis, L. Siegel, et al., 4.2: 201-225.

Pesetsky, David. 1995. *Zero Syntax: Experiencers and Cascades.* Cambridge, MA: MIT Press.

FASL 13, 92–103
Michigan Slavic Publications
2005

Redefining the Russian Adversity Impersonal: A Construction-Based Account*

Laura Elaine Davies
Princeton University

1. Introduction

This paper examines the Russian impersonal[1] sentence pattern known in the literature as the Adversity Impersonal (A-I), exemplified in (1) and (2) below:

(1) Soldata ranilo pulej.
soldier$_{ACC}$ wounded$_{NEU.3.SG}$ bullet$_{INST}$
'The soldier was wounded by a bullet.'

(2) Lodku uneslo vetrom.
boat$_{ACC}$ carried-away$_{NEU.3.SG}$ wind$_{INST}$
'The boat was carried away by the wind.'

Earlier investigations (Babby 1994, Lavine 2000, Lavine and Freidin 2002) restrict this sentence pattern to transitive verbs only, with the addition of an adversely affected internal argument marked with ACC case and a post-verbal oblique argument. An important constraint on the use of the A-I has also been identified, namely that "A-Is assert that the event they denote is uncontrolled with respect to human beings" (Babby 1994:30). The uncontrolled-event meaning arises from the compositional combination of the following three factors: an indirect internal argument denoting an uncontrollable entity, the elimination of the AGENT argument, and the use of impersonal morphology.

In this paper I will show that intransitive sentences with the same uncontrolled-event semantics as the A-I have been left unaccounted for

* I am especially grateful to Mirjam Fried, Leonard Babby, Laura Michaelis, and William Raymond for valuable discussions and helpful comments. I am also grateful to the anonymous readers who provided excellent commentary.

[1] For a comprehensive study of Russian impersonal sentences, refer to Galkina-Fedoruk (1958).

and that the compositional analysis cannot account for the full range of entailments found in A-I sentences. Using the non-derivational, constraint-based framework of Construction Grammar (Fillmore 1989, Fried and Östman to appear, Goldberg 1995, Kay and Fillmore 1999), I propose that these sentences are licensed by three argument-structure constructions that differ in transitivity and affectedness and whose common semantic denominator is that of uncontrolled event.

2 Limitations of Previous Accounts

There is a striking similarity between the transitive examples in (1) and (2) and the intransitive examples in (3) and (4) below:

(3) U Garri **otleglo** ot serdca.
of Harry relieved$_{NEU.3.SG}$ from heart
'Harry felt relieved.' (Harry Potter)

(4) Na Garri otkuda-to **povejalo** teplom, zapaxom syroj zemli
on Harry from-someplace blew$_{NEU.3.SG}$ warmth$_{INST}$ odor$_{INST}$ damp earth
'From out of nowhere, warmth and the odor of damp earth began to blow gently on Harry.' (Harry Potter)

The examples above share a number of properties with (1): impersonal morphology, a post-verbal INST noun or PP, the lack of an AGENT, and most importantly they also exhibit the uncontrolledevent semantics. However, these sentences have not been accounted for in previous studies.

In addition to transitivity restrictions, all A-Is have been said to include a [–controlled] feature on the INST-marked indirect internal argument or θ_3, which serves as the source of adversity (Babby 1994:28, 31, 60). Because there is nothing about the INST case per se that entails lack of control, the lack of control must then be contributed by the semantics of the nominal. And indeed, natural forces are often found to serve as the source of adversity, as in (5):

(5) Menja oslepilo molniej.
I$_{ACC}$ blinded$_{NEU.3.SG}$ lightning$_{INST}$
'I got blinded by lightning.'

However, many of the nouns that can also serve as the INST-marked sources of adversity in A-Is are not as obviously uncontrolled as forces of nature. For example, they can be substances or materials or inanimate objects (Babby 1994:37). But none of these categories provides information about human control or the lack of it.

Evidence in support of the claim that all of the sources of adversity share the common semantic feature [–controlled] has been adduced from the examples in (6) and (7), which suggest that an inanimate object such as a brick (7) can be a source of adversity, while an inanimate object such as a stick cannot (6):

(6) *Ego rezko udarilo palkoj.
he$_{ACC}$ hard hit$_{NEU.3.SG}$stick$_{INST}$
'A stick struck him.'

(7) Ego rezko udarilo kirpičom.
he$_{ACC}$ hard hit$_{NEU.3.SG}$ brick$_{INST}$
'A brick struck him.'

A brick, it is argued, can strike a person accidentally, while the infelicity of (6) is due to the fact that the stick typically requires human control to maneuver (Babby 1994:29-30). However, there is no property inherent in the stick itself that prevents it from falling and accidentally striking someone just as a brick can. To argue that the sources themselves are [–controlled] thus necessarily depends upon a context where it is clear that the source is being used in a spontaneous sense.

The following are examples of A-Is that show substances and inanimate objects that are controllable by humans:

(8) Ona povernula vyključatel' i komnatu zalilo
she$_{NOM.FEM.SG}$ turn$_{FEM.SG.PAST}$ switch$_{ACC.FEM.SG.}$ and room$_{ACC}$ flooded$_{NEU.3.SG}$
bespoščadno jarkim èlektričeskim svetom
mercilessly bright$_{INST.MASC.SG}$ electric$_{INST.MASC.SG}$ light$_{INST.MASC.SG}$
'She flipped on the switch and mercilessly bright electric light flooded the room.'

(9) Ves' bereg zapolnilo muzykoj.
whole shore$_{ACC}$ filled$_{NEU.3.SG}$ music$_{INST}$
'Music filled the whole shore.'

Light, if produced by electricity, and music, by definition, are inherently [+ controlled] nominals.

In addition, there are two other classifications that are identified as candidates for INST-marked nominal sources of adversity: vehicles and modes of transportation and weapons of war. These are of course also inanimate objects but are semantically distinct enough to form specific subclasses. They are exemplified in (10) and (11) below:

(10) Ego sbilo s nog motociklom.
he$_{ACC}$ knocked$_{NEU.3.SG}$ off feet motorcycle$_{INST}$
'A motorcycle knocked him down.'

(11) Menja ranilo streloj.
I_{ACC} $wounded_{NEU.3.SG}$ $arrow_{INST}$
'I was wounded by an arrow.'

A controlled instrument is defined as "an instrument whose presence normally presupposes an agent to use it" (Babby 1994:28). Intuitively, vehicles and weapons are highly controlled objects that require a sentient, trained, or skilled human being to control them. Therefore, an interesting problem presents itself in that vehicles and weapons, which are [+controlled], can be used in A-Is, whose main function is said to be assertion of an uncontrolled event. While a motorcycle, as a vehicle, is intrinsically controllable, the sentence in (10) as a whole expresses an unintended effect. The source of this effect cannot therefore be the inherent meaning of the nominal.

The main problem with the obligatory [–controlled] feature on the indirect internal argument, then, lies in the fact that the nouns which are associated with the θ_3 (SOURCE) role cannot be categorized as such independently of this syntactic pattern, even according to the proposed definition of control. The control feature of the indirect internal arguments can thus be better analyzed as follows:

Table 1: Noun Control

uncontrollable natural forces	[– controlled]
substances or materials	[+ or – controlled]
inanimate objects	[+ or – controlled]
vehicles, transportation, weapons	[+ controlled]

At this point, it is essential to consider the difference between inherent control and interpreted control of the noun classes in Table 1. Forces of nature, which occur quite frequently in A-Is, are clearly [–controlled] and are thus easily interpreted as such. Substances, materials, and other types of inanimate objects are also frequent in this pattern, but crucially\ these inanimate objects are neither inherently [+controlled] nor [–controlled]; rather, they are interpretable as [+ or –controlled] depending on context. Vehicles, modes of transportation, and weapons are inherently [+controlled], but the circumstances concerning the use of these objects allow them to be interpreted as [–controlled] when the event as a whole is uncontrollable; the vehicles and weapons themselves may actually still be controlled or maneuvered by humans.

To summarize, the feature [–controlled] is not a requirement for the θ_3 nominals that serve as sources of adversity. Rather, A-I sentences may contain nominals marked with a variety of [control] features, and thus the

[–controlled] interpretation of the nominal is context-dependent and not part of its lexical meaning.

Another factor that is said to play a role in rendering the uncontrolled-event meaning to the A-I sentences is Deagentification—the elimination of the AGENT role and external argument. However, there is evidence that calls this property into question. Examples (2) and (3) cannot be accounted for in terms of deagentification. In the case of (3), the verb simply does not license an AGENT argument to begin with. And yet the impersonal form and the 'lack-of-control' semantics are still present in the example. In (2) the AGENT can be seen as the inanimate effector, wind. However, this role is not actually eliminated, but is instead de-emphasized.

There is also evidence that the lack-of-control semantics present in the A-I sentences is not contributed to by the impersonal morphology. This argument is based on the fact that controlled events can occur *with* this morphology, and uncontrolled events can occur *without* this morphology. In (12) speaking is clearly a controlled event, and yet the sentence has impersonal morphology:

(12) Ob ètom govorilos' v stat'e.
about this speak-self$_{NEU.3.SG}$ in article
'This was talked about in the article.'

In (13) there is no agent role expressed and the event is presented as uncontrolled, yet no impersonal morphology is present.

(13) pulja ranila soldata
bullet$_{NOM.FEM.SG}$ wounded$_{FEM.SG.PAST}$ soldier$_{ACC.MASC.SG}$
'the bullet wounded the soldier'

Therefore, the uncontrolled event semantics is not necessarily influenced by the presence or absence of impersonal morphology.

3 Lexical Semantics of A-I Verbs

I have shown thus far that (i) the θ_3 nominals do not contribute an obligatory [–controlled] feature to A-Is, (ii) deagentification does not necessarily take place and therefore does not determine the semantics of the sentences, and (iii) impersonal morphology does not entail uncontrolled events. For the sake of completeness I will also consider the lexical semantics of the verbs that appear in A-Is in order to test for a salient semantic feature which could contribute to the uncontrolled-event semantics of the sentences.

Verbs that participate in A-Is can indeed be further categorized

according to semantic classes. Categories encountered in the data include at least the following:

1. COVERAGE OF A SURFACE
2. VERBS OF FILLING
3. CAUSED MOTION
4. MOTION OVER A SURFACE
5. MOTION THROUGH A SURFACE
6. MOTION ON A SURFACE
7. MOTION AGAINST A SURFACE
8. MOTION FROM A SURFACE
9. PHYSICAL DAMAGE
10. PERCEPTION/SOUND

However, there is no single semantic feature which is a property of all of the verbs[2]. Most of the verbs involve the broad notion of **motion in relation to a surface**, but this is neither an obligatory property for every semantic class (cf. groups 9 and 10), nor a contribution to the main property of A-Is, assertion of an uncontrolled event. Thus, we must look beyond the lexical semantics of the verbs involved to determine where indeed the uncontrolled-event reading of A-Is comes from.

4 A Constructional Analysis of Uncontrolled-Event Patterns

Since neither the nouns nor the verbs in this sentence pattern, when taken in isolation, assert an uncontrolled event, I conclude that this property is contributed by the construction as a whole. Construction Grammar (CxG) is a particularly appropriate theory within which to examine impersonal sentences such as these, because it adheres to the idea that the whole of a complex linguistic form is rarely the sum of its parts. If the whole of an expression conveys a particular meaning that cannot be gleaned from any of its parts independently, then the meaning must be seen as conventionally associated with the pattern as a whole.

The construction is a concept that capitalizes on the fact that the concurrent application of numerous properties is indeed what renders an overall meaning which is unpredictable from the parts alone. Constructional analysis also provides a way to clarify the relations between the various types and subtypes of a more general pattern. I propose that A-Is are in fact a family of three relatively complex form-

[2] One anonymous reader pointed out that the unifying semantic feature may be that there is no AGENT role expressed in the syntax. However, this is true only of the verbs when used in the uncontrolled event constructions. Otherwise, the verbs that participate in the construction may contain an AGENT role in the valence: cf. *Ja ranila Ivana streloj.*

meaning patterns, one transitive and two intransitive. These patterns express the assertion of an uncontrolled event even though the parts themselves do not inherently express lack of control. This family can then be analyzed with respect to the numerous other impersonal patterns in Russian to form a network of impersonalization.

The transitive pattern known as the A-I and discussed in previous accounts is labeled here as the Uncontrolled Transitive Impersonal (UTI). In this pattern there is an affected entity which receives ACC case and an INST or PP CAUSE. Intransitives comprise two patterns. One of these, which like the UTI has an affected entity, is the Uncontrolled Affected Intransitive Impersonal (UAII). The other, which does not project an affected entity into the syntax, is the Uncontrolled Sensory-Experiential Intransitive Impersonal (USEII). Details and examples of the three constructions will be provided in the next section.

The uncontrolled event impersonals differ both formally and semantically from the ordinary transitive and intransitive sentence patterns in Russian in terms of (i) tense and aspect constraints, (ii) word order restrictions, and (iii) adverbial restrictions, as outlined below.

Ordinary transitive and intransitive sentences in Russian have no particular tense or aspect restrictions. Both perfective and imperfective aspects occur frequently, and both transitives and intransitives occur freely in all three tenses,past, present, and future. The verbs which occur three uncontrolled-event constructions, however, are overwhelmingly perfective and in the past tense[3] (see previous examples).

While the future tense can occur with uncontrolled event constructions, there is a restriction imposed on the sentences' reading: future sentences in these patterns are necessarily interpreted as warnings rather than predictions:

(14) Prišvartujsja k beregu, a to lodku uneset vetrom.
tie-self to bank or else $boat_{ACC}$ $carry\text{-}away_{PERF.FUT.3.SG}$ $wind_{INST}$
'Tie your boat to the bank, or else the wind will carry it away.'

The warning reading is not a surprising extension of the future tense, considering that the primary function of these sentence patterns is to assert an uncontrolled event. It is impossible to predict into the future something uncontrolled or unexpected, but it is not impossible to speculate on it and thus warn about the possibility of such an occurrence. However, such a reading is not a property of Russian future tense as such.

[3] One anonymous reader has suggested that, based on the frequency of verbs like *paxnet* in the present imperfective, the preferential use of past-tense perfective verbs might not necessarily hold for USEII and UAII. Due to space limitations, this observation cannot be addressed here. However, it is addressed in Davies (forthcoming).

Word order in Russian is normally used to encode differences in information structure. For example, we find sentences in which the fronting of the direct object to initial position entails a contrastive meaning:

(15) Knigu ja kupila, a ne karandaš.
'It was a book I bought, not a *pencil.*'

However, there is no comparable information-structure effect in the UTI pattern. In UTI, fronting of the direct object is the neutral word order: DO-V-INST. Sentence (16) answers the question 'what happened?', while (15) cannot.

(16) Menja ranilo streloj.
'it was I who was wounded by an arrow'
'I was wounded by an arrow.'

Similarly, UAII exhibits the neutral word order $PP_{AFFECTED}$-V-PP_{CAUSE}. As with UTI above, in UAII below there is also no focal interpretation for these fronted affected entities. (17) answers the question 'what happened?'.

(17) U Garri otleglo ot serdca.
'it was Harry who felt relieved'
'Harry felt relieved.'

For USEII, the neutral word order is ADV/PP-V-$INST_{SOURCE}$. The neutral word orders of both UAII and USEII are quite different from the canonical intransitive neutral word orders in Russian (Bailyn 1995, 2004).

In addition to these formal restrictions, there is a semantic restriction on the adverbials that can be used in UTI, UAII, and USEII sentences: adverbials pertaining to deliberation or control are not possible in uncontrolled-event sentences, although they are often possible in variants with human subjects:

(18) a. *Menja prednamerenno ranilo streloj.
'I was intentionally wounded with an arrow (by accident).'
b. Ja prednamerenno ranila Ivana streloj.
'I intentionally wounded Ivan with an arrow.'

All of these idiosyncrasies must be specified as conventional properties of the constructions as a whole, unpredictable from other parts of Russian grammar.

5. Linking Patterns Resolved

This study proposes that the main communicative function of UTI, UAII, and USEII is assertion of an uncontrolled event through the de-emphasis of a CAUSE, whether AGENTIVE or non-AGENTIVE. This de-emphasis can occur in one of two ways, depending on the verb: either through the removal of an AGENT, as in (19), or through the assignment of non-privileged status to a CAUSE, as in (20). Under this approach, the intransitive uncontrolled event impersonals now are easily accounted for.

(19) a. Ivan zasypal ego podarkami.
'Ivan showered him with presents.'

b. Ego zasypalo podarkami.
'He got covered with presents.'

In (19a) the verb licenses an AGENT, *Ivan*. This AGENT is removed in (19b). The focus is on the event itself, which is uncontrolled.

In the intransitive uncontrolled-event impersonals like USEII in (20), just as with UTI, the focus is on the event itself. No AGENT is possible with the verb *zažurčat'*. The CAUSE, which in this example is the non-AGENTIVE shower, is de-emphasized and made the INST POINT OF ORIGIN of the sound in (20b), instead of the NOM subject in (20a):

(20) a. Duš zažurčal.
'The shower began to gurgle.'

b. Zažurčalo dušem.
'There was the gurgling of the shower.'

In this approach I treat the constructions as different argument-structure constructions. Argument-structure constructions, which are similar to Babby's (1998) diatheses, link semantic roles to their morphosyntactic realizations. Unlike with diatheses, much more information is allowed to be included in a construction, thus capturing the full detail necessary for adequately representing the speakers' understanding of a given pattern. In CxG, generalizations about systematic relationships between grammatical patterns are expressed through inheritance relations, as shown in the inheritance hierarchy below. For a concise explanation of inheritance, see Fillmore (1988) and Fried and Östman (to appear). In an inheritance hierarchy, each lower node adds something more specific to the general construction at the top. For example, more specific constructions, like USEII, inherit properties of the more general constructions (in this case, UAII), and then add their

own properties or override properties that are not applicable (see Figure 1).

Sentences subsumed under A-I in previous analyses are now subsumed under UTI. This construction accounts for examples such as *Menja ranilo streloj* and *Ego zasypalo podarkami*. It possesses all of the general family properties, and it also adds some more specific properties of its own, such as the restriction to transitive verbs, an affected entity, etc.

Intransitive verbs with the uncontrolled-event semantics, which were previously unaccounted for, are now unproblematic. There are two constructions that account for them: UAII accounts for examples with an affected entity such as *U Garri otleglo ot serdca* and *Na Garri povejalo teplom.* This construction also possesses all of the properties of the family, while adding its own: for example, it permits intransitive verbs only, and primarily these are verbs of affecting. There is also a more specific branch of the intransitive impersonals: USEII inherits the properties of UAII, and it adds more specific properties, namely that the verbs tend to be restricted to sound and perception, and, therefore, the INST or PP argument is a SOURCE role instead of a CAUSE. While this construction also has an affected entity in its semantics, it is not projected into the syntax as in the UAII construction.

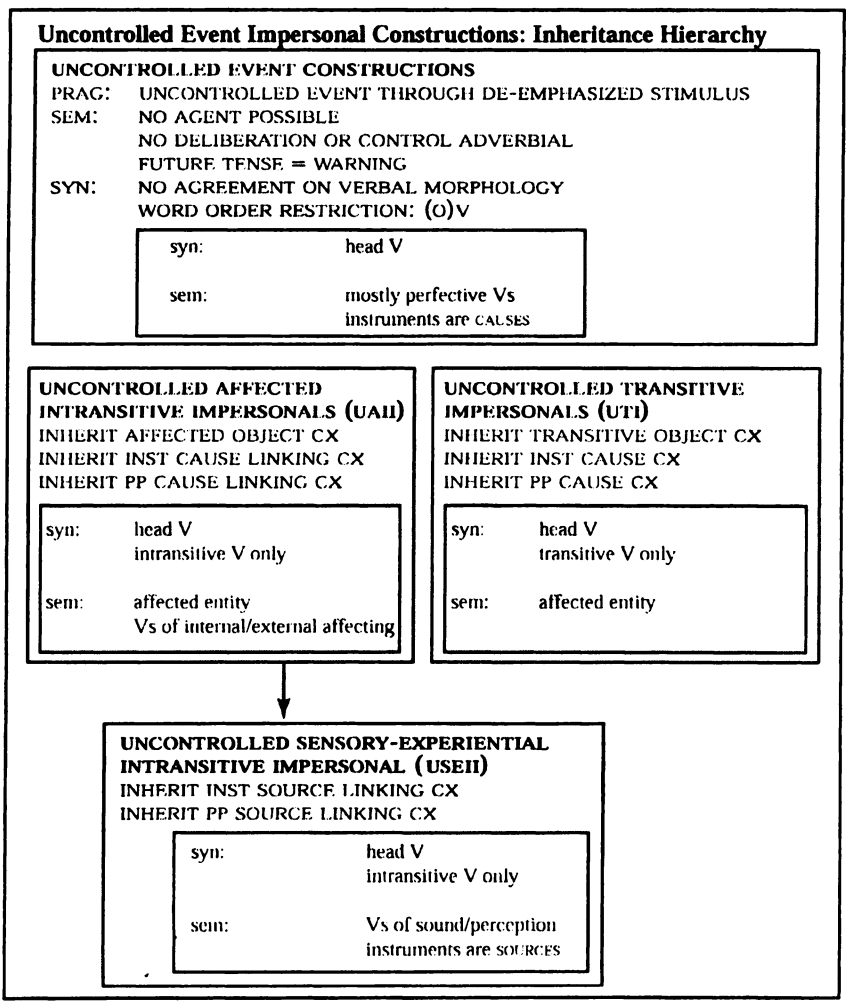
6 Concluding Remarks

Construction Grammar provides the tools for a more accurate analysis than was previously possible. Without it, the uncontrolled intransitive impersonals cannot be easily related to adversity impersonals because they do not fit the syntactic pattern exactly (i.e., they do not possess an ACC direct object). However, they still express the same semantic notion of uncontrolled event. Under the non-derivational constructional model, and specifically with the inheritance hierarchy, this previously ignored pattern has been shown indeed to belong to a family of constructions which all possess the same semantics. In addition, the understudied intransitive impersonal pattern has been shown to fall into two distinct subtypes. Each of these inherits general properties of the family as a whole while also contributing their own, more specific constraints.

The previous studies (Babby 1994, Lavine and Freidin 2002) have made significant contributions to the understanding of UTI. With the compositional account, i.e., the "concurrent application in the same derivation" of a number of characteristics, an attempt is made to account for the uncontrolled-event semantics of this pattern. In this paper I have shown that none of the three properties, whether alone or in combination, contributes to the semantics of the sentence type. Instead, I have provided a constructional analysis as an alternative that accounts for the

uncontrolled-event semantics of the sentences by treating the sentence types as a conventionalized co-occurrence of syntactic, semantic, and pragmatic features. The uncontrolled-event constructions are a family of constructions that differ by transitivity and affectedness. All of the co-occurring features must be represented in order to advance our understanding of what native speakers of Russian need to know in order to produce and interpret these sentences.

Figure 1:



References

Babby, Leonard. 1994. A Theta-theoretic analysis of adversity impersonal sentences in Russian. In *Annual Workshop on Formal Approaches to Slavic Linguistics: The MIT Meeting, 1993.* Ann Arbor: Michigan Slavic Publications.

Babby, Leonard. 1998. Voice and diathesis in Slavic. Position paper at Workshop on Comparative Slavic Morphosyntax, Spencer, Indiana.

Bailyn, John. 1995. A Configurational Approach to Russian 'Free' Word Order. Ph.D. dissertation, Cornell University.

Bailyn, John. 2004. Generalized inversion. In *Natural Language and Linguistic Theory* 22: 1-49.

Fillmore, Charles. 1988. Inversion and constructional inheritance. In *Lexical and Constructional Aspects of Linguistic Explanation.*, 113-128 Stanford University.

Fillmore, Charles. 1989. Grammatical construction theory and the familiar dichotomies. In *Language Processing in Social Context,* eds. R. Dietrich and C.F. Graumann, 17-37. North-Holland: Elsevier..

Fried, Mirjam, and Jan-Ola Östman. To appear. Construction grammar: A thumbnail sketch. In *Construction Grammar(s): Cognitive and Cross-language Dimensions*, eds. J.-O. Östman and M. Fried. Amsterdam: John Benjamins.

Galkina-Fedoruk, E.M. 1958. *Bezličnye predloženija v sovremennom russkom jazyke.* Moscow: Izd. Moskovskogo universiteta.

Goldberg, Adele. 1995. *Constructions: A construction grammar approach to argument structure.* Chicago: University of Chicago Press

Kay, Paul, and Charles Fillmore. 1999. Grammatical constructions and linguistic generalizations: The *What's X doing Y* construction. *Language* 75:1-33.

Lavine, James. 2000. Topics in the syntax of nonagreeing predicates in Slavic. Ph.D. dissertation, Princeton University.

Lavine, James, and Robert Freidin. 2002. The subject of defective T(ense) in Slavic. *Journal of Slavic Linguistics* 10: 253-89.

FASL 13, 104–116
Michigan Slavic Publications
2005

Bulgarian Clitics as K^0 Heads

Steven Franks
Indiana University

Catherine Rudin
Wayne State College

1 Overview: The Structure of KP

In this paper we sketch an analysis of Bulgarian (Bg) pronominal clitics as heads of K(ase)P, one of whose merits is that it provides an explanation for the obligatoriness of Clitic Doubling (CD) in certain constructions. The paper starts with a sketch of the proposal, followed in Section 2 by a summary of the facts of CD in Bg. Section 3 raises some questions which any analysis of Bg clitics must confront: Are clitics arguments? Are they in specifier or head positions? How is their linear order achieved? What accounts for CD? Section 4 presents our analysis. We start from Bošković's (2002) answers to some of these questions, which we adopt in part; we develop an account whereby the clitic and its associate (the doubling DP) are merged as a unit; and we argue that realization of the clitic head results from movement of the associate DP out of its containing KP, accounting in this way for CD.[1] In the final part we discuss various consequences of the proposed system, including how the analysis derives the correct clitic order.

Our analysis allows some latitude in the maximal functional projection dominating nominal expressions. These may have features for case and referentiality, but whether such features are realized on KP or DP is a matter of morphology. Pronominal clitics in Slavic instantiate K^0 and in Romance they instantiate D^0.[2] The usual situation is for D or K to

[1] A FASL reviewer draws our attention to Werkmann (2003), who proposes an analysis which is formally very similar to ours.

[2] The approach outlined below for Slavic pronominal clitics might be extended to Romance as follows: Spanish (cf. Franco 2000) is basically the flip side of Bg (1), i.e., with DP over KP (except that KP is morphologically realized with the preposition *a*), so that, like Bg, there is doubling and verb-adjacency. Old Spanish was more like SC (2), except with non-branching DP rather than KP, so that as in SC there was no doubling

take an NP complement. For Bg, however, we argue that *both* KP and DP are projected, as in (1).

(1) $[_{KP}\ K^0\ [_{DP} \ldots\ ]\ ]$

This is the structure that gives rise to CD, which we claim is the consequence of there being two distinct maximal projections in the nominal domain. It is also the source of the differences between Serbian/Croatian (SC) clitics and those of Bg: clitics exhibiting special syntactic behavior are non-branching maximal projections, which for Slavic means that KP exhaustively dominates K^0.

(2) $[_{KP}\ K^0\ ]$

Such an element can function as a phrase but move as a head. In languages without doubling, such as SC, pronominal clitics are merged directly as in (2), but, we will argue, in doubling languages such as Bg the non-branching structure in (2) is *derived* from (1) only in the course of the derivation.

2 Obligatory Clitic Doubling

Clitic Doubling is a pronominal clitic co-occuring with a coreferent nominal, either a non-clitic pronoun or a noun phrase. This nominal is the "associate" of the doubling clitic. Although subject to stylistic and dialectal variation and deplored as illogical by prescriptive grammarians, CD is a robust feature of Bg grammar. In certain situations it is even obligatory. A fundamental question is whether CD can be analyzed as a syntactically uniform phenomenon. Are the obligatory doubling experiencer, topic, and initial *wh*-contexts discussed below reducible to a unified condition? We claim that they are, and that this condition crucially depends on analyzing the pronominal clitics as K°.

One obligatory doubling context is when the associate is an oblique subject, i.e., an argument which is thematically most prominent but not a canonical nominative subject. It is typically an Experiencer, as in the examples in (3) and (4).

(and clitics were in second position). In French on the other hand, they are *branching* DPs, so that the clitics are morphologically determiners but without doubling (and they are verb-adjacent).

(3) a. **Na mene** ne ***(mi)** e studeno.
to me not me is cold
'I am not cold.'

b. Lesno ***(mu)** e **na Petâr**.
easy him is to Peter
'It's easy for Peter.'

c. **Na Ivan** ***(mu)** xaresva Marija
to Ivan him pleases Marija
'Ivan likes Marija.'

(4) a. **Elena** ***(ja)** e strax.
Elena her is fear
'Elena is afraid.'

b. **Nego** ***(go)** boli stomaxât.
him him hurts stomach-the
'His stomach hurts.'

In impersonal constructions with a dative (3) or accusative (4) associate, the clitic is required.[3] Examples (3c, 4b) show that oblique subjects can co-occur with a nominative argument.[4]

Another obligatory doubling context, at least for many speakers, is when the associate is a Topic.[5] The topicality-marking function of CD has often been noted; see, for instance, Leafgren 1997, Jaeger 2003, or Arnaudova 2002; the examples in (5) are from Hauge (1999).

(5) a. **Ivan** ***(go)** poznavam.
Ivan him I-know
'I know Ivan.'

---

[3] The associate of course may be missing; expressions like *Lesno **mu** e* 'It's easy for him' or *Stomaxât **go** boli* 'His stomach hurts' are perfectly fine. Note that clitics and their associates are boldfaced throughout the paper.

[4] The postverbal position of this nominative is irrelevant; the doubling facts remain the same even if the nominative comes first and the associate last:

(i) Marija ***(mu)** xaresva **na Ivan**.

(ii) Stomaxât ***(go)** boli **deteto**.

[5] This may overlap to some extent with the oblique-subject condition, since the highest argument tends to be the topic. However, the two conditions are distinct, as these are obligatorily doubled even when not topical.

b. **Tjax** nikoj ne ***(gi)** pazi.
them nobody not them guards
'Nobody is guarding them.'

c. **Na nego** ***(mu)** kaza.
to him him told
'S/he told him.'

d. Zašto ne ***(im)** kaza **na drugarite** **ot** **bjuroto**[...]
why not them told to the-comrades from office-the
'Why didn't you tell the comrades from the office [...]?'

A third context in which CD is obligatory, noted by Jaeger (2003), is multiple *wh*-constructions with apparent superiority violations

(6) a. Koj **kogo** **(*go)** narisuva?
whom who him drew

b. **Kogo** koj ***(go)** narisuva?
'Who drew whom?'

In (6) the clitic is necessary (and possible) only when the object *kogo* precedes the subject *koj*. Jaeger treats the initial *wh* in (6b) as a type of topic, despite its otherwise focus function.[6]

We contend that, before *wh*-movement, *kogo* in (6b) moves to an A-position above *koj*, so superiority is in fact respected: when [+wh] C is merged, *kogo* is the closest *wh*-phrase. One argument for the intermediate A-movement step is the fact that CD obviates weak cross-over effects (Arnaudova 2002). This implies, just as with the anti-superiority effect, that *vsjako dete* in (7) undergoes eventual A-bar movement from an A-position above *majka mu*.

(7) **Vsjako** **dete** majka mu ***(go)** običa.
every child mother his him loves
'Every child is loved by his mother.'

[6] An anonymous reviewer reminds us that focus is *never* doubled, even though it is fronted; cf. the discussion of example (14) below:

(i) STATIJATA (***ja**) pročetox.
'It was the article that I read.'

In our system this suggests focus movement fronts the entire KP.

3 Some Basic Questions

Before presenting our analysis, we consider several long-standing puzzles concerning the nature of clitics in Bg. These are issues which must be confronted by any account of clitic syntax.

3.1 Are pronominal clitics arguments or agreement?
In languages like SC, clitics are in complementary distribution with tonic pronouns and full NPs and are surely arguments. But with CD, the question arises as to which is the true argument, the clitic or the associate. If the clitic is an argument, the associate is typically seen as an adjunct. But if the associate is the argument, then the clitic must instead be object agreement or some other formal feature.

Empirical problems arise under either analysis. If the clitic represents object agreement, why is it not obligatory in all sentences with an object, and why can the associate be absent? Typical answers are that the clitic/agreement is sensitive to features such as topicality or specificity and that the associate (object argument) can be *pro*. On the other hand, if the clitic is an argument why can it double, and what is its relation to the associate? The typical solution is an associate generated in an adjoined position, such as Topic, which can corefer with an argument in the clause.

Because of unresolved problems with the clitic-as-argument hypothesis, we argue for a version of the agreement approach. In particular, if the clitic were the argument and the associate a base-generated adjunct, it would be a mystery why the relationship between the clitic and its associate should be constrained in precisely the same way as *wh*-movement is.[7] In fact, topicalization in Bg CD constructions has all the hallmarks of movement. For example, it is sensitive to classic island constraints, such as the Complex NP Constraint and Adjunct Constraint, illustrated in (8a-b) (from Arnaudova 2002), but not to *wh*-islands, as in (8c). Exactly the same facts hold for *wh*-movement, as in (9).

(8) a. ***Marija** sreštnax [mâža [kojto **ja** običa __]]
Marija I-met man-the who her loves

[7]Other problems are: why CD (i) requires identity in person-number features and (ii) is sensitive to topicality. The first will fall out from our account, since clitics are merged together with their associates; the second will require topicalization to differ from focus movement in targeting DPs rather than KPs.

b. ***Vestnika** zaspa [dokato **go** četeše __]
the-newspaper you-fell-asleep while it you-read

c. **Knigata** ni objasni Marija, [kâde **ja** e kupila __]
book-the us explained Marija where it has bought
'Marija explained to us where she bought the book.'

(9) a. *Kogo sreštnax [mâža [kojto običa __]]?
whom I-met man-the who loves

b. *Kakvo zaspa [dokato četeše __]?
what you-fell-asleep while you-read

c. Kakvo vi objasni Marija, [kâde e kupila __]?
what you explained Marija where has bought
'What did Marija explain to you where she bought?'

3.2 Are pronominal clitics heads or phrases?

A second basic question, debated in, for example, Halpern and Fontana 1994, is whether the clitics are phrases (XP) or heads (X^0). As theta-role bearing arguments, pronominal clitics should be phrasal. However, they seem to behave as heads in Bg, since (i) they move stepwise, obeying the Head Movement Constraint, (ii) they are attached to the verb, which is a head, and (iii) other clitics, such as *li* and verbal auxiliaries, are heads under most analyses. The phrase vs. head question translates into one of whether verb-adjacent clitics occupy specifier or head positions, assuming standard X-bar theoretic principles. As phrases, the clitics would occupy specifier positions (e.g., SpecTP or SpecAgrP), while as heads they would occupy (or be adjoined to) functional head positions. The phrase vs. head issue raises significant questions not only for the position and status of the clitics but also for that of the associate. If the clitics are heads, what phrase are they heads of, and how does that phrase relate to the associate? If on the other hand they are phrases, must the associate be an adjunct, and if so what is their relationship to that adjunct? We will resolve this problem (in the spirit of Uriagereka 1995, Kayne 2002, Boeckx 2003, and others) by arguing that the associate and the clitic are introduced in a single projection, so that clitics are heads which take their associates as complements.

3.3 How are the clitics ordered?

A third issue concerns the relative positions of clitics and whether the pronominal clitics should be treated like other clitics. In Bg the clitics group together into a so-called cluster, which in rough terms appears preverbally unless this would place the clitics in initial position, in which

case they follow V. Within the cluster there is a strict order. For the auxiliary and pronominal clitics, this order is AUX>DAT>ACC (10a), unless the auxiliary is 3rd person singular, in which case the order is DAT>ACC>AUX (10b).

(10) a. Ti **si** **mu** **go** dala.
you AUX him-DAT it-ACC given
'You **have** given **it** to **him**.'

b. Tja **mu** **go** **e** dala.
she him-DAT it-ACC AUX given
'She **has** given **it** to **him**.'

There are two basic approaches to accounting for the ordering facts: templatic and syntactic (see Franks and King 2000: 320-330 for discussion). Traditional grammars such as Hauge 1999 stipulate the order as a template. While this provides a workable statement of the facts, it is entirely unexplanatory and thus unsatisfying. In this paper we focus on two separate facts that must be captured by any syntactic account: (i) the exceptionless dative-before-accusative order of the pronominal clitics and (ii) the differing position of 3sg and non-3sg auxiliary clitics.

4 Towards a Solution

This section proposes an analysis and explores its consequences.

4.1 Bošković's approach

Bošković (2002: 329) addresses clitic ordering in terms of recent models of phrase structure, resolving the specifier/head paradox by stating "clitics are syntactically defined as non-branching elements (i.e. ambiguous X°/XPs)". Since they are simultaneously both heads and phrases, clitics can be introduced in XP positions (as specifiers or complements) and subsequently move as heads. Bošković further assumes Kayne's Linear Correspondence Axiom (LCA), which forces head-adjunction to be always to the left. Thus, to get a clitic on the left of the verb, the clitic has to move to the verb from below it (i.e., from a position to its right).

These assumptions let Bošković derive clitic order as follows. The clitics are, at an intermediate point in the derivation, located in the Spec of some category FP.[8] The verb raises *past* each clitic to the next head

[8] Presumably the pronominal clitic XP/X moves to SpecFP from a lower argument position, but Bošković is silent on this point and it is not essential for our account.

up, after which the clitic itself moves, raising to adjoin to the left of V. This is illustrated by the phrase *(ti) si mi go dal* 'you gave it to me,' starting with a structure as in (11):

(11) $[_{TP}$ **si** $[_{T'}$ $[_{AgrIOP}$ **mi** $[_{AgrIO'}$ $[_{AgrOP}$ **go** $[_{AgrO'}$ $[_{VP}$ **dal**]]]]]]]

The derivation proceeds from this configuration to produce (12), as follows. V adjoins to AgrO. AgrO (which now includes V) then adjoins to AgrIO, placing *dal* above the Spec containing *go*. Next, *go*, moving as a head, adjoins to AgrIO, which places it to the left of *dal* (since all adjunction is to the left). AgrIO, containing *go dal*, now moves past *mi*, enabling *mi* to adjoin (as a head) to *go dal*. T, containing *mi go dal*, moves past *si* to the next functional head up (which Bošković simply calls F). Finally, *si* moves up from SpecTP to adjoin to the left of F.[9]

(12) $[_{FP}$ $[_{F}$ **si** [**mi** [**go** **dal**]]]]

Thus Bošković's system produces the required AUX>DAT>ACC word order by assuming only left-adjunction, in keeping with Kayne's anti-symmetry hypothesis.

While we will retain this insight (with different details), the approach does have some problems. One is that auxiliary clitics are treated quite counterintuitively as non-branching but phrasal specifiers, with Aux always having a null head. Furthermore, even with this oddity, the system does not account (at least in purely syntactic as opposed to prosodic terms) for 3sg Aux *e* following rather than preceding the pronominals. Other issues which are problematic for Bošković's system are (i) accounting for CD and (ii) accommodating the evidence that pronominal clitics form a cluster themselves.[10] We propose to solve all of

[9] Note that for this to work excorporation must be specifically disallowed. Bošković (2001: 201) does this by adopting a condition which states that "a phonologically non-deficient element Y cannot excorporate out of a complex X-element W if W contains a phonologically deficient element". We take issue with such a condition, since it imposes a phonologically motivated restriction on a syntactic operation.

[10] Splitting of the clitic cluster is possible to some degree with adverbs like *(vse) ošte* 'still, yet', *veče* 'already', *vednaga* 'right away' (though the most natural position for such adverbs is outside the cluster immediately following the subject). Pronominal clitics however seem to form a tighter cluster in the sense that such adverbs can occur between V and clitics or between auxiliary and pronominal clitics but not between two pronominal clitics. (These examples are from Roumyana Slabakova, p.c.; variation reported):

(i) ?Ti **si** <u>veče</u> **mu go** dal.

these problems with an alternative model that introduces pronominal clitics in Bg as transitive heads which only become non-branching in the course of the derivation.

4.2 A new account: Clitics as K^0

Our analysis depends crucially on the internal structure of nominal expressions. Nominals in older Slavic were maximally KP rather than DP, with clitic pronouns instantiating K^0. With the rise of a definite article a distinct DP arose in Bg. We propose that pronominal clitics remained K^0; hence Bg retains KP, as in (13).

(13) $[_{KP}$ clitic $[_{DP}$ D [NP/QP/AP]]]

The structure in (14a) then serves as the source of examples in which only the clitic is pronounced (14b), only the associate is (14c), or both are (14d):

(14) a. [VP pročetox $[_{KP}$ $[_{K}$ **ja**] $[_{DP}$ D $[_{NP}$ **statijata**]]]]
I-read it article-the

b. Pročetox **ja**.

c. Pročetox **statijata**.

d. **Statijata ja** pročetox.
'I read the article.'

The analysis of CD is simply that the clitic is the reflex of the movement of the associate DP through SpecKP; this is similar to the account of resumption in Boeckx (2003). When both a clitic and a full phrasal associate occur, as in (14d), K has an overt DP complement, which by

---

(ii) *Ti **si mu** <u>veče</u> **go** dal.
(iii) Ti **si mu go** <u>veče</u> dal.
(iv) *Tja **mu** <u>veče</u> **go e** dala.
(v) ?*Tja **mu go** <u>veče</u> **e** dala.
(vi) Tja **mu go e** veče dala.

See Franks (in press) for detailed discussion of adverb interpolation as well as a demonstration of how the above data comport well with the analysis put forward in this paper, in particular with the structure proposed in (15).

virtue of moving through SpecKP triggers Spec-head agreement.[11] This agreement is instantiated as an overt clitic pronoun, preserving the insight that clitics are in some real sense agreement markers. Following Lobeck (1990), among others, we recognize that agreement is needed to license a silent complement. When no clitic is present, as in (14c), its DP complement has not moved out of the KP. Finally, in (14b) there is a silent *pro* topic, which escapes KP and induces the clitic as a consequence, just as an overt topic would.

An interesting aspect of this analysis is that pronominal clitics head transitive KPs but their complement DP vacates KP in the course of the derivation. Thus, the "ambiguous X/XP" structure arises only subsequent to the initial merge. How might this work? We hypothesize that KP first undergoes XP movement, overtly occupying its case-licensing position.[12] In this way, *both* the clitic (KP/K) *and* the associate (DP) have their case features valued (identically). The associate then moves out of KP, for any of the reasons described, after which the clitic now heads a non-branching KP (assuming, in keeping with current minimalism, that traces do not count). It is only at this point then that the K^0 clitic can raise as a head and adjoin to the left of its host, the verb.

Recall from Section 2 the various situations in which CD is obligatory: (i) when the associate is an oblique subject, (ii) when it is a topic, (iii) when *wh*-movement appears to violate Superiority. Our account requires that each of these situations involve movement of the associate through the SpecKP position. This raises some interesting problems which here we can do no more than point out. In each instance, it is DP rather than the containing KP which moves. Hence, a fundamental question is why the entire KP does not move instead. Here are some speculations. (1) For oblique subjects the reason for raising out of their containing KPs is presumably that the "highest" theta role (on the theta hierarchy) cannot be VP-internal. Since an oblique subject bears the highest theta-role—it is the "logical subject"—it cannot remain VP-internal. We assume that the highest theta-role is visible only on a DP, not on a KP, so the DP has to escape from KP before it can escape from VP. (2) For topics we assume that the topic feature can percolate up only as far as DP, not all the way to KP, so the DP has to escape from KP. The DP with a topic feature, on its way to its eventual topic position moves first to SpecKP, then on up to SpecTopicP, leaving the KP with

[11] Actually, this step is not essential to our account and may even be impossible. Its movement from complement to specifier position is ruled out in principle, as in recent approaches to antilocality such as that of Abels (2003).

[12] This could be SpecAspP or SpecAgrP, depending on where one believes case is licensed. These details are not essential to our analysis.

its clitic head behind. (3) Superiority results from the Attract Closest effect, so in (6a) *kogo* must be higher than *koj* at the relevant point in the derivation, having moved past *koj* to some A-position at the left edge of the clause prior to *wh*-movement. For this to happen, *kogo* must escape its containing KP. As a consequence of this intermediate movement, the clitic *go* is obligatorily introduced in the sentence.

4.3 Clitic ordering

So far as we can tell, our proposal preserves the basics of Bošković's approach with respect to the DAT > ACC > V word order: pronominal clitics move as heads in conformity with the LCA. Note however that if the clitic were a non-branching head in its base position and if, as is standardly argued, the clitics move as soon as they can (assuming economy of movement), then we would expect the object clitic K^0 to adjoin to V before V moves at all. For us this is impossible, since KP branches at that point in the derivation. So the delay forced by the need for the KP to move first to its case-licensing position and then for DP to escape so that derived non-branching results properly postpones adjunction, as required by Bošković's system.

On the other hand, there is no reason to expect non-pronominal clitics to behave in the same fashion. Recall the pattern for placement of auxiliary clitics: they precede pronominal clitics except for the 3sg auxiliary *e*. As noted, Bošković derives the AUX > PRONOUN order by generating Aux as XP/X^0 in some Spec position. The clitics-plus-verb constituent (e.g., *mu go dal*) moves as a head past Aux, which then left-adjoins as a head to the clitics-plus-verb group. We see several problems with this account, including the issue of which positions the auxiliaries raise to.[13] But the main difficulty is that Bošković has no principled account of why 3sg *e* is last, achieving it essentially by stipulation. This undercuts the entire analysis: if one part is stipulated, why not stipulate the rest? It would be clearly preferable to treat the position of all auxiliary clitics as non-accidental.

Our analysis highlights a fundamental difference between pronominal and auxiliary clitics. If we assume the latter (contra Bošković) to be merged as functional heads such as AgrS and T, they are never non-

[13] Assuming ***mu go dal*** to be in *v* and the subject DP, e.g., *ti*, to be in Spec*v*P, we need at least two higher functional projections, one for ***si*** to occupy the Spec of and the next for ***mu go dal*** to move to the head of. One of these may be T, as suggested below, but this is less than clear.

branching phrases.[14] Thus, they cannot move in the syntax as the pronominal clitics do. Rather they are pronounced in situ, as simple, prosodically dependent elements. This gives us a handle on two important issues. One is the fact, mentioned in note 10, that the pronominal clitics form a subcluster. The other is the special behavior of the 3rd singular Aux *e*. We hypothesize that, as argued in Franks and King (2000), *e* is introduced in T^0 while the other auxiliary clitics are introduced in $AgrS^0$.[15] Consider in this light the structure in (15) for the variants in (10):[16]

(15) $[_{AgrSP}$ ti/tja $[_{AgrS}$ **si**$]]$ $[_{TP}$ $[[$**mu go**$]_i$ $[_T$ **e**$]]$ $[_{AspP}$ t_i + **dala** ...

Assuming that *e* remains in T^0 and that the pronominal clitics excorporate from the highest head to which the verb moves for checking purposes (we take this to be AspP) and left-adjoin to T^0, we obtain the proper order: Aux is at the left edge of the pronoun group unless it is *e*, which is at the right edge.

References

Abels, Klaus. 2003. *Successive cyclicity, anti-locality, and adposition stranding*. Ph.D. dissertation, University of Connecticut at Storrs.

Arnaudova, Olga. 2002. Clitic left dislocation and argument structure in Bulgarian. In *Formal Approaches to Slavic Linguistics: The Second Ann Arbor Meeting*, ed. J. Toman, 23-46. Ann Arbor: Michigan Slavic Publications.

Boeckx, Cedric. 2003. *Islands and chains*. Amsterdam: John Benjamins.

Bošković, Željko. 2001. *On the nature of the syntax-phonology interface*. Amsterdam: Elsevier.

Bošković, Željko. 2002. Clitics as nonbranching elements and the linear correspondence axiom. *Linguistic Inquiry* 33.2:329-40.

Franco, Jon. 2000. Agreement as a continuum. In *Clitic phenomena in European*

[14] It is however at least conceivable that a node such as AgrS could *become* non-branching, as pronominal clitics do for us, if its complement phrase, say TP, were, in the spirit of Kayne 1994, also to move leftwards, through SpecAgrSP.

[15] In this respect *e* resembles the Slovenian future clitics in the *bom* series, which similarly follow the pronominal clitics and are clearly tense markers. In SC, where 3rd sg *je* also exceptionally comes last but there are tonic forms of the AgrS clitics preceded by *je* (e.g. *sam/jesam; si/jesi*), we suggest head movement of T° to AgrS. Note also that earlier in South Slavic all auxiliaries behaved like modern *e/je* and came after the pronominal subcluster. The auxiliaries have apparently undergone a historical reanalysis, with 3sg *e/je* simply the last to change.

[16] The non-boldfaced copies represent (unpronounced) traces of movement.

languages, ed. F. Beukema and M. den Dikken, 147-189. Amsterdam: John Benjamins.

Franks, Steven. in press. Adverb interpolation in the Bulgarian clitic cluster. In *Festschrift for Charles Gribble*, ed. R. Rothstein, E. Scatton, and C. Townsend. Bloomington, IN: Slavica.

Franks, Steven, and Tracy Holloway King. 2000. *A handbook of Slavic clitics*. New York: Oxford University Press.

Halpern, Aaron, and Josep Fontana. 1994. X^0 and X^{max} clitics. In *WCCFFL* 12, ed. E. Duncan, D. Farkas, and P. Spaelti, 251-66. Stanford: CSLI Publications.

Hauge, Kjetil Rå. 1999. *A short grammar of contemporary Bulgarian*. Bloomington, IN: Slavica.

Jaeger, T. Florian. 2003. Topicality and superiority in Bulgarian *wh*-questions. Paper presented at FASL 12, Ottawa.

Kayne, Richard. 1994. *The antisymmetry of syntax*. Cambridge, MA: MIT Press.

Kayne, Richard. 2002. Pronouns and their antecedents. In *Derivation and explanation in the minimalist program*, ed. S. D. Epstein and T. D. Seely, 133-166. Oxford: Blackwell.

Leafgren, John R. 1997. Bulgarian clitic doubling: Overt topicality. *Journal of Slavic linguistics* 5.1: 117-143.

Lobeck, Anne. 1990. Functional heads as proper governors. In *Proceedings of NELS* 20, 348-362, GLSA, University of Massachusetts, Amherst.

Uriagereka, Juan. 1995. Aspects of the syntax of clitic placement in Western Romance. *Linguistic Inquiry* 26: 79-123.

Werkmann, Valja. 2003. *Objektklitika im Bulgarischen*. Berlin: Akademie Verlag.

franks@indiana.edu
carudin1@wsc.edu

FASL 13, 117–123
Michigan Slavic Publications
2005

Slavic Velar Palatalizations as Chain Shifts

Frank Y. Gladney
University of Illinois at Urbana-Champaign

Discussion of the Slavic velar palatalizations should begin with the split of Indo-European dialects into those, including Baltic and Slavic, which show a separate reflex for palatal *k'* while merging plain *k* with labiovelar k^w (the satem group) and those which merged palatal *k'* with plain *k* while showing a separate reflex for labiovelar k^w (the centum group).[1] The Slavic reflex of the [+high, -back] dorsal *k'* is usually given as simply a [+continuant, +anterior, -high] coronal *s*, as in *sъto* 'hundred' and *pьsati* 'to write',[2] but the [+high] *s'* attested in the pronoun *sь* 'this', a unique conservative reflex of *k'*, should also be noted.

The correspondence of PIE *k'* to Slavic *s*, Vaillant (1951:38) writes, "is the result of a long evolution of which we do not know the stages." Vaillant, a believer in a stage of Balto-Slavic communality, speculates (p. 25) that those stages included a hushing ([-anterior]) affricate *č* which lenited to a [+continuant] Balto-Slavic *š* before shifting in Slavic to the [+anterior] *s*. Balto-Slavic skeptics on the other hand do not recognize a hushing stage. Meillet (1934:24) posits an intermediate *c*, while Mareš (1956:451), Shevelov (1964:139), and Lamprecht (1987:31) posit a (presumably [+anterior]) *ć*. Lunt (1981: 25) writes that "IE **k'* ... doubtless became **c* ... before yielding early Slavic **s* ... ." For him the shift of *k'* directly to a hissing ([+anterior]) affricate was the first of the "crucial steps that set Slavic irrevocably apart from its Baltic cousins" (2001:193), which show a hushing reflex for *k'*.

One need not be a believer in a Balto-Slavic communality to question Lunt's assertion that the forward shift of *k'* to a [+anterior] *c'* is as much a "natural progression" (1981:57) as would be its shift to a [-anterior] *č'*. The latter is closer in place of articulation to *k'* than is *c'*. It is moreover the unmarked noncontinuant lingual obstruent in addition to /t/ and k/. Chomsky and Halle (1968:423) write that "in consonant systems with four points of articulation, the fourth point (in addition to labial, dental, and velar) is commonly occupied by the palatoalveolar

[1] Statements regarding the voiceless velar obstruents are assumed to apply also to their voiced counterparts.
[2] Unlabeled examples are Old Church Slavonic.

affricate /č/[3] rather than by /t_l/ [(a [+high, -anterior] coronal)] or /k_l/ [(a [+high, -back] dorsal)]". Support for this view is provided by Maddieson (1984), who finds four places of articulation for noncontinuant obstruents to be the most commonly occurring pattern in the languages of the world (in 139 of the 317 (43.8%) languages surveyed, p. 40), "with the most common pattern being for palatoalveolar affricates to be added to the near-universal bilabial, dental/alveolar and velar stops" (p. 34). Skipping [-anterior] *č'* in the development of *k'* to *s* would entail a stage in Proto-Slavic where the lingual noncontinuant obstruents were /t ć k/, i.e., two dentals ([+anterior] coronals) and a velar but no palatoalveolar ([-anterior] coronal). Those who, perhaps in opposition to the Balto-Slavic hypothesis, claim that *k'* skipped the [-anterior] *č'* stage and shifted directly to [+anterior] *c'* bear the burden of proof.

However, most Slavists regard the question of how PIE *k'* developed to Slavic *s* as irrelevant, because they assume that the shift of *k'* to *s* was over and done with prior to the first Slavic velar palatalization. Meillet (1934:24), Mareš (1956:444), Bräuer (1961:169), Horálek (1962:101), Chomsky and Halle (1968:422), Schenker (1995:82), and Townsend and Janda (1996:42), among others, assume a stage in Proto-Slavic at which the voiceless lingual obstruents were /t/, /k/, and an /s/ from both *s* and *k'*. For these scholars the first Slavic velar palatalizaton was the First Regressive, whereby velar ([+high, +back]) obstruents became palatal ([-back]) in position before a ([-back]) vowel and then assibilated to a palatoalveolar ([-anterior] coronal), e.g., in *četyre* 'four' (cf. Lith. *keturi*).

A whole new perspective on the Slavic velar palatalizations was opened by the proposal, first made by Channon (1972) and thoroughly developed by Lunt (1981), that the earliest Slavic velar palatalization was not the First Regressive but the Progressive, originally observed by Jan Baudouin de Courtenay. In what follows, the precedence of the Progressive (BdC) palatalization to the First Regressive is assumed. This order, I wish to argue, puts the BdC palatalization into a chain-shift relationship with the Satem palatalization and with the First Regressive palatalization.[4]

A chain shift is two sound changes, A > B and B > C, which cannot be sequentially ordered. A > B cannot precede B > C because it does not

---

[3] They specify /č/ as [+high], which is why I write *č'* rather than *č*. A [-high, -anterior] coronal /č/ occurs in Polish, e.g., in *czas* 'time' ([čas]), perhaps in connection with [+anterior, +high] *t'*, as in LCS *tĕsto* 'dough', becoming [-anterior] and [+strident], thus *ciasto* ([č'asto])

[4] "Satem palatalization" is a misnomer. We should, following Lunt (1981:27), distinguish palatalization proper, which for [+high, +back] velars is the single-feature shift to [-back], from subsequent assibilation and other shifts. Nothing is known about how Satem *k'* came to be a palatal; my concern here is only with its subsequent development.

feed it (A does not become C). And B > C cannot precede A > B when the result would be a B-less stage and B is an unmarked phoneme never absent from a system which includes a marked C. Therefore the two sound changes happen simultaneously. For example, Proto-Slavic *au* > *ū* (A > B), as in *buditъ* 'wakens', did not precede *ū* > *y:* (B > C), as in *byti* 'to be', because *au* did not end up as *y:*. And *ū* > *y:* could not have preceded *au* > *ū* because that would entail a stage of Proto-Slavic which had a marked [+high, +back, -rounded] /y:/ but no unmarked [+high, +back, +rounded] /ū/. Therefore *au* monophthongized to *ū* at the same time that *ū* was becoming [-round]. We may suppose that when these shifts were taking place some Proto-Slavic speakers had a more rounded pronunciation of *ū* and a more diphthongal pronunciation of *au,* while for others *ū* was less rounded and *au* was less diphthongal. But all we know for certain is that *au* did not merge with *ū.*

Prior to the earliest Slavic velar palatalization, assumed here to be the BdC (Progressive), the reflex of Satem *k'* was the only palatal noncontinuant obstruent in Proto-Slavic.[5] We have no reason to doubt it was the unmarked palatoalveolar *č'* occurring, for example in *pьsati* 'to write', which at this stage must have been **pič'ātei.* The BdC palatalization shifted the root-final [+high, +back] *k* of **klīkātei* 'to shout' to [+high, -back] *k'* by assimilation to the preceding [+high, -back] *ī,* thus yielding **klīk'ātei.* Next *k'* assibilated. Slavists who place the BdC palatalization in relatively late Proto-Slavic, around the time of the Second Regressive velar palatalization, assume that BdC *k'* assibilated directly to the [+anterior] affricate *c',* the same as the *k'* resulting from the latter palatalization. In their view **klīk'ātei* assibilated to *klicati* similarly as **atrakai* 'boy' (loc. sg.), having monophthongized to **atrakē* and undergone the Second Regressive palatalization to **atrak'ē,* underwent assibilation to a +anterior affricate in *otrocě.*[6]

But once we accept the early ordering of the BdC palatalization, as well as the logic of [-anterior] *č'* as the reflex of Satem *k',* the assibilation of BdC *k'* directly to *c'* loses credibility. Had BdC *k'* assibilated directly to *c',* somehow bypassing Satem *č',* we would be at a loss to explain why the latter developed to *s,* why we get *pьsati* and not ***pьčati.* Since BdC *k'* did not bypass Satem *č',* we may assume it

[5] We must specify [-continuant] mindful of the [+continuant] palatal resulting from the raising of *s* after *r, u, k,* and *i.* "Palatal" is used in the broader sense of "consonant resulting from palatalization and related shifts".

[6] But Jakobson (1929/1962:24), who follows Trubetzkoy (1922:224) in ordering the BdC palatalization earlier than the Second Regressive, writes: "De même, on n'est pas en droit d'affirmer que *c, ʒ* soient sortis de *k, g* sans intermédiare. Il est fort possible que le stade intermédiare, ou le dernier des stades intermédiares entre *k, g* et *c, ʒ, s/š,* ait été des occlusives prépalatales et une c[h]uintante dorsale correspondante".

assibilated to palatoalveolar *č'* the same as Satem *k'* earlier. It did not merge with Satem *č'* because as BdC *k'* assibilated to palatoalveolar ([-anterior] coronal) *č'*, Satem *č'* shifted forward to dental ([+anterior]) *c'*. Thus **klīk'ātei* > **klīč'ātei* and **pič'ātei* > **pic'ātei* constituted a chain shift. BdC *k'* did not assibilate to *č'* before Satem *č'* shifted to [-anterior] *c'* because the two did not merge. And Satem *č'* did not shift to [-anterior] *c'* before BdC *k'* assibilated to *č'* because that would entail a stage of Proto-Slavic which had the marked palatal *c'* and not the unmarked palatal *č'*. The two shifts occurred simultaneously.[7]

The First Regressive palatalization was another shift of [+high, +back] velars to [+high, -back] palatals by assimilation to a [-back] vowel, this time an anticipatory, regressive shift, for example, in **atrake* 'boy' (voc.) > **atrak'e*. The new *k'* assibilated to palatoalveolar *č'* the same as did Satem *k'* and BdC *k'*. First Regressive *č'* did not merge with BdC *č'* because as First Regressive *k'* assibilated to *č'* BdC *č'* chain-shifted to [+anterior] *c'*, **klīč'ātei* > **klīc'ātei*. In turn, the new BdC *c'* did not merge with Satem *c'* because as BdC *č'* shifted to [+anterior] *c'* Satem *c'* chain-shifted to [+continuant] *s'*, **pic'ātei* > **pis'ātei*. This was a triple chain shift, *k'* > *č'* (A > B), *č'* > *c'* (B > C), and *c'* > *s'* (C > D).

The BdC palatalization is generally agreed to have affected a velar[8] that was preceded by a [+high, -back] syllable peak and not followed by a [+high, +back] vowel. Thus it applied to *k* in **atikas* 'father' (nom. sg. *otьcь*) and to *g* in **kunīngas* 'leader' (nom. sg. *kъnęzь*).[9] But it did not apply to *k* in **ueleikas* 'great' (nom. sg. masc. *velikъ*), because here *i* was not the syllable peak, or to *g* in **kunīngūniā* 'leader's wife' (ORu. *kъnägyni*), where the palatalizing effect of the preceding *ī* was countered by the labializing effect of the following *ū*.[10]

Where else BdC applied is contested. Lunt in his 1981 monograph (p. 26) gives the following environment as any -high vowel, thus not only in **atikas* (*otьcь*) but also in **atike* (voc. *otьče*). But more recently (2001:193) he limits the following environment to a -high +back vowel (**atikas*). The environment for the BdC palatalization has a direct

---

[7] As to whether this was a drag chain or a push chain, I see no basis for claiming either that the shift of Satem *č'* to *c'* created a gap in the lingual obstruent system which dragged the BdC *k'* to *č'* or that the shift of the BdC *k'* to *č'* crowded that system and pushed the Satem *č'* to *c'*. All we know is that the two palatoalveolars did not merge.

[8] Only velar stops (Lunt 1981:36–37). Those who order the Second Regressive palatalization before the BdC claim that it applies also to *x*. They regard *vьsěmь* 'all' (instr. sg. masc.) as regular (< **uixēmi* < **uixaimi*) and *otьci* 'father' (loc. sg.) as the result of analogy, since **atikai* would have monophthongized to **atikē* and have yielded by the Second Regressive palatalization ***otьcě*.

[9] Here the entire *ng* velar cluster became [-back] (Mareš 1956:466).

[10] Trubetzkoy (1922:230) limits the labializing effect to tense *ū*, perhaps assuming *u* as the thematic vowel in forms like *otьcь*, instead of *a* as in Lunt (1981:17).

bearing on its relationship to the First Regressive. If following Lunt we limit the BdC environment to a following [+low, +back] vowel, then, as he observes (2001:195), it is complementary to that of the First Regressive. In this way, in most of the paradigm of 'father'—nom. sg. **atikas,* dat. sg. **atikau,* loc. sg. **atikai,* nom. pl. **atikais,* etc.—where stem-final *k* is followed by [+back, -high] *a,* it is shifted by BdC to *k'* and then, as Lunt proposes, directly to a hissing *c'*—*otьcь, otьcu, otьci, otьci,* etc.—while voc. **atike* and all the forms of the possessive adjective 'father's'—**atikias, *atikiā, *atikia,* etc.—where *k* is followed by other than a +back -high vowel, elude BdC and subsequently undergo First Regressive, yielding *otьče, otьčь, otьča, otьče,* etc.

But accepting this analysis means accepting a huge phonetic improbability: that the BdC palatalization, which is sensitive to the labializing effect of a following [+high, +back] vowel (hence does not apply, for example, in **ligūniā, lьgynji* 'lightness') but does apply in position before a less labialized [-high, +back] vowel (thus in **paligā, polь•a* 'use'), does not apply either in the (perhaps weakly) palatalizing environment of a [-high, -back] vowel in **atike* (*otьče*) or even in the strongly palatalizing environment of a [+high, -back] *i* (all the stronger because syllabified as *j*) in **atikias* (*otьčь*). This is scarcely credible. It is far more likely that BdC applied wherever it was not blocked by a following *u* or *ū*.

But if BdC indeed applied in environments where First Regressive also applied, for example in all forms of **atik-* (since in none was it followed by *u* or *ū*), and if in every case the resulting *k'* assibilated, as I propose, to palatoalveolar *č'*, how did it happen that intermediate **atič'-* in some cases (in voc. *otьče* and the possessive forms *otьčь, otьča, otьče,* etc.) remained, while in other cases it shifted to a [+anterior] **atic'-* (*otьcь, otьca, otьcu, otьci,* etc.)?

The shift of [-anterior] *č'* to [+anterior] *c',* which I propose occurred in the forms of 'father' just cited, took place in every instance before a [+back] vowel, the thematic *a.* It is thus similar to another shift triggered by the First Regressive palatalization—the shift of [+high, -back] *š'* resulting from the raising of *s* in position after *r, u, k, i* to [+high, +back] *x* in position before a [+back] vowel, for example, **dausas* > **dauš'as* > **dauxas* > *duxъ* 'spirit' (nom. sg.).[11] In both **atič'as* > **atic'as* (*otьcь*) and **dauš'as* > **dauxas* (*duxъ*) we see the action of a constraint against

[11] Meillet (1934:34) saw this shift of *š'* to *x* as part of the pattern of velars alternating with palatoalveolars which resulted from the First Regressive palatalization. "Ainsi le *š* de *byšę* serait ancien, et c'est *byxъ* qui serait une transformation de **byšъ,* d'après une modèle général de l'alternance *k/č;* il ne s'agit pas ici d'analogie morphologique, mais de la généralisation d'un type d'alternances phonetiques".

palatoalveolars occurring before [+back] vowels.[12] The difference was in the direction of the shift: the [+continuant] *š'* became [+back] while the -continuant *č'* and *ǯ'* became [+anterior].

Next let us consider the Second Regressive palatalization of velars, which took place before new [-back] vowels resulting from the monophthongization of diphthongs beginning with a [+back] vowel. For example, the *-ai* ending of **atrakai* 'boy' (loc. sg.) monophthongized, resulting in **atrakē,* which then palatalized to **atrak'ē.* Another example is **atrakais* 'boy' (nom. pl.), where in Lunt's (1981:51) analysis thematic *a* raises to *u,* thus **atrakuis,* with monophthongization, palatalization, and other rules resulting in **atrak'ī.* As with each earlier *k'*, the Second Regressive *k'* assibilated. But here an unavoidable phoneme merger loomed: either with the [-anterior] *č'* reflex of the First Regressive *k'* or with the [+anterior] *c'* reflex of the BdC *k'*. In stem-final position the fact that Second Regressive *k'* merged with [+anterior] *c'* may have been influenced by grammatical factors. In the paradigms of nouns which met the conditions for both the BdC palatalization and the First Regressive, e.g., *отьсь* and *кънęзь,* a [+anterior] stem-final consonant occurred in all forms except the vocative. It was natural then for nouns with stem-final velar stops, which developed *k'* in the loc. sg., nom. pl., and loc. pl. forms, e.g., **atrak'ē, *atrak'ī,* and **atrak'ēxu,* to follow the example of the corresponding forms *отьci, отьci, отьcixъ* and assibilate *k'* to a +anterior *c'*, thus *otrocě, otroci, otrocěxъ.*[13]

In other than stem-final position **ai* likewise monophthongized to *ē* and conditioned velar fronting, e.g., **kainā* 'price' > **kēnā* > **k'ēnā* and **gaila* 'very' > **gēla* >**g'ēla.* Here, in word-initial position, BdC palatalization never occurred, so there are no distributional or grammatical factors to explain why *k'* and *g'* should have assibilated as they did to [+anterior] *c'* and *ʒ'*—*cěna, ʒělo*—rather than to [-anterior] *č'* and *ǯ'*. A common view is that there were simply two periods in the palatalization of velars, an earlier period when *k'* and *g'* assibilated to [-anterior] *č'* and *ǯ'* and a later perior when they assibilated to [+anterior] *c'* and *ʒ'*"During the second period," Meillet (1934:88) writes, "the tongue tends to raise more to the front, whence *c, ʒ.*" Bräuer (1961: 189) places the monophthongization of *ai* to *ē* after the period of validity (*Geltungsdauer*) of the First Regressive palatalization, so that *k'* and *g'*

[12] This constraint was subsequently violated when [-back, -high, +long] *ē* shifted to [+back] *ā* in the same environment, e.g., **krīkētei* > **krīč'ētei* > **krīč'ātei* > *kričati* 'to shout'.

[13] Syllable-onset position, which Second Regressive *k'* shared with the BdC *c'*, may also have been a factor. Note that *k'* in West Slavic, when it was preceded by *s* and thus not syllable-initial, had a [-anterior] reflex, e.g., in OPo. *Polszcze* (< **paljiskai*) and OCz. *dščě* (< **duskai*).

arising before *ē* yielded a different result, "since we are in a later palatalization period". I find these statements nonexplanatory. If the unmarked assibilation of palatals is to [-anterior] palatoalveolars, why would this hold at one stage of Proto-Slavic and not at a later stage? If at the later stage Proto-Slavic speakers opted for the marked assibilation, there must have been some reason for it. Perhaps they perceived the need to avoid homophony, to have the Second Regressive palatals of *cělo* 'whole', *cęta* 'small coin', *crъky* 'church', and *zělo* 'very' not merge with the First Regressive palatals of *čelo* 'forehead', *čędo* 'child', *črъvь* 'worm', and *želati* 'to wish'.

References

Bräuer, Herbert. 1961. *Slavische Sprachwissenschaft,* vol. 1. Berlin: de Gruyter.

Channon, Robert. 1972. *On the place of the progressive palatalization of velars in the relative chronology of Slavic.* The Hague: Mouton & Co.

Chomsky, Noam, and Morris Halle. 1968. *The sound pattern of English.* New York: Harper & Row.

Horálek, Karel. 1962. *Úvod do studia slovanských jazyků,* 2nd ed. Prague: ČSAV.

Jakobson, Roman. 1929/1962. "Remarques sur l'évolution phonologique du russe comparée a celle des autres langues slaves". *Selected Writings,* vol. 1, 7–116.

Lamprecht, Arnošt. 1987. *Praslovanština.* Brno: Univerzita J. E. Prkyně.

Lunt, Horace G. 1981. *The progressive palatalization of Common Slavic.* Skopje: Macedonian Academy of Sciences and Arts.

Lunt, Horace G. 2001. *Old Church Slavonic grammar,* 7th ed. Berlin: Mouton de Gruyter.

Maddieson, Ian. 1984. *Patterns of sounds.* With a chapter contributed by Sandra Ferrari Disner. Cambridge: Cambridge University Press.

Mareš, František Václav. 1956. Vznik slovanského fonologického systému a jeho vývoj do konce období slovanské jazykové jednoty. *Slavia* 25: 443–95.

Meillet, A. 1934. *Le Slave commun,* 2nd ed. rev. with A. Vaillant. Paris: Champion.

Schenker, Alexander M. 1995. *The dawn of Slavic: An introduction to Slavic philology.* New Haven, CT: Yale University Press

Shevelov, George Y. 1964. *A prehistory of Slavic: The historical phonology of Common Slavic.* Heidelberg: Winter.

Townsend, Charles E., and Laura A. Janda. 1996. *Common and comparative Slavic: Phonology and inflection, with special attention to Russian, Polish, Czech, Serbo-Croatian, Bulgarian.* Columbus, OH: Slavica Publishers, Inc.

Trubetzkoy, N. S. 1922. Essai sur la chronologie de certains faits phonétiques du slave commun. *Revue des études slaves* 2:217–34.

Vaillant, André. 1951. *Grammaire comparée des langues slaves,* vol. 1. Lyon: IAC.

gladney@uiuc.edu

FASL 13, 124–135
Michigan Slavic Publications
2005

Syntactic Transitivity of SE-Reflexives in Polish*

Magdalena Goledzinowska
University of Toronto

This paper treats the reflexive clitic SE (*się*) in Polish as a featurally underspecified functional morpheme which directly affects the VP domain with which it merges by disallowing the assignment of accusative case to the internal argument. I place the clitic in the head of the Transitivity Phrase (TrP) of Bowers 2002. While the TrP is between the VP and *v*P and is therefore part of "lexical syntax" in the sense of Hale and Keyser 1993 (and later), it is nevertheless a functional category with an EPP-feature licensing syntactic movement. I adopt Hornstein's (1999, 2001) version of theta-theory, where theta-roles are satisfiable via movement and where a DP can check more than a single theta-role. I argue that this syntactic treatment of SE, together with a feature-movement approach to theta-theory, captures the morphosyntactic properties of derived and inherent reflexives in Polish in a more unified manner than either argumental or lexical approaches.

The paper is organized as follows. Section 1 introduces the relevant Polish SE data along with a summary of other treatments of SE. Section 2 lays out the theory adopted. Section 3 contains the details of the proposal. The derivations are in section 4. Section 5 concludes the paper.

1 Data and Previous Approaches to SE

1.1 Data

I discuss two uses of SE in Polish: derived reflexives shown in (1) and inherent reflexives shown in (2), both with nominative DPs and full

* I am most grateful to Diane Massam for supervising this project. I also thank Alana Johns, Gabriela Alboiu, Yves Roberge, the members of the Syntax Project at the University of Toronto Department of Linguistics, as well as the audience at FASL-13 and two anonymous reviewers for their valuable comments. All errors are, of course, mine. This research was supported by the Social Sciences and Humanities Research Council doctoral fellowship #752-2002-1343 as well as the Social Sciences and Humanities Research Council research grant #410-01-1415 awarded to Diane Massam.

subject-verb agreement.[1] The names I designate for the different types of SE uses in this section are not meant to suggest a specific theoretical interpretation. Rather, they are descriptive terms intended to characterize the verb type in question in an informal manner. I do not investigate the prosodic factors that condition where the clitic surfaces, concentrating only on the syntactic and thematic properties of the sentences.

(1) Derived reflexives[2]

a. *Body reflexive: the Agent performs the action on himself*
Janek umył się.
John$_{NOM}$ wash$_{PST.3SG}$ SE
'John washed (himself).'

b. *Body-part reflexive: Agent or Theme is subject, body part is affected*
Janek skrzywił się.
John$_{NOM}$ scowl$_{PST.3SG}$ SE
'John scowled/made a face.'

c. *Inchoative: Theme is subject, no Agent*
Szklanka zbiła się.
glass$_{NOM}$ break$_{PST.3SG}$ SE
'The glass broke.'

d. *Middle: property of Theme subject is expressed*
Te koszule dobrze się piorą.
these shirt$_{NOM.PL}$ well$_{ADV}$ SE wash$_{PRES.3PL}$
'These shirts wash well.'

e. *Psychological: Experiencer and a Theme-type argument*
Janek interesował się lingwistyką.
John$_{NOM}$ interest$_{PST.3SG}$ SE linguistics$_{INSTR}$
'John was interested in linguistics.'

---

[1] SE in Polish is also obligatory in two other types of uses, impersonal and dative constructions. However, my proposal rests on data with SE-uses with nominative DPs and I do not analyze impersonals or datives in this paper.

[2] One common type of derived SE-use I am omitting from the analysis is the reciprocal construction as in *Janek i Marysia*$_{NOM}$ *spotkali*$_{3.PL}$ *się*$_{SE}$ 'John and Mary met (each other)'. Since the focus of this paper is the description of the function of SE in derived and inherent reflexives in general, I concentrate on the clitic's apparent role as a syntactic verbal (de)transitivizer. I also do not discuss the somewhat less studied up-to-completion and affective SE-uses. Goledzinowska 2004 contains analyses of these two constructions.

f. *Semantically divergent from transitive alternant*
Janek miał się dobrze.
John $_{NOM}$ have $_{PST.3SG}$ SE well $_{ADV}$
'John felt/was feeling well/doing well.'

g. *Unspecified object (closed class of verbs)*
Janek się bił/gryzł/kopał.
John $_{NOM}$ SE beat/bite/kick $_{PST.3SG}$
'John used to beat/bite/kick (other children).'

(2) Inherent reflexives (reflexiva tantum) – must occur with SE

a. *SE-"unergative" – Agent as sole participant*
Janek śmiał się.
John $_{NOM}$ laugh $_{PST.3SG}$ SE
'John laughed/was laughing.'

b. *Unaccusative – Theme as sole participant*
Co się stało?
what $_{NOM}$ SE happen $_{PST.3SG}$
'What happened (here)?'

c. *Psychological: Experiencer subject*
Janek bał się (wilków).
John $_{NOM}$ fear $_{PST.3SG}$ SE (wolf $_{GEN.PL}$)
'John feared/was afraid (of wolves).'

d. *Verbs of motion – subject as both Agent and Theme*
Janek wspinał się (pod górę).
John $_{NOM}$ climb $_{PRES.3SG}$ SE (on/up the mountain)
'John climbed/was climbing (up the mountain).'

1.2 Other approaches to SE

Research into the properties of SE in Romance languages in particular has resulted in an abundant body of generative literature in the recent years. The two main approaches to SE-verbs can be characterized as argumental and lexical or semantic. Argumental approaches are exemplified in the works of Rizzi (1986), Pesetsky (1995), Sportiche (1998), McGinnis (1999), Steinbach (1999, 2002), and Alboiu et al. (2002, 2004), among others. The common characteristic of these accounts is their treatment of SE as one of the verb's arguments, a reflex of an argument, or a residue of NP movement. While they differ in which argument surfaces as SE, argumental approaches take the clitic to be syntactically active as a nominal element linked directly to the expression of the verb's argument structure.

Lexical or semantic approaches to SE such as those of Marantz (1984), Chierchia (1989), Reinhart (1996), Reinhart and Siloni (1999), and Lubowicz (1999), among others treat the clitic as either a morpheme that is lexically present on the verb and reduces the verb's valency or as a reflexive operator that reflexivizes the predicate at the level of Logical Form.

What I explore in this paper is the theoretical option that the clitic SE is neither an argument (or a marker of one) nor a lexical or semantic detransitivizer. I continue with a description of the theoretical framework adopted, followed by the proposal and the derivations.

2 The Framework

I adopt Hornstein's (1999, 2001) feature-movement approach to theta-theory. In this system, theta-roles are treated as features active in the syntactic derivation by being able to license syntactic movement. The theta-features are present on verbal or predicative heads as these heads enter the derivation and must be checked to allow verbs to be interpreted. I exemplify Hornstein's movement analysis of theta-roles in (3).

(3) Hornstein's movement analysis of theta-roles (1999, 2001)
   a. Mary washed.
   b. $[_{IP}\ \text{Mary}_i\ [\text{pst}\ [_{VP}\ t_i\ [\text{wash}\ t_i\ ]]]]$

The sentence in (3) contains only one DP in the numeration. *Mary* merges with V° *wash* as its unique argument. In its initial merge position, *Mary* checks [Theme]. After the VP merges with *v*°, the [Agent] feature on *v*° probes for a DP and targets *Mary* as the only nominal in the derivation. *Mary* then moves up to Spec,*v*P checking [Agent] on *v*°, and continues to move up to Spec,IP, surfacing as the sentential subject. These syntactic operations result in a reflexive predicate by creating a chain with one argument related to two thematic positions.

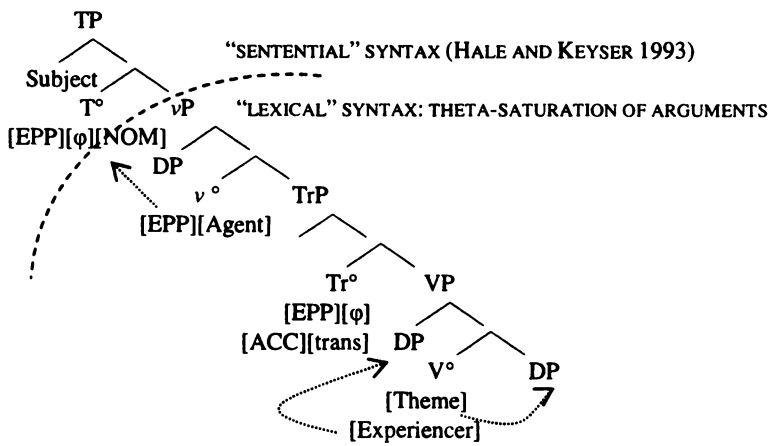
My proposal for Polish SE is framed within a version of minimalist checking theory (Chomsky 2000, 2001) as outlined in Bowers 2002. I follow Bowers' proposal that a Transitivity Phrase is nested between the inner VP and the *v*P and is directly involved in the licensing of the verb's complements. Like CP, TP, and *v*P, TrP is a functional category. While *v*P encodes the basic relation of predication in a clause and is present in every sentence, not every sentence involves a TrP. TrP is optionally selected by *v* and is present in every (syntactically) transitive predicate.

The obligatory presence of *v*P with any VP and the optional presence of TrP result in four possible structural configurations of verbs: (a) syntactically transitive, that is, those with an external argument in *v* that selects TrP; (b) syntactically unergative, that is, those with an external

argument in *v* that selects VP; (c) syntactically unaccusative, that is, those without an external argument in *v* that selects VP; and (d) impersonal transitive, that is, those with a TrP but with no external argument in *v*. Consequently, Bowers' theory predicts that a TrP may be present with verbs that would not be considered canonical transitives. Bowers provides the examples of impersonal transitive sentences in Russian and impersonal passives in Ukrainian which license accusative objects but, on his account, do not express an external argument.

The phrase structure adopted is represented in (4). The relevant features that require checking are placed underneath the node of the category that bears them and probes for a goal to value them.

(4) Phrase structure adopted



3 Proposal for Polish SE

I propose that Polish sentences with SE of the derived and inherent types are all transitive in the strict syntactic sense of Bowers 2002: the VP is nested in a TrP, which in turn is nested in a *v*P. However, while some SE constructions have a canonically transitive structure with an external argument, others are transitive (contain a TrP) but have no external argument. I propose that SE in constructions with nominative subjects, seen in (1) and (2), is generated as the head of the Transitive Phrase; that is, SE is a type of verbal transitivizer. In contrast to true or canonical transitives where Tr° checks a full set of φ-features and assigns Acc, SE in Polish is φ-incomplete, blocking the assignment of Acc to the DP in Spec,TrP. However, following Bowers, Tr° headed by SE still contains

an EPP-feature, probing for an appropriate goal to merge into its Specifier position and value [EPP]. The apparent lack of semantic content of the deficient Tr head does not force the head to be phonologically null: in Polish, I propose, a deficient Tr° is realized as SE.

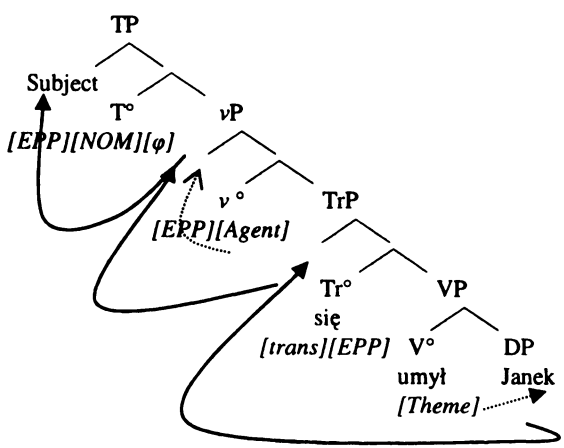
Furthermore, Polish verbs that are (a) canonically transitive, (b) have SE-alternants (derived reflexives), or (c) take the clitic obligatorily (inherent reflexives) have, by stipulation, the feature [transitive]. This feature is checked when the VP merges with Tr°, no matter whether the Tr° is φ-complete or defective. This is the feature that guarantees a match between VP and Tr°. Of course, the verb must also be specified for theta-roles it needs to have saturated.

4 Derivations of SE-Constructions

4.1 Body and body-part reflexives and verbs of motion

Body, body-part, and reflexive verbs of motion, in (1a), (1b), and (2d), respectively, contain one DP that establishes two thematic relations: first Theme and then Agent. The derivations proceed as in (5).

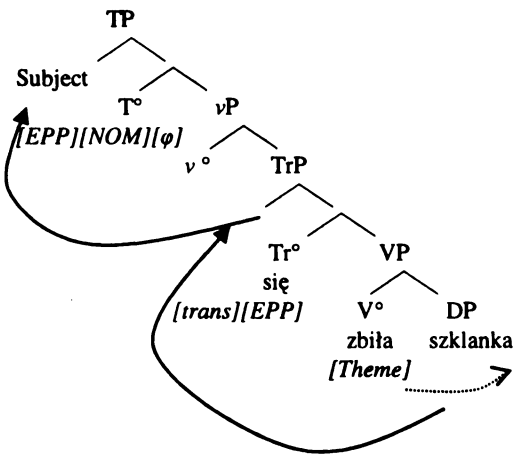
(5) Body, body-part reflexives, and verbs of motion



4.2 Inchoatives, unaccusatives, inherent psychological and semantically divergent SE-verbs.

Inchoative, unaccusative and some semantically divergent SE-verbs, in (1c), (2b,c) and (1f), respectively, have a single DP and one thematic role, Theme or Experiencer, checked as the DP merges with V°[3].

(6) Inchoatives, inherent unaccusatives, and semantically divergent SE- verbs



4.3 Middles

The middle construction in (1d), translated as *These shirts wash well*, is different from the inchoative derivation in (6) in that an adverbial expressing the particular property of the action is required for a most natural reading. Although an agentive participant is usually implied, only the internal theta-role is checked syntactically. For this reason, middles are derived as in (6) above.

---

[3] Basilico (1998) explores the possible structural differences between internal arguments. He proposes that arguments merging as complements of V° are predicated of the head V only and are an inseparable part of the event described by the verb. These are Theme-type arguments. In contrast, arguments generated in Spec,VP are predicated of the whole VP phrase and are semantically separable from the event, at least more separable than canonical Themes. These would be the common Experiencers. So, for verbs with two internal arguments, a Theme and an Experiencer, [Theme] is checked as the DP merges in Comp,VP while [Experiencer] is merged at Spec,VP. Verbs with just one internal argument -- a Theme or an Experiencer -- check their theta-feature as the DP merges in Comp,VP. In other words, Comp,VP must be filled before Spec,VP.

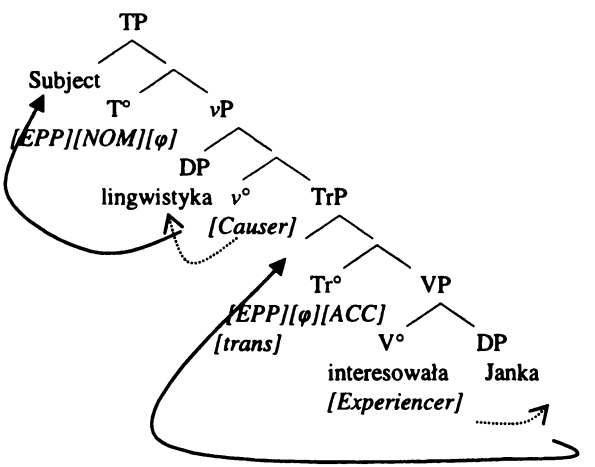
4.4 Alternating psychological SE-verbs

Supporting Pesetsky's (1995) treatment of psych-verbs in English, alternating psych-verbs in Polish display a subtle variation in theta-relations. In both the transitive and the SE cases, the human/sentient being is the Experiencer. However, in the transitive alternant, shown in (7a), the object of the psychological state has an Agent-like theta-role of Causer, while in the SE alternant shown in (7b) – a Theme-like Subject Matter role. Interestingly, since Tr° is defective and cannot assign Acc, the object *lingwistyka* in (7b) is assigned instrumental case.[4]

(7) Alternating psych SE-verbs

a. Transitive alternant

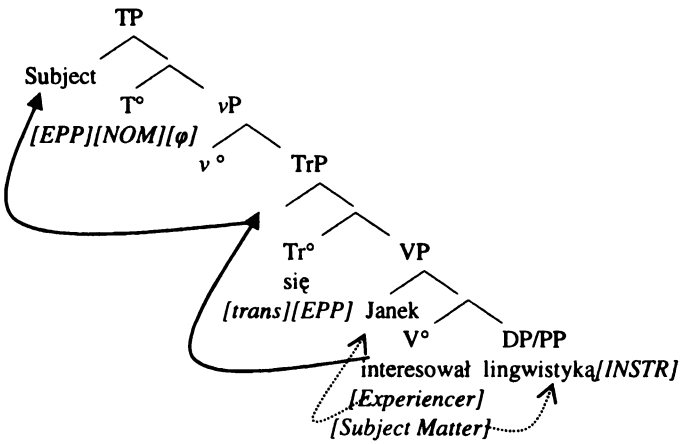
Lingwistyka interesowała Janka.
linguistics $_{NOM}$ interest $_{PST.3SG}$ John $_{ACC}$
'Linguistics interested John.'



b. SE alternant

Janek interesował się lingwistyką.
John $_{NOM}$ interest $_{PST.3SG}$ SE in linguistics $_{INSTR}$
'John was interested in linguistics.'

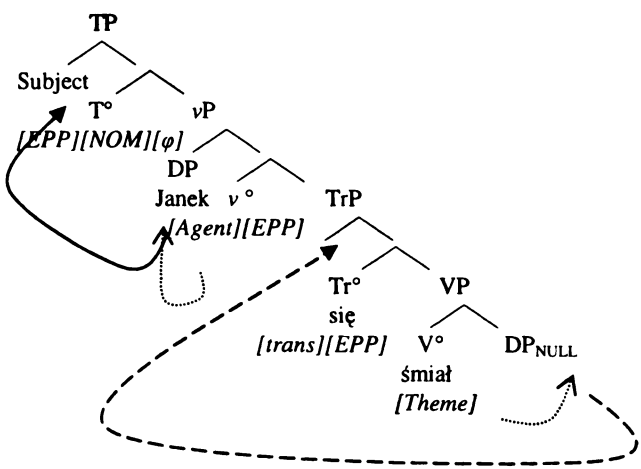
[4] I do not discuss the licensing of oblique cases. An Applicative Phrase or a Prepositional Phrase are possible options. A reviewer also suggests Bailyn and Rubin's (1991) proposal of a Predicative Phrase (PrP°), where Pred° lexically assigns Instrumental case to its nominal complement.



4.5 Unspecified object constructions

Unspecified object constructions seen in (1g) contain syntactically null objects. Although a Theme is semantically obligatory, it is phonologically null. The mechanism licensing these null DP objects relies on the presence of the structural position for objects, schematized in (8) and discussed below.

(8) Unspecified object constructions



Cummins and Roberge (2003:2) explore the possibility that direct object positions are syntactically licensed, characterizing syntactic

transitivity as the "internal-argument counterpart to the EPP". In their system the object requirement on V° is a strictly structural notion, independent of factors contributing to the interpretation of that object. Thus, while all verbs require objects in the syntax, it is lexical, semantic, and pragmatic factors that determine whether the object will actually be interpreted. For the closed class of Polish unspecified object SE-verbs, the particular "adversely-affecting action" semantics of the verbs involved (*kick*, *bite*, *scratch*) could allow the object to be syntactically omitted but semantically present. When syntactically omitted, SE would fill the Tr° that obligatorily merged with the lexically transitive VP, disallowing Acc assignment.

4.6 SE-"unergatives"

Inherent SE-verbs with sole Agent arguments such as *śmiać się*, 'to laugh', seen in (2a), present a challenge to the unified syntactic analysis of SE argued for in this paper. Unlike the other SE-verbs and constructions in (1) and (2), SE-"unergatives" do not have transitive semantics or clearly understood Themes, making it difficult to defend the proposal that the lexical V bears the feature [transitive] that allows the VP to merge with Tr° containing SE.

One possibility to explore would be the precise lexical conditions that result in the presence of [transitive] on a verb. Jackendoff's (1990) Conceptual Semantics offers a promising framework. In Jackendoff's system, thematic relations are defined over specific conceptual structures of predicates and arguments. Not every conceptual argument is present in (or linked to) a syntactic position. Verbs of motion like *run* or *wobble*, for instance, contain semantic Themes (entities undergoing motion) but do not surface with syntactic objects. For verbs of bodily processes like *laugh* or *sneeze*, Jackendoff suggests a similar analysis of motion without a syntactic object. Unlike the English equivalent, Polish *śmiać się* 'to laugh' could contain a syntactic reflex of a semantic object through the presence of [transitive], triggering the insertion of SE.

Furthermore, Jackendoff's framework is not incompatible with Cummins and Roberge's proposal of the obligatory presence of syntactic objects, outlined above. The semantic argument can be present and indeed have a syntactic correlate but nevertheless be phonologically null.

5 Conclusion

Derived and inherent SE-reflexive data from Polish have been presented in this paper in support of the proposal that SE is a φ-incomplete functional morpheme with [EPP] and [transitive] features. I proposed that SE merges as the head of a Transitive Phrase and probes for a nominal to check these features. Tr° merges with VP headed by the

lexical V° with an inherent transitivity requirement encoded in the feature [transitive]. This particular syntactic treatment of SE, together with a feature-movement approach to theta-theory, unifies the morphosyntactic properties of derived and inherent reflexives in Polish by positing the same formal checking relations despite varying thematic requirements of various verbs.

By pursuing the option that the clitic SE is a functional morpheme with an [EPP] feature licensing syntactic movement, this paper has outlined the consequences of a syntactic treatment of SE without recourse to thematic reduction. The main questions which, when answered, can more accurately weigh the value or show the weakness in treating SE as this type of syntactic transitivizer are questions related to argument licensing. In particular, the issues of verbal object position as a syntactic requirement, as well as null argument licensing and lexical transitivity, need to be researched further to better assess the current proposal.

References

Alboiu, Gabriela, Michael Barrie and Chiara Frigeni. 2002. Derived reflexives in Romance: The case of SE. In *Proceedings of the 2002 Annual Conference of the Canadian Linguistics Association*, University of Toronto, May 25-28, 2002.

Alboiu, Gabriela, Michael Barrie, and Chiara Frigeni. 2004. SE and the unaccusative-unergative paradox. In *Antwerp Working Papers in Linguistics: Current Studies in Comparative Romance Linguistics* 107, ed. Martine Coene, Gretel de Cuyper, and Yves D'Hulst, 109-139.

Bailyn, John F., and E. Rubin. 1991. The unification of instrumental case assignment in Russian. *Cornell Working papers in Linguistics* 9.

Basilico, David. 1998. Object Position and Predication Forms. *Natural Language and Linguistic Theory* 16: 541-595.

Bowers, John. 2002. Transitivity. *Linguistic Inquiry* 33: 183-224.

Chierchia, Gennaro. 1989. A semantics for unaccusatives and its syntactic consequences. Ms. Cornell University (University of Milan).

Chomsky, Noam. 2000. Minimalist inquiries: The framework. In *Step by Step: Essays in Minimalist Syntax in Honor of Howard Lasnik*, ed. Robert Martin, David Michaels, and Juan Uriagereka. Cambridge, Mass.: MIT Press.

Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. Michael Kenstowicz. Cambridge, MA.: MIT Press.

Cummins, Sarah, and Yves Roberge. 2003. Null objects in French and English. Paper presented at the *33rd Linguistic Symposium on Romance Languages*, Indiana University, Bloomington.

Goledzinowska, Magdalena. 2004. Syntactic transitivity of SE-reflexives in Polish. *Toronto Working Papers in Linguistics* 22: 93-120.

Hale, Kenneth, and Samuel Jay Keyser. 1993. On argument structure and the lexical expression of syntactic relations. In *The view from building 20: Essays in linguistics in honor of Sylvain Bromberger*, ed. Ken Hale and Samuel J. Keyser. Cambridge, MA.: MIT Press.

Hornstein, Norbert. 1999. Movement and Control. *Linguistic Inquiry* 30: 69-96.

Hornstein, Norbert. 2001. *Move! A minimalist theory of construal.* Oxford: Blackwell.

Lubowicz, Anna. 1999. Two views of Polish reflexives. In *Proceedings of WCCFL*, ed. S. Bird, A. Carnie, J. Haugen, and P. Norquest. Somerville, MA.: Cascadilla Press.

Marantz, Alec. 1984. *On the nature of grammatical relations.* Cambridge, MA.: MIT Press.

McGinnis, Martha. 1999. Reflexive clitics and the specifiers of *v*P. *MIT Working Papers in Linguistics* 35: 137-160.

Pesetsky, David M. 1995. *Zero syntax: Experiencers and cascades.* Cambridge, MA.: MIT Press.

Reinhart, Tanya. 1996. Syntactic effects of lexical operations: Reflexives and unaccusatives. In *UIL OTS Working Papers*, Utrecht University.

Reinhart, Tanya, and Tal Siloni. 1999. Against the unaccusative analysis of reflexives. To appear in *The unaccusativity puzzle: Studies on the syntax-lexicon interface*, ed. A. Alexiadou, E. Anagnostopoulou, and M. Everaert. Oxford: Oxford University Press.

Rizzi, Luigi. 1986. On chain formation. In *Syntax and Semantics 19: The Syntax of Pronominal Clitics*, ed. Hagit Borer. New York: Academic Press.

Sportiche, Dominique. 1998. *Partitions and atoms of clause structure: Subjects, agreement, case and clitics.* London/New York: Routledge.

Steinbach, Markus. 1999. Argument structure and reflexivity: Middle constructions in German. In *Proceedings of TLS Conference on Argument Structure*, Austin, Texas.

Steinbach, Markus. 2002. *Middle voice.* Amsterdam: John Benjamins.

m.goledzinowska@utoronto.ca

FASL 13, 136–146
Michigan Slavic Publications
2005

Characteristics of a Rule-Based Default Are Dissociable: Evidence against the Dual Mechanism Model*

Vsevolod M. Kapatsinski
University of New Mexico

1 Introduction

The Dual Mechanism Model, or DMM, proposes that regular inflectional morphemes are attached by a categorical default rule, understood as an operation over variables, while irregular inflected words are formed by analogy to irregular forms in the lexicon (Pinker 1999, Pinker and Prince 1988 and 1994, Berent et al. 1999, Clahsen 1999).

The two defining characteristics of a regular pattern applied via a default rule are: 1) the regular pattern is the most frequently used pattern with nonce stems that are not similar to any existing stems, i.e., it is the pattern that is applied by default when formation by analogy fails; and 2) the regular pattern is applied when certain necessary and sufficient conditions defining the variables to which the rule applies have been satisfied, e.g., the stem is a verb. Thus the regular pattern should be applied as readily to nonce stems that are similar to no existing stems as to stems similar only to existing stems taking the regular pattern, i.e., the regular pattern does not exhibit a similarity effect.

The most serious challenge to the DMM so far has come from Albright and Hayes (2003), who found that even the regular English past tense exhibits a similarity effect. Thus when native English speakers are asked to rate the regular and irregular past tense forms of nonce verbs on how natural they sound, they rate regular forms higher if the verb is similar to a number of regular verbs and no irregular ones than if it is similar to neither regular verbs nor irregular ones. These results suggest that no pattern is free from similarity effects.

However, the DMM can account for these effects. Pinker and Prince (1994) state that nothing prevents high frequency inflected forms from being stored in the lexicon, whether they are regular or irregular. There is also nothing to prevent speakers from forming analogies based on these

* My thanks go to Joan Bybee, Jill Morford, and Caroline Smith for fruitful discussions of earlier drafts of this paper as well as the anonymous reviewers for helpful feedback.

stored regular forms. The analogical mechanism would then apply to all patterns, but the rule would be a mechanism that is only used to attach regular patterns. Under this account, the default pattern does not have to be free of similarity effects but must simply be less susceptible to similarity effects than its competitor patterns. A stronger case against the DMM would be made if cases could be found in which the pattern that is least susceptible to similarity effects is not the default pattern. In this paper, we show that Russian verbal stem formation is such a domain.

2 Methods

2.1 The task and the participants

A written questionnaire was given to thirty-nine native Russian undergraduate students studying at the University of the Russian Academy of Education in Nizhny Novgorod, Russia. The questionnaire contained 150 monosyllabic nonce consonant-final roots in pseudorandomized order spelled in Cyrillic. The roots were of six types: 1) similar to the roots of existing verbs in *-a-*, 2) similar to existing verbs in *-i-*, 3) similar to existing verbs in *-nu-* 4) similar to existing verbs in *-ova-* (including also its spelling variant *-eva*), 5) similar to existing verbs taking *-e-*, and 6) similar to no existing verbs.

The subjects were asked to make a verb out of the noun by filling in the missing part. The blank space in the middle of the verb was long enough to allow the choice of the longer stem extensions. The final consonant of the root was omitted so that the subjects would feel free to make consonant changes and to ensure that their maintaining of the consonant in environments where it could change was not due just to their reluctance to cross out letters presented by the experimenter, e.g., (*pljuk*) *plju___t'*, (*xrjuz*) *xrju___t'*, (*lab*) *la___t'*. Participants were shown three examples on the board and had an example of a verb formed with each of the patterns on the questionnaire. The participants were not told what the choices were or what the purpose of the experiment was until after completing the experiment. Participants were under time pressure to complete the questionnaire and were told to write down the first thing that came to mind.

2.2 Stimuli

2.2.1 Measuring phonological similarity

Controlling for similarity to existing words is a crucial methodological issue, since we need to determine which inflectional class a given nonce stimulus is closest to and to identify stimuli that are not similar to any existing verbal stems.

These issues pose an inherent methodological challenge. The traditional method introduced by Prasada and Pinker (1993) and widely used by proponents of the DMM (e.g., Berent et al. 1999) is to take an existing word that rhymes with members of a particular inflectional class, change it in some minimal way (e.g., by one feature), and assume that the nonce word is closest to the members of the inflectional class of the word from which it was created. The problem with this approach is that there is no quantitative control over the number of words from each of the inflectional classes that a given stimulus is close to or of how close it is to each of them (cf. Albright and Hayes 2003). For example, changing /ba_t/ to /pa_t/ makes it close to /fa_t/ (past /f_t/), a word of a different conjugational class than /ba_t/ (past /b_t/).

It is necessary to take into account all words that are close enough to the nonce stimulus to affect its assignment to one of the inflectional classes, i.e., all words in the stimulus' neighborhood (Luce and Pisoni 1998), and to weigh the influence of each of these words by its proximity to the stimulus so that more similar words influence category assignment more.

The method developed for use in this study is a continuation of the methodological work on controlling for similarity carried out in Nosofsky (1990) and Albright and Hayes (2003) and may be termed The Fixed Radius Method, or FIRM.

Under FIRM, the experimenter first makes up a nonce stimulus, chooses a radius of X units of phonological similarity, and finds all words that are within that radius of the stimulus. In this paper, a reverse dictionary (Zaliznjak 1977), and the Ogonek corpus of modern written discourse collected in the 1990's (SFB-441 2000) were searched to obtain words in the neighborhood of a given nonce stimulus.

Second, the experimenter derives a similarity score for each of the words which is the inverse of the number of units of similarity (UNOS) by which the word differs from the nonce stimulus[1]. The similarity score of each of the inflectional classes in the domain is the sum of the similarity scores of the member words which are within the neighborhood radius of the stimulus. The class with the highest similarity score is the class that the stimulus is closest to. Stimuli that are not close to any existing words have no neighbors within the radius. In this study, the radius was set at 4 UNOS (cf. Connine et al. (1993), who found that English words that differed by four features or more do not phonologically prime each other).

[1] UNOS is defined for the purposes of this study below, but it is likely to vary from language to language. Work is currently underway to determine how length of shared segments, position of differences within the syllable, and type of difference interact.

FIRM makes two assumptions. One is that the neighborhood is a discrete set, i.e., the set of words that are brought to bear on a word's category assignment can be delimited (cf. Luce et al. 2000). The second is that the neighborhood has a graded internal structure, i.e., that distance from the stimulus within the neighborhood, rather than simple membership or non-membership in the neighborhood, is relevant. These assumptions are also made in Nosofsky (1990).

As Bailey and Hahn (2001) note, phonological similarity is difficult to measure due to the lack of agreement on what the unit of measurement is. In this paper we take a combined approach to this issue. With the goal of including all words that could possibly influence the subject's categorization, the criteria for inclusion must be quite liberal. Thus, we chose the limit of 4 UNOS divergence between the nonce roots and the roots of existing words, irrespective of where these features are located. The feature system used was that found in Halle (1995).[2] Feature changes implied by more specific changes were not counted, e.g., the change from [d] to [n] involves changing the features [nasal] and [sonorant] but the change in the feature [sonorant] was not counted. The change from one value to another of the non-binary feature [place] was always counted as 1 UNOS, regardless of the distance between values in articulatory space.

Only monosyllabic roots were used in the experiment. Words in the neighborhood were "derived" from the stimulus by the addition or deletion of any number of consonants to the beginning or end (but not the middle or both). This step was taken to bring our measure in line with the finding of Bailey and Hahn (2001) that deletions or additions of consonants do not reduce similarity as long as the number of syllables is maintained. The restriction of insertions to the edges of the word was stipulated in accordance with the preference for concatenation. Other things being equal, affixes are more productive than stem changes when they compete for expression of the same meaning (Dabrowska 2001).

Finally, substitutions of allophones of the same phoneme were counted as changes by ½ UNOS, as were substitutions of one phoneme for another in environments where they would be realized the same phonetically. For example, voiced obstruents devoice at the end of words in Russian, hence the phonemic contrast between /t/ and /d/ is neutralized in this position and the distance between /kot/ and /kod/ (phonetically [kot]) is half a unit.

---

[2] The problematic vowel *y* was classified as [+back. -high. -low] and not as [+back. +high] based on the author's observation of the Nizhny Novgorod dialect, which is spoken by the participants in the experiment.

Below is a summary of the similarity conventions adopted:

- limit = 4 UNOS
- feature change = insertion or deletion of any number of C's on one edge = 1; if no C's remain, = 5
- insertion or deletion of a V or C word-internally = 5
- change of a phoneme keeping the phone = change of a phone keeping the phoneme = 0.5
- identical phonological shape = 0.25 (not 0 in order for division to be possible)
- category attractiveness = $\sum_{w} \frac{1}{s}$ where *w* is a word obeying a certain pattern, while S is the similarity score ($0.25 \leq S \leq 4$)[3]

A control set of words that are not similar to any of the existing words was derived. Such a control set is necessary to evaluate the productivity of various patterns and its dependence on similarity (Clahsen 1999). According to the DMM the pattern used most in this set of stimuli is the default pattern.

2.2.2 Controlling for priming

There is always a danger when working with a large set of stimuli that exposure to the preceding stimuli will affect the reactions to the following stimuli. In order to decrease the likelihood of such priming effects we pseudorandomized the order of presentation of the stimuli using the random number generator from random.org. This ensured that 1) no more than two stimuli close to words taking the same extension occurred consecutively and 2) no more than two stimuli ending in the same consonant occurred consecutively.

Five stimuli from the very beginning of the experiment were repeated at the very end. The large number of intervening stimuli made identity priming between the stimuli less likely. Thus, if there are significant differences between the two sets of stimuli, we may assume that they are to a large degree due to exposure to the intervening stimuli. By comparing the two sets of identical stimuli we can see if priming effects occurred and in what direction they were likely to bias the results. No statistically significant differences (at the .05 level according to the chi-square test) between first and second presentations of the same stimulus were found, either in the aggregate or in specific stimuli. Thus we can conclude that inter-stimulus priming did not occur.

[3] Only for three words was there a need to calculate category attractiveness, since for most words similarity and the number of similar words in that category were in agreement.

2.2.3 Root-final consonant

Gor and Chernigovskaya (2001) conducted an elicited-production experiment where subjects were asked to produce the past tense form of a Russian verb given the present first person singular. They observed that the productivity of a stem extension was influenced by whether or not it required changes in the root. Shvedova et al. (1980) state that the final consonant of the nominal root changes before stem extensions that begin with a front vowel if it is a velar or /c/, as shown in (1)-(3)[4]. This alternation is morphologized, that is, it applies to stem extensions but not case endings (cf. /trevog/ 'worry'; /trevogi/ 'worries; of worry'; but /trevožit'/ 'to worry'[5]). However, the schema has no lexical restrictions.

(1) {/k/; /c/} > [č]

(2) /x/ > [š]

(3) /g/ > [ž]

Thus, we should separate roots that end in a velar or [c] from other roots, since we would expect stem extensions beginning with a front vowel to apply to these roots less often than to other roots.

The stimuli were balanced for palatalization, manner of articulation, and sonority of the final consonant as well as for the preceding vowel. Only palatalization had an effect, favoring front vowels. Results obtained were the same for palatalized and non-palatalized final consonants, thus independent of palatalization.

3 Results

Table 1 shows that *-a-* is the pattern that is used more frequently than any other pattern with velar-final roots that are not similar to any existing roots (chi-square = 5.37, $p < 0.025$). This is in agreement with the observation that stem extensions beginning with front vowels do not come after velar-final stems in the lexicon. Furthermore, *-a-* is the only pattern that does not exhibit a numerical similarity effect if applied to stimuli that are different from all existing roots as frequently as it applies to stimuli that are similar to roots preceding *-a-*. Since the magnitude of the similarity effect of *-a-* is significantly different from the magnitude of that of its nearest competitor *-i-* (chi. sq. = 24, $p < 0.001$), *-a-* is the

[4] This rule is obligatory before stem extensions beginning with front vowel but is also often applied before back vowels, e.g. /bezdel'nik/ ~ /bezdel'ničat'/

pattern that exhibits the weakest similarity effect.

We may note, however, that the stem extension *-i-* was applied after velar-final roots in 33% of the responses (chi. sq. =18.5, p <0.001), which indicates that even rules that are true for every lexical item in the lexicon that meets their input specifications are not necessarily fully productive (cf. Zimmer 1969 for Turkish). This may be because the rule in question has been morphologized.

Table 1. Affix productivity after velars. X stands for the class of roots that take the stem extension shown on the right.[6] Percentages indicate the number of responses choosing the stem extension shown in the top row of the column.

X	*-i-*	*-a-*	*-e-*	*-ova-*	*-nu-*
Similar to X	40% 73/185	45% 118/261	10% 18/185	23% 60/259	11% 20/185
Similar to none	33% 74/222	47% 105/222	4% 8/222	9% 19/222	5% 12/222
Significance	no	No	p<.05	p<.001	p<.1
Similarity effect	7%	-5%	6%	14%	6%

Table 2 shows that *-a-* is the pattern that is used more frequently than any other pattern with labial-final roots that are not similar to any existing roots (although the difference between *-a-* and *-i-* is not statistically significant). The stem extension *-a-* again appears to behave as the default pattern in terms of similarity effects (the difference between *-a*'s reverse similarity effect and no similarity effect displayed by its nearest competitors is significant, chi. sq. = 26, p < 0.001).

Table 2. Affix productivity after labials.

X	*-i-*	*-a-*	*-e-*	*-{o;e}va-*	*-nu-*
Similar to X	62% 115/185	27% 39/147	14% 25/185	19% 35/184	7% 11/148
Similar to none	36% 53/148	44% 65/148	8% 12/148	5% 8/148	4% 6/148
Significance	p<.005	p<.025	no	p<.001	No
Similarity effect	26%	-17%	6%	14%	3%

[6] Note that the percentages in this table need not add up to 100 either horizontally in the top row or vertically, because the percentages come from different groups of stimuli (see appendix for complete results).

Table 3 shows that *-a-* is the only affix that exhibits no simi-larity effect after coronal and palatal consonants. The difference between *-nu-* and *-a-*'s similarity effects is significant (chi. sq. = 5, $p < 0.05$), *-i-* is the affix used most after roots that are not similar to any existing roots (chi. sq. = 5.14, $p < 0.025$). Thus the two characteristics of a default proposed within the DMM are dissociable.

Table 3. Affix productivity after coronals and palatals.

X	*-i-*	*-a-*	*-e-*	*-ova-*	*-nu-*
Similar to X	62% 139/221	33% 72/221	20% 75/378	18% 54/296	9% 27/296
Similar to none	42% 109/258	30% 78/258	8% 21/258	11% 27/258	4% 9/258
Significance	p<.05	No	p<.001	p<.025	p<.001
Similarity effect	20%	3%	12%	7%	5%

4 Discussion and Conclusion

Contra the DMM (Clahsen 1999, Pinker 1999), the most productive affix is not necessarily the one that is unaffected by the similarity of the nonce stimulus to existing stems.

This dissociation is handled easily by Network Theory (Bybee 1995, 2001), which proposes that all patterns are applied by analogy to existing words that are similar to the nonce stimulus. Boudelaa and Gaskell (2002) examine the Arabic plural, where the pattern that exhibits the weakest similarity effect is not the pattern that has the highest type frequency. However, Boudelaa and Gaskell find that it is the pattern whose associate stems are distributed most evenly in phonological space. They suggest that this evenness of distribution accounts for the weakness of the similarity effect: there are no areas in the lexicon where the density of regular models is particularly high. By contrast, even distribution in the lexicon is only one factor that has been demonstrated to influence productivity. For instance, Bybee and Newman (1995) asked native English speakers to learn an artificial grammar in which two patterns competed to form the plural. Once acquisition was complete, the subjects performed an elicited production nonce probe task in which they were asked to form the plural using the recently learned patterns. Whichever pattern was heard with more word types was used more frequently with unfamiliar words, showing the powerful influence of type frequency. The power of this factor was so great that no effect of whether the pattern with the higher type frequency was an affix or a stem

change was observed. By contrast, Dabrowska (2001) examined singular and plural genitive formation in Polish. Only the plural genitive domain featured a default suffix, and interestingly in the plural but not in the singular the suffix competed only with stem changes. The type frequency distributions were similar for the singular and the plural. Hay (2003) found that affixes that formed words that were less frequent than their stems (those with low relative frequency) were more productive than affixes that derived words that were more frequent than their stems, because affixes with low relative frequency are more likely to be isolated in speech segmentation.

Thus, the attributes that cause a pattern to be insensitive to similarity effects may be different from the attributes that cause it to be used more than its competitors with nonce stimuli similar to no words in the lexicon. Weak similarity effects and high rates of use with nonce stimuli similar to no existing words are not indicators of rule-based affixation but rather reflections of different aspects of lexical distribution.

Appendix: Results in Detail:

a. Velar-final roots

Similar to → Takes ↓	*-i-*	*-a-*	*-e-*	*-ova*	*-nu-*	None
I	73 39.5%	72 27.6%	52 28.1%	73 28.2%	37 20.0%	74 33.3%
A	72 38.9%	118 45.2%	82 44.3%	90 34.7%	106 57.3%	105 47.3%
E	3 1.6%	14 5.4%	18 9.7%	12 4.6%	6 3.2%	8 3.6%
VA	16 8.6%	33 12.6%	19 10.3%	60 23.2%	6 3.2%	19 8.6%
NU	10 5.4%	14 5.4%	10 5.4%	18 6.9%	20 10.8%	12 5.4%
Other	11 5.9%	10 3.8%	4 2.2%	6 2.3%	10 5.4%	4 1.8%
Total	185	261	185	259	185	222

b. Labial-final roots

Similar to	*-i-*	*-a-*	*-e-*	*-ova*	*-nu-*	None
I	115 62.2%	66 44.9%	85 45.9%	67 36.4%	63 42.6%	53 35.8%
A	36 19.5%	39 26.5%	49 26.5%	52 28.2%	48 32.4%	65 43.9%
E	16 8.6%	12 8.2%	25 13.5%	21 11.4%	9 6.1%	12 8.1%
VA	9 4.9%	15 10.2%	7 3.8%	35 19.0%	12 8.1%	8 5.4%
NU	8 4.3%	9 6.1%	12 6.5%	7 3.8%	11 7.4%	6 4.1%
Other	1 0.5%	6 4.1%	7 3.8%	2 1.1%	5 3.4%	4 2.7%
Total	185	147	185	184	148	148

c. Coronal- and palatal-final roots

Similar to	*-i-*	*-a-*	*-e-*	*-ova*	*-nu-*	None
I	139 62.3%	109 49.3%	167 44.2%	136 45.9%	110 37.2%	109 42.2%
A	41 18.6%	72 32.6%	80 21.2%	53 17.9%	106 35.8%	78 30.2%
E	13 5.9%	17 7.7%	75 19.8%	32 8.1%	33 11.1%	21 8.1%
VA	11 5.0%	10 4.5%	39 10.3%	54 18.2%	16 5.4%	27 10.5%
NU	6 2.7%	10 4.5%	14 3.7%	7 2.4%	27 9.1%	9 3.5%
Other	11 5.0%	3 1.4%	3 0.8%	14 4.7%	4 1.4%	14 5.4%
Total	221	221	378	296	296	258

References:

Albright, Adam, and Bruce Hayes. 2003. Rules vs. analogy in English past tenses: A computational/experimental study. *Cognition* 90: 119-161.

Bailey, T.M., and U. Hahn. 2001. Determinants of wordlikeness: Phonotactics or lexical neighborhoods? *Journal of Memory and Language* 44: 568-591.

Berent, I., S. Pinker, and J. Shimron. 1999. Default nominal inflection in Hebrew: Evidence for mental variables. *Cognition* 72: 1-44.

Boudelaa, S., and M.G. Gaskell. 2002. A re-examination of the default system for Arabic plurals. *Language and Cognitive Processes* 17: 321-343.

Bybee, Joan L. 1995. Regular morphology and the lexicon. *Language and Cognitive Processes* 10: 425-455.

Bybee, Joan L. 2001. *Phonology and language use*. Cambridge: Cambridge University Press.

Bybee, Joan L., and Jean Newman. 1995. Are affixes more natural than stem changes? *Linguistics* 33: 633-654.

Clahsen, Harald. 1999. Lexical entries and rules of language: A multidisciplinary study of German inflection. *Behavioral and Brain Sciences* 22: 991-1060.

Connine, C. M., D. G. Blasko, and D. Titone. 1993. Do the beginnings of spoken words have a special status in auditory word recognition? *Journal of Memory and Language* 32: 193-210.

Dabrowska, Ewa. 2001. Learning a morphological system without a default: The Polish genitive. *Journal of Child Language* 28: 545-574.

Gor, K., and T. Chernigovskaya. 2001. Rules in the processing of Russian verbal morphology. In *Current issues in formal Slavic linguistics*, ed. G. Zybatow, U. Junghanns, G. Mehlhorn, and L. Szucsich., 528-536. Frankfurt am Main: Vervuert Verlag.

Halle, Morris. 1995. Feature geometry and feature spreading. *Linguistic Inquiry* 26: 1-46.

Hay, Jennifer. 2003. *Causes and consequences of word structure*. New York: Routledge.

Luce, P.A., S.D. Goldinger, E.T. Auer, and M.S. Vitevitch. 2000. Phonetic priming, neighborhood activation, and PARSYN. *Perception and Psychophysics* 62: 615-625.

Luce, P. A., and D. B. Pisoni. 1998. Recognizing spoken words: The Neighborhood Activation Model. *Ear and Hearing* 19: 1–36.

Nosofsky, R. M. 1990. Relations between exemplar similarity and likelihood models of classification. *Journal of Mathematical Psychology* 34: 393–418.

Pinker, Steven. 1999. *Words and rules*. New York: Basic Books.

Pinker, Steven, and Alan Prince. 1988. On language and connectionism: Analysis of a parallel distributed processing model of language acquisition. *Cognition* 28: 73–193.

Pinker, Steven, and Alan Prince. 1994. Regular and irregular morphology and the psychological status of rules of grammar. In *The reality of linguistic rules*, ed. by S.D.Lima, R.L.Corrigan, and G.K.Iverson, 321–351. Amsterdam, Philadelphia: John Benjamins.

Prasada, Sandeep, and Steven Pinker. 1993. Similarity-based and rule-based generalizations in inflectional morphology. *Language and Cognitive Processes* 8: 1–56.

SFB 441, Project B1. 2000. *Ogonek 1996-2000*. http://heckel.sfb.uni-tuebingen.de/cgi-bin/cqp.pl

Shvedova, N.Ju., N.D. Arutjunova, A.V. Bondarko, V.V. Ivanov, V.V. Lopatin, I.S. Uluxanov, F.I. Filin, Ju.S. Maslov, and D.N. Shmelev. 1980. *Russkaja grammatika. Vol. 1*. Moscow: Nauka.

Zaliznjak, A.A. 1977. *Grammatičeskij slovar' russkogo jazyka: Slovoizmenenie*. Moscow: Russkij jazyk.

Zimmer, K.E. 1969. Psychological correlates of some Turkish morpheme structure conditions. *Language* 45: 309–321.

alator@unm.edu

FASL 13, 147–158
Michigan Slavic Publications
2005

Pitch-Accent and Phonologization in Slavic Vowel Length

Darya Kavitskaya
Yale University

1 Introduction: Slavic CL

The term Compensatory Lengthening (CL) refers to a set of phonological phenomena wherein the disappearance of one element of a representation is accompanied by the lengthening of another. Two types of CL are defined according to the nature of the trigger: CL through consonant loss (CVC → CV:) and CL through vowel loss (CV_1CV_2 → CV_1:C). CL through consonant loss is characterized by the lengthening of the vowel as a consequence of the loss of the consonant and also by a change in syllable structure. A closed syllable with a short vowel (as a historical or a synchronic input) ends up as an open syllable with a long vowel.

An example of CVC CL is shown in (1). In Lithuanian, nasals are deleted if followed by a voiceless fricative and are retained otherwise. The deletion of a nasal is accompanied by the lengthening of the preceding vowel, producing a synchronic vowel-length alternation.

(1) CL in Lithuanian

3 SINGULAR	INFINITIVE	
spɾɛn-dʒa	spɾæ:-stɪ	'decide'
sʊn-tʃɛ	su:-stɪ	'send'

The second type of CL differs strikingly from the first. CL through vowel loss is a process whereby the loss of the second vowel in a CVCV sequence is correlated with the lengthening of the first. This type of CL is characterized not only by a change in syllable structure—from two open syllables with short vowels to a closed syllable with a long vowel—but also by the fact that the syllable count is not preserved. Through the loss of the second vowel, a disyllabic input becomes one syllable in the output. Such CL is illustrated in (2), with an example of the diachronic development from Late Common Slavic as reflected in the Old Church Slavic (OCS) to Serbo-Croatian sound change.

(2)	OCS		Serbo-Croatian	
	boru	>	bo:r	'forest'
	medu	>	me:d	'honey'

Slavic CL occurred in Late Common Slavic when jers (short lax high vowels) deleted in certain positions, giving rise to lengthening of the vowel in the preceding syllable.[1] The rule of jer-deletion in Slavic was first stated by Havlík (1889) and was later canonized as Havlík's Law. It is formulated by Isačenko (1970: 73) as follows: "Word-final jers and jers in syllables followed by vowels other than jers become weak. Weak jers are dropped. Jers in syllables followed by a weak jer become strong. Strong jers merge with one or several of the 'non-reduced' vowels."

Data from Upper Sorbian ((Schuster-)Šewc 1968) illustrate the basic mechanism of Slavic CL (3). Note that the reflexes of Pre-Upper-Sorbian *o are different in the genitive singular and nominative singular forms, [ç] vs. [o]. This shows that CL applied in the nominative, where a jer was lost, and did not apply in the genitive, where the ending was a full vowel.

(3)	Upper Sorbian		Pre-Upper-Sorbian[2]	
	GEN.SG.	NOM.SG.	NOM.SG.	
	wɔza	woz	*vȍzu	'carriage'
	nɔsa	nos	*nȍsu	'nose'
	rɔda	rod	*rȍdu	'kin'
	plɔta	plot	*plotȕ	'raft'
	dwɔra	dwor	*dvorȕ	'yard'
	kɔnja	konj	*konjɪ	'horse'

Upper Sorbian represents the simplest case of Slavic CL through the loss of jers: CL applied across the board, regardless of the consonant between the two vowels in the CVCV sequence or the accent. However, CL is notoriously complex in many other Slavic dialects, since it depends on a number of factors which interact with each other (Timber-lake 1983a, b; 1988; 1993). The factors which may affect CL in various Slavic languages are summarized in (4).

---

[1] In the general phonological literature jers are usually represented by the symbols [ĭ] and [ŭ], while Slavists traditionally use symbols ъ for the back jer and ь for the front jer. In this paper I will use [ɪ] and [ʊ] to denote the front and the back jer respectively.

[2] Two types of accent (short falling and short rising) are shown for the reconstructed forms to illustrate that accentuation was irrelevant for the purposes of CL in Upper Sorbian.

(4) (i) the identity of the intervening C_2 in a $C_1V_1C_2V_2$ sequence;
(ii) the identity of the target vowel V_1 in a $C_1V_1C_2V_2$ sequence;
(iii) prosody (the accent of the lengthening vowel);
(iv) position of the disyllabic $C_1V_1C_2V_2$ unit in the word (final vs. non-final);
(v) the identity of a trigger V_2 (front or back jer) in a $C_1V_1C_2V_2$ sequence.

I claim that the conditions on Slavic CL, though complex and intertwined, are not random but comprise a system with a hierarchical organization. Their interaction can be explained by the phonologization model developed in Kavitskaya (2002) and by the facts of Slavic chronology. The model is presented briefly in the next section.

2 Phonologization Model

2.1 Listener-oriented sound change

The view of sound change assumed here is listener-oriented: in certain contexts intrinsic phonetic properties of the speech signal can be misparsed and reinterpreted, yielding phonologization (Ohala 1992, Blevins and Garrett 1998, Blevins to appear).

Ohala cites nasalization to illustrate the phenomenon of hypocorrection as a listener-oriented sound change. For example, in Hindi the loss of a nasal consonant results in the nasalization of a preceding vowel. The table in (5) shows the stages of nasalization:

(5)

	Stage 1		Stage 2
speaker says	[v)N]		[v)N]
	↓		↓
listener parses	/VN/	⟶	/v)/

At Stage 1 the vowel which is followed by the nasal is predictably nasalized and discounted by the listener. At Stage 2, however, the vowel is analyzed as distinctively nasalized, since the environment conditioning nasalization—the nasal—is lost.

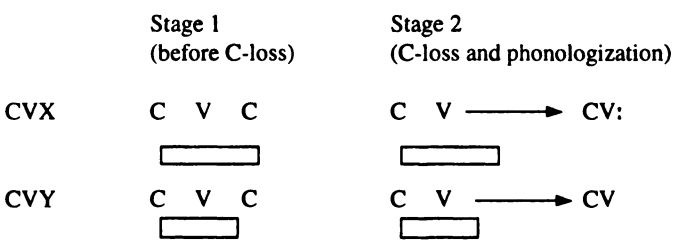
In Kavitskaya (2002) I proposed that diachronic CL processes are analogous to hypocorrective nasalization. In the case of CL, vowel duration is present in the string in question at all times, but it is reanalyzed as phonemic length upon the loss of the environment, parallel to other hypocorrective changes. Thus, CL as a historical process does not in fact involve any transfer of length or weight. Rather, intrinsic phonetic vowel durations are reinterpreted as phonologically significant upon a change in the conditioning environment or syllable structure.

2.2 CL through consonant loss

This proposal analyzes CL through consonant loss as having its origin in the phonetic lengthening of vowels in the environment of neighboring consonants. The loss of the conditioning environment (the consonant) leads to the reanalysis of phonetic length as phonological. Such a hypothetical situation is illustrated in (6).

In the first instance, X is a consonant with relatively long vocalic transitions, e.g., a glide. In the second instance, Y is a consonant to which vocalic transitions are much shorter, e.g., a stop. Prior to the deletion of the consonants (Stage 1), both vowels are correctly analyzed as phonologically short, since the length of the transitions is parsed by listeners as caused by the neighboring consonant and is discounted. If both X and Y are not heard by listeners, leading to their subsequent loss, the transitions are reinterpreted as a part of the vowels. A vowel which is inherently longer in the environment of X than in the environment of Y is more likely to be reinterpreted as contrastively long (Stage 2).

(6) Phonologization of vowel length: CL through consonant loss

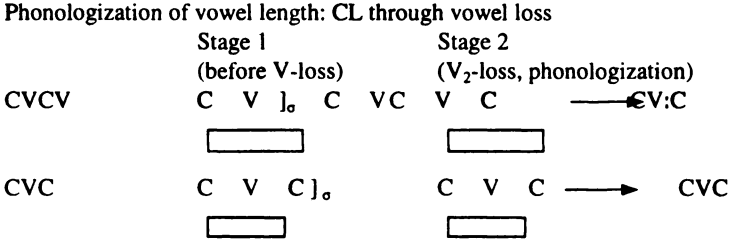


2.3 Origins of CVCV CL

To understand the origins of CL through vowel loss, it is important to take into account that vowels in open syllables are typically longer than vowels in closed syllables (Maddieson 1985, Rietveld and Frauenfelder 1987, et al.). This generalization allows us to model most examples of CVCV CL as a phonologization process.

Consider the schematic example of CL through vowel loss in (7).

(7) Phonologization of vowel length: CL through vowel loss



Prior to the deletion of the final vowel, the longer vowel duration characteristic of open syllables is correctly parsed by listeners as a phonetic consequence of syllable structure (Stage 1). The vowel is interpreted as phonologically short, as is intended by the speaker. With the deletion of the final vowel, however, the duration of the vowel in the newly closed syllable becomes inexplicable, since it is longer than is expected in the closed syllable (Stage 2). The listener therefore parses the longer duration as having been intended by the speaker and reinterprets the vowel as phonologically long.

3 Prosodic Conditions[3]

Accentuation plays a role in the majority of CL cases in Slavic. Timberlake (1983b: 306) states that accent divides Slavic CL into two large areas. One is Northwestern South Slavic (Slovenian and dialects of Serbo-Croatian), the other includes Southwestern East Slavic (Ukrainian and Belarusian dialects) and West Slavic (Slovak, Czech, Upper Sorbian, Polish, and Kashubian). In Northwestern South Slavic, CL applies in more environments and is sensitive to fewer additional conditioning factors under the circumflex (falling accent) than under the acute or neo-acute (rising accents). However, in both Southwestern East Slavic and all of West Slavic, CL is subject to fewer conditioning factors under the neo-acute (the new rising accent resulting from accent shift) than under either the circumflex or the acute (old accents). Moreover, the accentuation condition on CL is connected with the position in the word. In many cases the position in the word (final or medial) is irrelevant. But when it is relevant, final position coincides with CL more consistently under the new rising accent than under the old falling and rising accents. Under the old accents, however, CL seems to happen more regularly in word-medial position.

Before we consider the relevance of accentuation to CL, it is necessary to recall that the Common Slavic[4] vowel system was one based on quantity, consisting of /i æ ɑ u/ and their long counterparts.[5] In addition to distinctive length, Common Slavic prosody was characterized by a pitch accent system, traditionally described as consisting of four distinct accents, shown in (8): long falling (circumflex) and short falling,

[3] In this paper we are concerned only with the effects of accent on the outcome of CL in Slavic. See Kavitskaya (2002) for an account of segmental conditioning of Slavic CL.

[4] Generally said to have existed some time around the ninth century A.D., in the period just prior to the disintegration of the Slavic family into its respective branches. Some of this disintegration, however, even at this time was already underway dialectally.

[5] Oral, liquid, and nasal diphthongs will not concern us here.

restricted to initial syllables; short rising, occurring only on non-initial syllables; and long rising (acute), whose distribution was unrestricted.

(8) Accents of Common Slavic

Accent	Symbol	Distribution
Circumflex (long falling)	^	Restricted to initial syllables[6]
Short falling	̏	Initial syllables only. Often conflated with short rising as one accent because of complementary distribution.
Acute (long rising)	́	Unrestricted
Short rising	̀	Non-initial syllables only.

4.1 Old rising and falling accent: a reanalysis

It is more convenient for our purposes to think of accents in Slavic as different configurations of High tone. A recent analysis of Slavic accent in terms of tone is that of Bethin (1998).

(9) Bethin's system of Slavic accentuation

Acute	a. short rising	b. long rising
	σ	σ
	|	/\
	μ	μ μ
	|	|
	H	H
Circumflex	c. short falling	d. long falling
	(*)[7]	(*)
	σ	σ
	|	/\
	μ	μ μ

According to Bethin a rising accent can be represented as a High tone on a mora (9a-b) and a falling accent as an absence of tone (9c-d). Long rising accent is distinguished by the location of the High on the second mora (9b).

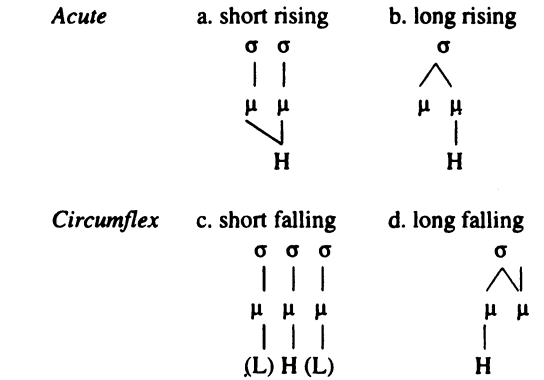
For the purposes of the current analysis I will use the system of

[6] See Timberlake 1993 for discussion of indirect evidence for non-initial circumflexes in certain oxytone verbal paradigms.

[7] Asterisk stands for stress.

Slavic accentuation proposed in Barnes and Kavitskaya (1998), which slightly modifies Bethin's analysis. We hypothesize that rising accents in Common Slavic were realized over two moras, just in the modern Slavic dialects with pitch accent such as dialects of Serbo-Croatian (Inkelas and Zec 1988). According to this model a short rising accent is centered by definition over a monomoraic vowel. The other mora of the high tone necessary for a rising accent is thus realized on the preceding syllable.[8] So with the short rising accent, the pre-tonic syllable participates in the pitch contour of the accent, constituting a part of the rising slope. This explains why the short rising accent never occurs initially (i.e., without a pre-tonic syllable).

(10) Slavic accentuation (Barnes and Kavitskaya 1998)



4.2 *Lengthening under the falling accent*

We can now turn to the analysis of the accentuation as a factor in Slavic CL. First, we will look at the instances of vowel lengthening where the segmental environments for CL under the falling accent are a superset of the environments in which CL occurs under the rising accent. This is the case in a few North-Western South Slavic dialects.

4.2.1 *Data*

In Slovenian, vowels under the short falling accent are lengthened (11a), but vowels under the rising accents (acute and neo-acute) (11b) are not (Timberlake 1983b: 296).

[8] We will represent both vowels participating in this rise as linked to the high tone of the prominent syllable to distinguish the rising contour from the sequence of LH tones, as, for example, in the case of short falling accent.

(11)	Late Common Slavic			Slovenian	
a.	*bȏgu	HL	>	bo:g	'god'
	*kȏstɪ	HL	>	ko:st	'bone'
b.	*konjȉ	HH	>	kònj	'horse'

In Serbo-Croatian, CL happens under all accents, but it is more restricted under the rising accents, where it is sensitive both to the nature of the intervening consonant and occasionally to the position of the disyllabic CL unit in the word (Timberlake 1983a: 222). For example, in Štokavian dialects (except Posavian) under the rising accents CL in the final position occurs only before a palatal glide *j* (12a) and not before other sonorants (12b). Internally, however, CL occurs before all sonorants, as in (13).

(12)	NW South Slavic[9]			Štokavian	
a.	*krȁjɪ	HL	>	krâ:j 'place'	
	*rȁjɪ	HL	>	râ:j	'heaven'
b.	*konjȉ	HH	>	kȍnj	'horse'
	*dȉmu	HL	>	dȉm	'smoke'

(13)	Štokavian word-internally				
	*stȁrɪtsa	HLL	>	stâ:rtsa	'old man'
	*pȁlɪtsa	HLL	>	pâ:ltsa	'finger'

4.2.2 Analysis

The development of the rising accents in North-Western South Slavic can shed light on the outcome of CL under different accents. A series of mergers created a situation where the lax vowels *e* and *o* (the only ones to undergo CL in most dialects of Slavic including North-Western South Slavic) could be only short under the rising accent. If the shortening of the rising accents happened before the shortening of the falling accents in these dialects, as Timberlake (1983b) suggests, it can be argued that at some point in the history of Slavic (which coincided with the fall of the jers) only vowels under the falling accent could be long in North-Western South Slavic dialects. It is entirely plausible that North-Western South Slavic maintained the allophonic length of the falling accent longer than the length of the rising accent. Thus, I propose that vowels under the falling accent were phonetically longer than vowels under the rising accent, which was an additional factor in the phonologization of vowel duration as length.

---

[9] This reconstruction represents the stage after the shortening of the new rising accent in North-Western South Slavic: krȃ:jɪ (HHL) > krȁjɪ (HL).

Additionally, both long and short falling accents were restricted to the initial syllable of words lacking a rising accent; for a few potential exceptions see Timberlake 1993). So if CL has fewer restrictions under the falling accent, it will necessarily have fewer restrictions in the non-final position of a word. Indeed, in South Slavic CL is sensitive to fewer additional conditions in word-medial than in word-final position.

4.3 Lengthening under the new rising accent

The situation in Southern West Slavic is the opposite of that of North-Western South Slavic. Although it has been claimed that the new rising accent merely "favored" CL (Timberlake 1983 and references therein), I will argue that it resulted in vowel lengthening with no contextual restrictions.

4.3.1 Data

According to Timberlake (1983b: 295), Slovak (Southern West Slavic) has CL of *e, o* "only under the NAct, and then across any consonant and in any word position", as shown in (14a). In (14b) I show that CL does not occur under the old falling or rising accents in Slovak.

(14) Slovak

a.	*ženù	HH	>	ʒe:n	'wife' gen.pl.
	*vedlù	HH	>	ve:dol	'to lead' pptcpl
	*noʒìka	HHL	>	no:ʒka	'leg' dim.
b.	*mȅdu	HL	>	med	'honey'
	*mȁtuka	HLL	>	matka	'mother'

In Northern West Slavic, in addition to regular reflexes of length before sonorants and voiced obstruents, in Old Polish and in modern Polish dialects there are occasional examples of long vowels before voiceless obstruents (Timberlake 1983a: 216). All these reflexes involve the new rising accentuation (15).

(15) Polish

NOM.SG.			GEN.PL.		
stopa	sto:p	<	stopù	HH	'foot'
kosa	ko:s	<	kosù	HH	'braid'
osa	o:s	<	osù	HH	'wasp'

This shows that in Polish, CL under the new rising accent developed regardless of the identity of the intervening consonant, whereas under other accents it applied only before sonorants and voiced obstruents and not before voiceless obstruents.

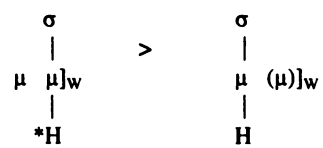
This allows us to conclude that while CL in West Slavic was sensitive to the nature of the intervening consonants under the old falling and rising accents, under the new rising accent lengthening applied across the board. How do we account for this pattern?

4.3.2 Analysis

Earlier we argued that CVCV CL crucially depends on the inherent phonetic length of the target vowel. However, since Late Common Slavic was a pitch accent system, accents did not require durational cues (compare modern Serbo-Croatian, which is a pitch accent language and has no durational cues for accent).

We have seen that in Northern West Slavic dialects CL is conditioned by the new rising accent (the neo-acute) whatever the intervening consonant is. The neo-acute arose from the retraction of the original rising acute from the jer to the preceding vowel, as illustrated in (16).

(16) Retraction of acute

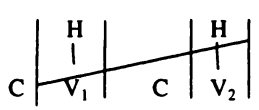


In most dialects the new rising accent is realized on long vowels only (Carlton 1991: 198), unless it shortens and merges with the old short rising accent.[10]

We have shown that the short rising accent requires the second mora of the High tone to be realized on the preceding vowel, as shown above in (9).

Thus, the old short rising tone was phonetically manifested as a pitch rise over two vowels. In (17) I show this state of affairs before the loss of a final short rising accent.

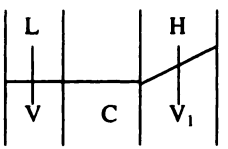
(17) Short rising accent realized over two vowels

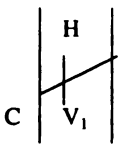


[10] There is a disagreement in the literature on where the neo-acute length comes from, but at least some researchers believe that the neo-acute lengthening was a separate process which applied after jers were sufficiently reduced to cause the retraction of accent but were not yet lost (Carlton 1991, among others).

With the reduction of the second vowel, the rising slope on the first could be easily reinterpreted as a new rising tone. If the original word was longer than two syllables, there was no rising slope on the vowel preceding the newly accented vowel, as in (18a). Or the newly accented vowel was in the first syllable in a word, so the whole entirety of the rising pitch contour was now realized over a monomoraic vowel (18b).

(18) Short rising accent

a. 

b. 

However, in Late Common Slavic, rising accents had to be realized over two moras, leading to the circumstance in West Slavic languages, such as Slovak, dialects of Polish, and Kashubian, that the newly accented vowel was reinterpreted as long.

This analysis treats the neo-acute retraction and CL as unrelated events and provides an explanation of why the lengthening of vowels under the neo-acute accent happened across the board in the West Slavic dialects in question. While CL was sensitive to the nature of the intervening conso-nant, the neo-acute lengthening applied in all cases when the accent on a jer was originally rising.

5 Conclusion

I have argued that in the cases were CL applied with fewer restrictions in the falling-accent environment, vowels under the falling accent were longer than vowels under the rising accent not by virtue of their inherent phonetic properties but for the reasons of chronology. From the phonetics side alone we would expect the opposite outcome: phonetic studies show that rising accents take longer than falling accents. In those cases where the opposite situation obtained (where CL applied in the superset of the possible environments under the rising accent), my account again crucially depends not only on the phonetic facts but also on the chronology of the sound changes in question. It does not constitute a counterexample to the predictions of the phonologization model.

References

Barnes, Jonathan, and Darya Kavitskaya. 1998. Vowel reduction in Slavic and phonetic naturalness in phonology. Ms., University of California, Berkeley.

Bethin, Christina. 1998. *Slavic prosody: Language change and phonological theory.* Cambridge: Cambridge University Press.

Blevins, Juliette. To appear. *Evolutionary Phonology.*

Blevins, Juliette, and Andrew Garrett. 1998. The origins of consonant-vowel metathesis. *Language* 74: 508-556.

Carlton, Terence. 1991. *Introduction to the phonological history of the Slavic languages.* Columbus, OH: Slavica Publishers, Inc.

Havlík, A. 1889. K otázce jerové v staré češtině. *Listy filologické* 16: 45-51, 106-116, 248-258, 342-353, 436-445.

Inkelas, Sharon, and Draga Zec. 1988. Serbo-Croatian pitch accent: The interaction of tone, stress, and intonation. *Language* 64: 227-248.

Isačenko, A. V. 1970. East Slavic morphophonemics and the treatment of the jers in Russian: A revision of Havlík's Law. *International Journal of Slavic Linguistics and Poetics* 13: 73-124.

Jakobson, Roman. 1963. Opyt fonologic&eskogo podxoda k istoriceskim voprosam slavianskoi akcentologii. Pozdnii period slavianskoi iazykovoi praistorii. In *American Contributions to the Fifth International Congress of Slavists*, vol. I: *Linguistic Contributions*, 153–178. The Hague: Mouton.

Kavitskaya, Darya. 2002. *Compensatory lengthening.* New York and London: Routledge.

Maddieson, Ian. 1985. Phonetic Cues to Syllabification. In *Phonetic Linguistics: Essays in Honor of Peter Ladefoged*, ed. Victoria Fromkin, 203-221. Orlando: Academic Press.

Ohala, John. 1992. What's cognitive, what's not, in sound change. In *Diachrony within synchrony: Language history and cognition,* ed. Günter Kellermann and Michael D. Morrissey, 309-355. Frankfurt: Peter Lang.

Rietveld, A. C. H., and U. H. Frauenfelder. 1987. The effect of syllable structure on vowel duration. In *Proceedings of the Eleventh International Congress of Phonetic Sciences*, 28-31. Academy of Sciences of the Estonian SSR, Tallinn.

(Schuster-)Šewc, Hinc. 1968. *Gramatika hornjoserbskeje rěče.* Budyšin: Ludowe nakladnistwo Domowina.

Timberlake, Alan. 1983a. Compensatory lengthening in Slavic, 1: Conditions and dialect geography. In *From Los Angeles to Kiev*, ed. Dean S. Worth and Vladimir Markov, 207-235. Columbus, OH: Slavica.

Timberlake, Alan. 1983b. Compensatory lengthening in Slavic, 2: Phonetic reconstruction. In *American contributions to the Ninth International Congress of Slavists,* ed. Michael Flier, 293-319. Columbus, OH: Slavica.

Timberlake, Alan. 1988. The fall of jers in West Slavic (Kashubian and Upper Sorbian). *Welt der Slaven* 33: 225-247.

Timberlake, Alan. 1993. Isochrony in Late Common Slavic. In *American Contributions to the Eleventh International Congress of Slavists, Bratislava, August-September 1993. Literature, Linguistics. Poetics,* ed. Robert A. Maguire and Alan Timberlake, 425-439. Columbus, OH: Slavica.

FASL 13, 159–169
Michigan Slavic Publications
2005

Crosslinguistic Perspective: The Case of the Dative*

Jelena Krivokapić
University of Southern California

1 Introduction

This paper presents a syntactic and semantic analysis of how the dative DP interacts with adjectives in Serbian and briefly examines the same construction in Bulgarian and Russian. The construction in question is exemplified by (1), where the dative DP appears in addition to the subject of predication; compare (2):[1]

(1) Tanja je Marku lepa.
Tanja$_{NOM}$ is Marko$_{DAT}$ pretty$_{F.SG.NOM}$
'Tanja is pretty by Marko's standards.'

(2) Tanja je lepa.
Tanja$_{NOM}$ is pretty$_{F.SG.NOM}$
'Tanja is pretty.'

Sentence (1) means that from Marko's point of view Tanja is pretty. Sentence (2) makes a more general claim about Tanja's prettiness, the speaker assuming that she is pretty by generally accepted standards. The dative in (1) relativizes the semantic content of the sentence to the particular point of view of the referent of the dative.

The main goal of the paper is to see what the characteristics of the

* I am grateful to Hagit Borer, Roumi Pancheva, and James Higginbotham for many useful discussions. Thanks also go to two reviewers who provided helpful comments. Further thanks are due to the audiences at DGfS 2004, and at FASL 13, especially to Maria Babyonshev and Ljiljana Progovac. I would further like to thank Elvira and Alenka Mandić, Aleksandar Macura, Damir Islamović, and Dejan Kostić for their help with the Serbian data; Tania Ionin, Stella de Bode, Pavel Nikitin, and Katya Pertsova for their help with Russian; and Roumi Pancheva, Katerina Kroucheva, and Milena Petrova for their help with Bulgarian.

[1] In the translation I use the notation "by X's standards" to express the meaning of the dative. As will be shown in section 2, this is an accurate translation.

construction in (1) and (2) are and how the dative contributes to the meaning. I will argue that the contribution of the dative DP is due to its being generated in Spec,DegP and relativizing the meaning of the adjective directly there. Kennedy (1999) provides the background for my analysis of adjectives. After establishing the relevant properties of this construction in Serbian, I will examine data from Bulgarian and Russian in order to determine the compatibility of the dative with adjectives in these languages.

2 Serbian

Serbian allows this construction with all adjectives which admit predicative use. The same contrast as noted above in (1) and (2) can be seen in (3) and (4).

(3) Ona je zabavna.
she$_{NOM}$ is fun$_{F.SG.NOM}$
'She is fun.'

(4) Ona je Mariji zabavna.
she$_{NOM}$ is Marija$_{DAT}$ fun$_{F.SG.NOM}$
'She is fun by Marija's standards.'

The dative is used when the dative DP's standards are felt to diverge from universal standards or when these standards are less clear. The felicity of the dative depends on the extent to which the property described by the adjective is a matter of point of view. Sentence (5) (due to H. Borer, p.c.) is grammatical, but it is pragmatically not felicitous Michael Jordan is tall by everyone's standards. The dative is superfluous in this sentence. On the other hand, (6) is more felicitous, because the

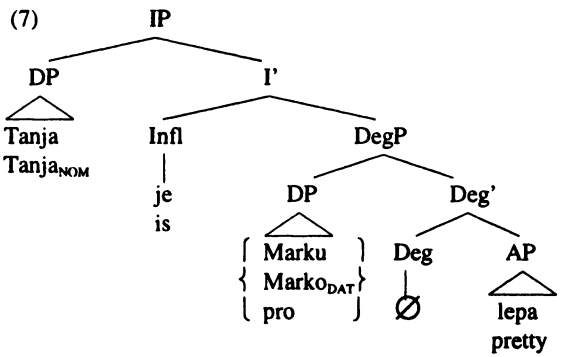
dative's point of view diverges from the common standards.[2]

(5) Majkl Džordan mi je visok.
Michael$_{NOM}$ Jordan$_{NOM}$ I$_{DAT.CLITIC}$ is tall$_{M.SG.NOM}$
'Michael Jordan is tall by my standards.'

(6) Meni Majkl Džordan nije visok.
I$_{DAT}$ Michael$_{NOM}$ Jordan$_{NOM}$not.is tall$_{M.SG.NOM}$
'Michael Jordan is not tall by my standards.'

The syntactic structure for sentences (1) and (2) is given in (7).[3]

(7)



The dative DP is generated in Spec,DegP. It checks its dative case in Spec,DegP (parallel to the checking of the genitive in Spec,DP). When there is no dative DP, as in (2), I will assume that *pro* is generated in

[2] As a reviewer notes, in (5) the dative is a clitic and in (6) it is a full DP. A full DP as opposed to the clitic is in general used for emphasis. In (5) a full DP would make the sentence even more pragmatically anomalous: the dative DP signals a divergent point of view, and using a full DP would stress the uniqueness of this viewpoint: from my, as opposed to the general point of view, Michael Jordan is tall. As with other pragmatically anomalous dative sentences, the anomaly of (5) can be remedied by an appropriate context (for example, if the speaker were in the company of giants, who would presumably think Michael Jordan is short, sentence (5) would be fine). Sentence (6) on the other hand is possibly even more natural with a full DP than it would be with a clitic, for the same reason: a full dative DP emphasizes even more that my point of view diverges from the standard. But (6) would be grammatical and felicitous with a clitic as well.

[3] This structure is based mainly on preposing, binding, and deletion data (see Krivokapić (in preparation)).

Spec,DegP instead and gets interpreted as a universal quantifier (based on Epstein 1984).

The semantics of the construction is derived using Kennedy's (1997) scalar theory of the adjective. In scalar analyses, gradable adjectives are expressions that denote relations between objects and points on a scale, degrees.[4] A scale is a linearly ordered set of degrees, i.e., a set where a relation "greater than" is defined. A degree on a scale represents the amount of the gradable property an object has. In other words, the adjective orders objects along a scale of degrees depending on how much of the property expressed by the adjective they have.

According to Kennedy, the meaning of adjective constructions is derived by comparing two degrees, and for the positive construction the two degrees to be compared are the degree of the standard and the degree of the reference.[5] The sentence *John is tall* has the interpretation 'the degree to which John is tall (the reference value) is at least as great as some standard for tallness'. This is implemented by positing that in positive constructions a null morpheme Ø is generated in Deg, with a semantic representation as is shown in (8) and explained below.[6]

(8) $[\text{Deg } \emptyset] = \lambda G\, \lambda P\, \lambda x\, [\text{ABS}(G(x))(\text{STND}\,(G)(P))]$

This degree morpheme makes reference to two functions, ABS and STND. The function ABS is the main function of the degree morpheme in that it computes the degree comparison. The first argument of the function ABS is G(x), the degree of the reference value (which is the degree to which the subject has the property G). The second argument is STND(G)(P), the degree of the standard value (which is calculated by the function STND by taking into account the comparison class P for the property G; see Kennedy 1999 for details). The function ABS returns truth values, and the way ABS decides on them is given in (9).

---

[4] I will not go into the various theories of adjectives. For a detailed discussion of the vague predicate analyses see, e.g., Kamp (1975) and Klein (1980), and for the scalar analyses see, e.g., von Stechow (1984), Bierwisch (1989), Kennedy (1999), and Heim (2000)).

[5] It should be noted that Kennedy argues that adjectives denote functions from objects to intervals, rather than to degree points. For the purposes of this analysis, the question of degree point vs. interval is not crucial, so I will use the more common notion of degree points here.

[6] Kennedy postulates different degree heads for different degree constructions (i.e., a different degree head for the positive construction, and three different degree heads for the comparative construction).

(9) ||ABS (d1)(d2)|| = 1 iff d1 ≥ d2

According to (9), ABS yields the truth value 1 (true) when the first argument, d1 (the reference value), is higher or at the same degree on the scale of the adjective than the second argument, d2 (the standard value); otherwise it yields the truth value 0 (false). This corresponds to the intuition that the sentence *John is tall* is true when the height of John is above or equal to what, in one way or other, is determined to be the standard for tallness.

For sentences with an overt dative, the intuition is that the dative is part of the meaning of the adjective, contributing to the identification of the standard degree. Looking at non-measure adjectives (e.g., *pretty, mysterious*) we see that the ordering of objects along the scale of the adjectives is also determined by the dative. Non-measure adjectives have less agreed-upon ordering of objects on the scale of the adjective, i.e., there is no universal scale for these adjectives (as opposed to measure adjectives, e.g., *tall, long,* etc.). So the dative has to perform two operations: it sets the standard value and it orders the objects along the adjective scale. A sentence like (1) means 'Marko has a standard scale of prettiness, and by this standard, Tanja is pretty'.

The first component of the semantic contribution of the dative (i.e., setting the standard) can be implemented by treating the dative as the third argument of the STND function, yielding STND(y)(G)(P), where y is the dative argument, G the property of the adjective, and P the comparison class (see (12) for the complete degree head). The dative in this way encodes the fact that the degree of the standard depends on the perspective of some entity. The function gives as value the degree of the standard, as determined by the dative, as shown in (10).

(10) $STND(y)(G)(P) = d_y$

Another way to think of the STND function is that it consists of two separate functions. The first function takes as argument the dative argument y and returns as the value a function that takes G and P as arguments and gives the dative's standard degree (d_y) as the value. This corresponds to the intuition that different people have different standards for the same property and same comparison class.

The second component of the function of the dative is the selection of the relevant ordering. This component can be integrated in the ABS function. The purpose of ABS is to decide whether a sentence is true by comparing the reference value d1 and the standard value d2. Kennedy's original formulation assumes that there is just one ordering of the degrees. So the fact that there is more than one ordering possible needs to be integrated with the fact that the dative has the possibility of choosing

one particular ordering out of all those available. This can be done by treating the dative as the third argument of the ABS function. The value of the ABS function is still a truth value as before, and this truth value depends on the comparison of two degrees as before, but now it is the comparison of two degrees taken from a particular ordering that is relevant, i.e., the particular ordering selected by the dative argument. The way the new ABS function decides on the truth value is as given in (11).

(11) $\|ABS(y)(d1)(d2)\| = 1$ iff $d1_{(y)} \geq d2_{(y)}$

Adding the dative as the third argument of the ABS function is a way to capture the dependency of the ordering on the perspective given by the dative. Another way to think of the ABS function is that it consists of two separate functions. The first function takes a set of orderings as the argument, yielding a single ordering as its value (the ordering of the dative DP), and the second function takes the dative's ordering as the argument and compares two degrees along that ordering, yielding a truth value as the value. The new ABS function does the work of these two functions at the same time, directly taking as the arguments the dative and the two degrees in the chosen order and yielding a truth value as its value.[7]

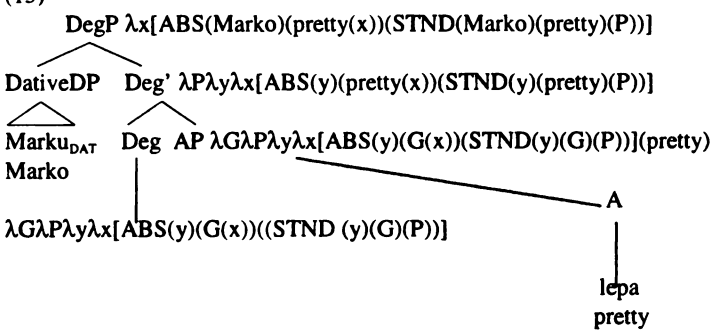
The semantics for the degree morpheme is now:

(12) $[Deg \emptyset] = \lambda G\, \lambda P\, \lambda y\, \lambda x\, [ABS(y)(G(x))(STND\,(y)(G)(P))]$

Here the ABS function takes three arguments: the dative y, the reference value G(x), and the degree of the standard value as given by STND(y)(G)(P). The function STND takes three arguments as well: the dative y, the property G, and the comparison class P. The derivation in (13) shows the semantic computation of the DegP for (1).

[7] Note that the only difference between measure and non-measure adjectives is that for the former there is only one ordering of objects whereas for the latter there are several. The dative selects one particular ordering in both cases, but in the case of measure adjectives the selection is a vacuous operation.

(13)



To sum up, the dative DP is generated in Spec,DegP, where it sets the standard variable and the ordering of objects on the scale of the adjective, thus straightforwardly deriving the interpretation. In sentences without an overt dative, *pro,* interpreted as the universal quantifier, is responsible for these operations. In this way, a general, universally valid interpretation is achieved.

In the remaining part of the paper I look at Bulgarain and Russian to see to what extent the dative is compatible with adjectives in these languages.

3 Bulgarian

In Bulgarian the use of the dative is more restricted than in Serbian. According to whether they allow the dative construction or not, there are three classes of adjectives in Bulgarian:

- Class 1: *xubav* 'pretty', *inteligenten* 'intelligent, *glupav* 'stupid', *pâstâr* 'colorful', *idealen* 'ideal', etc.
- Class 2: *čist* 'clean', *gorešt* 'hot', *dâlâg* 'long', *daleč*en 'distant', *červen* 'red', etc.
- Class 3: *mil* 'dear', *težâk* 'difficult', *gnusen* 'disgusting', *vesel* 'fun', *interesen* 'interesting', etc.

The characteristics of these classes are as follows. Class 3 allows the dative:

(14) Tja mi e mila.
she I_{DAT} is $dear_{F.SG}$
'She is dear by my standards.'

(15) Gnusen mi e.
disgusting$_{M.SG}$ I$_{DAT}$ is
'He is disgusting by my standards.'

The interpretation of the sentences is the same as in the corresponding Serbian examples: the dative DP sets the standard and the scale of the adjective.

Class 2 adjectives allow the dative, as seen in (16) and (17).[8]

(16) San Francisco mi e daleč*e*n.
San Francisco I$_{DAT}$ is faraway$_{M.SG}$
'San Francisco is too far away according to my standards.'

(17) Čajat mu e gorešt.
Tea-the he$_{DAT}$ is hot$_{M.SG}$
'The tea is too hot by to his standards.'

Class 2 adjectives have the interpretation of 'too *adjective*', even if there is no overt 'too' (R. Pancheva, p.c.). Sentence (16) means 'San Francisco is too far away for me', and sentence (17) means 'the tea is too hot for me'. In both sentences the dative DP is in some sense affected by the adjective. Note that the adjectives in this class have a common scale associated with them, i.e., they are adjectives whose scale has a standard measure unit associated with it.

Finally, Class 1 adjectives are adjectives which do not allow the dative, unless an overt 'too' (*prekaleno*) is added.

(18) Tja mu e prekaleno inteligentna.
She he$_{DAT}$ is too intelligent$_{F.SG}$
'She is too intelligent by his standards.'

(19) Rokljata mi e prekaleno červena.
Dress-the I$_{DAT}$ is too red$_{F.SG}$
'The dress is too red by my standards.'

The common property of Class 3 adjectives is that they are psych predicates. The common property of Class 2 adjectives is that they have a standard measure unit associated with them.

---

[8] Note that Bulgarian does not have dative case for full DPs, it uses the clitic and the preposition *na* with an accusative marked DP instead. For pronouns, the dative clitic is available (Franks and King 2000).

4 Russian

Like Bulgarian, Russian does not allow datives in all adjective constructions, and again the adjectives fall into three classes, corresponding to the classes in Bulgarian. Class 1 does not allow the dative and includes adjectives like *krasiva* 'pretty', *glup* 'stupid', *umen* 'smart'. In contrast to Bulgarian, these adjectives do not allow the dative even when *sliškom* 'too' is added. Class 2 is also hardly acceptable with the dative. The acceptance of the dative with this class of adjectives varies across speakers and improves for all speakers with the addition of *sliškom* or in an empathic context. It includes adjectives like *vysok* 'tall', *gorjač* 'hot', *dlinen* 'long', etc.[9]

(20) Mne ètot čaj sliškom gorjač.
I_{DAT} this $tea_{M.SG.NOM}$ too $hot_{M.SG.SF}$
'The tea is too hot by my standards.'

Finally, Class 3 allows the dative, as in Bulgarian, but it is still very dependent on speaker and context. It includes adjectives like *truden* 'difficult', *prijaten* 'pleasant', *dorog* 'dear', *protiven* 'unpleasant', *vraždeben* 'hostile', *skučen* 'boring'.

(21) Mne ona doroga.
I_{DAT} she_{NOM} $dear_{F.SG.SF}$
'She is dear by my standards.'

We can conclude that in Russian there is a graded distinction between the three classes of adjectives, as there is in Bulgarian, but that in general, the usage is more restricted.

5 Discussion

The previous sections looked at three different languages that to varying degrees accept the dative with adjectives. The question that remains is why the construction is more restricted in Bulgarian and Russian than it is in Serbian. Here I will only offer some suggestions as to the possible reasons for these differences.

Serbian allows the dative with all adjectives. Russian and Bulgarian both allow the dative with psych adjectives. Bulgarian allows Class 2

[9] It should be noted that only the short form of the adjective is allowed in this construction. This issue needs further investigation.

adjectives (the measure adjectives) with the dative as well, and Russian, given the right context, marginally accepts Class 2 adjectives. Finally, Class 1 adjectives do not take the dative in any context either in Russian or in Bulgarian. However, Bulgarian allows all adjectives with 'too', even Class 1 adjectives. This is not true for Russian, even though *sliškom* 'too' improves acceptability.

I would like to suggest that the crucial difference among these languages lies in how fixed the standard of the adjective is, i.e., how easy it is to use a personal standard with an adjective. In Serbian, any adjective can have its standard determined by the dative, as opposed to having a fixed standard. This is true only for psych adjectives in Russian and for measure and psych adjectives in Bulgarian.

Support for this hypothesis comes from the fact that in all the examples the acceptability of the dative rises with the extent to which the referent of the dative is affected by the adjective. Under the suggested analysis of the dative as setting the standard and the scale of the adjective, this is not surprising: the less fixed the standard of an adjective is, the easier it is to get a personal standard, i.e., the dative's standard. Psych predicates are the core for the proposed semantics of the dative. For these adjectives, there is no fixed standard, and the dative DP is by default the only standard.

Furthermore, for Russian and Bulgarian 'too' can make the standard of an adjective less fixed (all adjectives are acceptable with 'too' in Serbian). For example 'the dress is too red by my standards' (context: for me to wear, for example) or 'he is too stupid by her standards' (context: for her to marry, for example) is acceptable in Bulgarian and marginally acceptable in Russian. The fact that 'too' further facilitates the use of the dative is expected: 'too *adjective*' has a less fixed standard degree than just the adjective itself.

The languages vary as to how fixed the standard is for the adjectives. Psych predicates are the core case for dative use with adjectives, and the felicity of the dative declines with the classes according to the hierarchy Class3 > Class2 > Class1. Under this analysis it is expected that if a language allows Class 1 it allows Class 2 and Class 3, but not the other way around. It is also expected that a language that allows [dative + adjective] allows [dative + 'too' + adjective], but not the other way around. The difference among the languages discussed then is that they vary as to the point at which they grammaticalize the pragmatic hierarchy. I leave for future work the clarification of these notions and the ramifications for the analysis of the dative suggested here.

6 Summary

The paper examined the use of the dative with adjectives in Serbian. It was argued that the dative DP is generated in Spec,DegP. There it relativizes the meaning of the adjective to the point of view of the dative. I, further looked at Bulgarian and Russian. Serbian, Bulgarian, and Russian accept the dative to different degrees. It was suggested that psych adjectives exemplify the core case for the use of the dative analyzed here and that the differences among the three languages are the result of different grammaticalizations of a pragmatic hierarchy.

References

Bierwisch, Manfred. 1989. The semantics of gradation. In *Dimensional adjectives,* ed. Manfred Bierwisch and Ewald Lang, 71-262. Berlin: Springer Verlag.

Epstein, Samuel. 1984. Quantifier PRO and the LF Representation of PRO_{ARB}. *Linguistic Inquiry* 15: 499-505.

Franks, Steven, and Tracy H. King. 2000. *A Handbook of Slavic clitics.* Oxford: Oxford University Press.

Heim, Irene. 2000. Degree Operators and Scope. In *Proceedings of SALT X,* 40-64. Ithaca, NY: Cornell Linguistics Club, Cornell University.

Kamp, Hans. 1975. Two theories of adjectives. In *Formal Semantics of Natural Language,* ed. Edward L. Keenan, 123-155. Cambridge: Cambridge University Press.

Kennedy, Christopher. 1997. Projecting the adjective. The syntax and semantics of gradability and comparison. PhD. dissertation, University of California at Santa Cruz.

Klein, Ewan. 1980. A semantics for positive and comparative adjectives. *Linguistics and Philosophy* 4: 1-45.

Krivokapić, Jelena. (in preparation). Putting things into perspective: The function of the dative.

Von Stechow, Arnim. 1984. Comparing Semantic Theories of Comparison. *Journal of Semantics* 3: 1-77.

FASL 13, 170–180
Michigan Slavic Publications
2005

Against the Russian Distributive *Po*-Construction as a Diagnostic for Unaccusativity

Julia Kuznetsova
Russian State University for Humanities

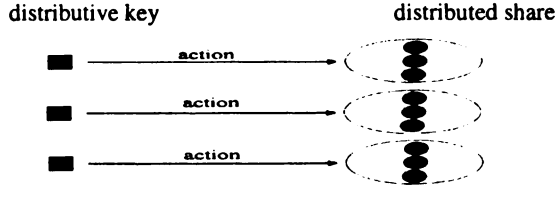
1 Introduction

The purpose of this paper is to describe the model that underlies the Russian distributive construction with the preposition *po* and to note some counterexamples to the previous analyses of this construction. The examples in (1) and (2) illustrate the distributive construction. In this construction two sets of objects are in a distributive relation established by the event denoted by the verb.

(1) Otec dal každomu synu **po** **jabloku**.
father gave every son *po* apple$_{DAT}$
'Father gave every son a apple.'

(2) Na našej verfi vypuskaetsja **po** **dve** **lodki** v god.
on our shipyard produce:$_{PASS}$ *po* two$_{ACC2}$ boat in year
'At our shipyard two boats are produced every year.'

I will use the terms distributed share for the set of objects that are distributed and distributive key for the set of objects among which the distributed share is distributed, following works by Choe (1987) and Gil (1995). The figure below illustrates the relation between distributive key and distributed share:



In example (1), *každyj syn* 'every son' is the distributive key and *jabloko* 'apple' is the distributed share, because the apples are distributed among the boys. In example (2) the events of boat building are the distributed share and different time periods are the distributive key,

because *lodki* 'boats' are distributed over different years. I will mark distributive keys by underlining them and distributed shares by bold type in what follows.

In the literature on the *po*-construction, it is often treated as a diagnostic for unaccusativity in Russian. Pesetsky (1982) first pointed out that, like genitive NPs under negation, distributive *po*-phrases are limited to non-oblique VP-internal NPs, making this construction a syntactic diagnostic for unaccusativity. Borik (1995), Harves (2002a, b), and others also use the *po*-construction in this way. Examples (3a-c) are typical illustrations of this diagnostic:

(3) a. Každyj prines **po čemodanu.** (transitive)
every brought *po* suitcase
'Every person brought a (different) suitcase.'

b. Na každom dereve sidelo **po ptice.** (unaccusative)
on every tree sat *po* bird
'On every tree sat a (different) bird.'

c. ??Na každom dereve pelo **po ptice.** (unergative)
on every tree sang *po* bird
'On every tree sang a (different) bird.'

Although examples like those in (3a-c) are consistent with the treatment of *po*-construction as a diagnostic, there are others that are inconsistent with this analysis.

In this paper I argue that the *po*-construction cannot be used as a diagnostic for unaccusativity. I also propose an explanation for why it seems to. In section 1 I show why the *po*-construction appears to be a diagnostic for unaccusativity and present counterexamples to this analysis. In section 2 I show that the distribution of the *po*-construction is due to its semantic properties.

2 *Po*-Construction as a Diagnostic for Unaccusativity

2.1 The Unaccusative hypothesis

The Unaccusative Hypothesis was formulated by Perlmutter (1978). In terms of argument structure, the Unaccusative Hypothesis states that unaccusative predicates select a single internal argument, while unergative predicates select a single external argument. Although Permutter's original formulation of the Unaccusative Hypothesis stated that the difference between unergatives and unaccusatives is syntactically represented, it also assumed that this distinction correlates with different theta-roles.

Babby (1987), Babyonyshev (1996), Chvany (1975), Pesetsky (1982), and others found evidence for the existence of constructions that distinguish unergative and unaccusative predicates in Russian. Pesetsky (1982) argues that genitive NPs under negation and distributive *po*-phrases are limited to direct objects and subjects of unaccusative predicates, as shown in (4).

(4) The distributive *po*-construction

a. Direct Objects of Transitives

Ja	dal	mal'čikam	**po**	**jabloku.**	(Pesetsky 1982:1969)
I	gave	$boys_{DAT}$	*po*	$apple_{DAT}$	

'I gave the boys an apple each.'

b. Unaccusative

Po	**jabloku**	upalo	s	každogo	dereva.	(Babby 1980:45)
po	$apple_{DAT}$	fell	from	each	$tree_{GEN}$	

c. Unergative

*V	každoj	kvartire	smejalos'	**po**	**mal'čiku.**	(Schorlemmer 1995:33)
in	each	apartment	laughed	*po*	boy_{DAT}	

'A boy laughed in each apartment.'

The genitive of negation and the *po*-construction are the main diagnostics for unaccusativity discussed in the syntactic literature for Russian. Other diagnostics have been proposed, by Borik (1995) and Babyonyshev (1996), such as the behavior of verbs prefixed with *na-* 'V a lot' and *pere-/po-* 'V all' and locative inversion, but these have strong restrictions on the semantic class of predicates that can appear in the construction. They can hardly be used as diagnostics for all intransitive predicates in Russian.

2.2 Exceptions to the unaccusativity rule

Although many examples support the hypothesis that the *po*-construction can be used as a diagnostic for unaccusativity, there are counterexamples which support my position that *po*-construction cannot be so used. First, *po*-phrases sometimes appear as subjects of transitive predicates, as in (5) and (6). This cannot be reconciled with the *po*-construction's internal argument status.

(5)

Každogo	iz	plennikov	deržali	**po**	**pjat'**	**desantnikov,**
every	from	prisoner	held	*po*	five	commandos

vse-taki pri takom roste oni byli sil'ny.
nevertheless with this height they were strong
'Each of the prisoners was held by five commandos; nevertheless given their height they were strong.' (V. Aver'janov, *Peski vremeni*)

(6) Teper' každogo uznika veli **po troe** **konvojnyx**.
now every captive led *po* three escorts
'Now each captive was being led by three escorts.'
(*Černogolovskaja gazeta*, no. 12, 2001)

Second, some unergative subjects can appear in the *po*-construction, as in (7) and (8).

(7) Za knjaževskoj telegoj vsegda bežalo **po** **dva-tri** **samyx**
after prince telega always ran *po* two/-/three most
tupyx **bojarina**, privjazannyx za borody k ètoj samoj telege.
stupid bojar attached by beards to this very telega
'Behind the prince's telega, there always ran two or three of the most stupid boyars attached to this telega by their beards.'
('Krasnaja burda', 4 Sept. 1998)

(8) Za každoe mesto v parlamente borjutsja **po** **dva** **deputata**
for every place in parliament fight *po* two delegate
ot každogo okruga.
from every electoral.district
'Two delegates from electoral district fight for each seat in the parliament.'

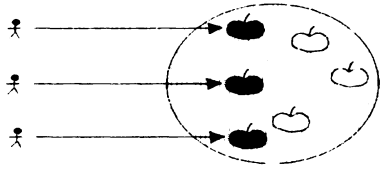
These examples allow us to suggest that restrictions on the *po*-construction are not directly connected with the unaccusativity of the verb.

3 Semantic Properties of the *Po*-Construction

To understand the behavior of the *po*-construction let us analyze the structure of distributive constructions. First, let us go over the situation corresponding to the sentence in (9).

(9) Každyj mal'čik polučil **po** **jabloku**.
every boy received *po* apple
'Every boy received an apple.'

In this situation there exist a set of boys and a set of apples, and every boy is associated with an apple. The event of receiving apples is repeated several times.



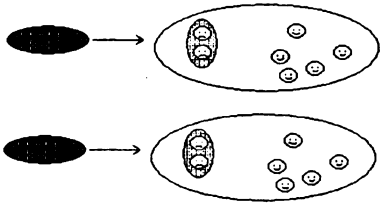
Scheme 1.

Three conditions must be satisfied by any event described by a *po*-sentence:

1. The situation includes a set of parallel subevents (e.g., in (9) each subsituation contains one of the boys).
2. In every subsituation a distributive key is associated with some distributed share from some set of objects (e.g. in (9) each boy ends up associated with an apple).
3. This selection must be conceived as connected to the time of the event or state described by the verb, not as a pre-existing connection.

The first condition means that we cannot use the distributive construction when there is no multiple situation. But the *po*-construction can be used in a situation where selection is made between different sets for every subsituation, as in (10), not only if there is one set joining all the distributed shares.

(10) V ostal'nyx klassax boleet **po dva-tri čeloveka.**
in other classes are.ill *po* two-three man
'Two or three persons are ill in each of the other classes.'



Scheme 1'.

The second condition predicts to the impossibility of using non-count nouns in the *po*-construction, since they cannot be distributed. This explains the unacceptability of examples like (11) and (12).

(11) ??Každyj iz nas ispytyval po radosti.
each from us felt *po* joy
'Each of us felt a joy.'

(12) ??Každyj iz nas vzjal po xlebu.
each from us took *po* bread
'Each of us took a piece of bread.'

(13) Každyj iz nas vzjal po jajcu.
each from us took *po* egg
'Each of us took an egg.'

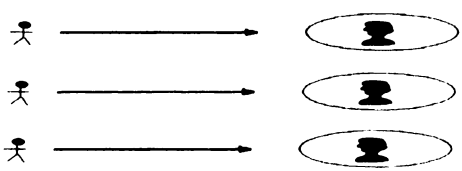
All abstract nouns like *radost'* 'joy', *užas* 'horror', *rezul'tat* 'result', *pokazatel'* 'index', *kontakt* 'contact', etc. and some mass nouns like *xleb* 'bread', *voda* 'water', *pesok* 'sand', etc. that name substances cannot be used in the *po*-construction because we cannot divide them in order to distribute them.

The third principle means that the *po*-construction cannot be used when there is a connection between the distributive key and distributed share. Below are several examples where there exists a previous connection between the two sets: kinship terms, parts of the body, and verbs which involve an emotional relation to an object.

3.1 Parts of the body

Parts of the body are closely connected with their owner. Moreover, they are already distributed among persons, so they cannot be used in the *po*-construction. All examples like (14) are unacceptable.

(14) *Oni podnjali **po** **golove**. (Scheme 2)
they raised *po* head
'They raised their heads.'



Scheme 2.

The existing connection between persons and the parts of their bodies does not allow nouns belonging to this lexical class to enter into the distributive construction.

Of course, in the case of several body parts, belonging to an owner, as in (15), they form a set and a mamber from that set can be selected. This situation illustrates Scheme 1.

(15) Každyj otsek **po golove** u trexgolovogo drakona.
every cut.off *po* head by three.headed dragon
'Every man cut off a (different) head from the three-headed dragon.'

Another situation in which a body part can appear in the *po*-construction is illustrated in (16). In this sentence *lico* 'face' is used as an element of the set of all faces. It is, in other words, an extension of the word 'face'. I will call such uses of nouns intentional use, since the intention is to extend the meaning of noun.

(16) Legko bylo by žit', esli by každom čeloveku vydat' **po licu**, kotoroe by
easy was CONJ live if CONJ every man give.out *po* face which CONJ
sootvetstvovalo ego postupkam i duševnomu sostojaniju. (Scheme 1)
conform his actions and emotional state
'It would be easy to live if everyone was given a face which corresponds with their behavior and emotional state.'

(Kir Bulyčev)

Thus parts of the body with prototypical semantics cannot be used in the *po*-construction because their specificity bars semantic changes which transform them into a non-distributed set.

3.2 Kinship relations

Another noun class where such a connection exists is kinship relations. Everybody is connected with their relatives, so we cannot use the *po*-construction if one of the relatives stands in a distributive key position and another in a distributed share position, as in (17). In this example sisters and mothers are distributed among the boys, and because of the existing distribution they cannot be redistributed in the the *po*-construction.

(17) *Každyj mal'čik privel **po sestre / po materi**. (Scheme 2)
every boy brought *po* sister / *po* mother
'Every boy brought a sister / a mother with him.'

In the event that all relatives belong to one family, they form a set as in Scheme 1, and in such cases the *po*-construction is possible, as in (18).

In (18) all the sons are members of one family and are distributed by time periods.

(18) U nix každyj god roždalos' **po synu**. (Scheme 1)
at them every year $born_{PASS}$ *po* son
'A son was born in their family every year.'

What I am calling intentional use allows for parts of the body to occur in the *po*-construction. Similar semantic change is possible with kinship nouns: they can receive intentional meaning and in the *po*-construction, as in (19). Here one can choose a man and a father from all possible candidates; they form a set from which an element can be selected, and the *po*-construction can be used.

(19) Pust' každoj ženščine dostanetsja **po mužčine**, a rebenku **po otcu**. (Scheme 1)
let every woman $receive_{PASS}$ *po* man and child *po* father
'Let every woman have a man and every child a father.'

Thus semantic changes constructing a set out of individual objects allow using the *po*-construction with noun classes with a pre-existing connection.

3.3 Prior connection, marked in a verb

Nouns with a pre-existing connection cannot appear in the *po*-construction, the verb's characteristics can also be incompatible with the *po*-construction's requirements. The verb can define a situation in which objects are closely connected, conflicting with the conditions fpr the *po*-construction. . For example, emotional transitive verbs like *bereč'*, 'to treasure' and *ljubit'* 'to love' presuppose the existence of an object, its definiteness, and a pre-existing connection with the subject, as in (20) and (21).

(20) *Každaja iz sester berežet **po** **starinnomu** **zolotomu** **kol'cu**. (Scheme 2)
every from sisters treasure *po* antique gold ring
'Each sister treasures an antique gold ring.'

(21) ??Každyj iz nas ljubil **po** **devuške**. (Scheme 2)
every from us loved *po* $girl:_{DAT}$
'Each of us loved a girl.'

Verbs with an emotional relation in their semantic are excluded from the *po*-construction because of the close connection between the participants of the situation conditioned by the verb.

3.4 Locative distributive key

In 1.2 I have shown that the distribution of the *po*-construction cannot be explained by the unaccusativity hypothesis. Now I will discuss the difference between the behavior of agentive and patientive verbs in the distributive construction. By agentive verb I mean an intransitive verb whose subject is an agent; by patientive verb I mean a verb whose subject is a patient. Sentences (22) and (23) present similar situations; nevertheless (22) is acceptable and (23) is not.

(22) Vozle каждого okna sidit/stoit **po** **mal'čiku**. (Scheme 1)
near every window sits/stands *po* boy
' Near the each window sits/stands a boy.'

(23) *Vozle каждого okna poet/kričit **po** **mal'čiku**. (Scheme 2)
near every window sings/shouts *po* boy
'Near the each window sings/shouts a boy .'

The difference between sentences (22) and (23) is due to the agentiveness of the verb: the subjects of agentive verbs are connected with their location. In the situation of (22) the boys are sitting/standing near the windows. Before the onset of the situation they can be anywhere in the room. So when we utter (22) we can choose from the set of all boys in the room. In the situation of (23) the boys are singing/shouting near the windows. Before they started to sing or shout they were already near the windows, connected to their places. We cannot choose between them because they are pre-distributed.

Examples with the locative distributive key are very frequent in work on unaccusativity in Russian. In this context only unaccusative verbs are allowed, and this prohibition can explain attempts to use the *po*-construction as a diagnostic for unaccusativity. But in fact for other sorts of distributive keys the characteristics of the verb are not important; see temporal distribution in examples (7) and (8).

3.5 The meaning of the verb byt' 'to be'

As shown above for noun classes with a pre-existing connection, they can be used in the *po*-construction if they undergo a semantic shift. There is a parallel situation for verbs. There are two shifts that allow a verb with a locative distributive key to occur in the *po*-construction. The first is a shift in the existential meaning of the verb. In the Russian linguistic tradition they are called *bytijnye* verbs (Arutjunova 1976, 1997; Arutjunova and Širyaev 1983). A verb is *bytijnyj* if it is used in place of the verb 'to be', as in (24). In this sentence *zvučit* 'sounds' is equivalent to 'is'.

(24) V sadu zvučit penie ptic.
in garden sounds singing birds
'In the garden there sounds the singing of birds.'

Agentive verbs used in the meaning of 'to be' receive some of the properties of this verb and become admissible in the *po*-construction, as in (25).

(25) Konkurs proxodil po četyrem nominacijam (v každoj peli **po šest' čelovek**). (Scheme 1)
competition proceeded in four categories in each sang *po* six persons
'There were four categories in the competition (six persons sang in each category).'

'Six persons sang in each category' is equivalent to 'there were six persons singing in each category'. The agentive verb is used with an existential meaning, so it can be used in the distributive con-struction.

3.6 Habitual meaning

Another semantic shift in an agentive verb that makes it admissible in the *po*-construction is habitual meaning. When the verb means 'do always', it is not an action, but a state. A dynamic situation with habitual meaning becomes undynamic. And when an agentive verb become less agentive it becomes admissible in the *po*-construction.

(26) V každyj kružok xodilo **po desjat' škol'nikov**. (Scheme 1)
In every study.group went *po* ten schoolboys
'Ten schoolboys attended each study group.'

Thus we can see that semantic changes transforming an agentive verb into a less agentive one allows it to be used in the distributive *po*-construction with the locative distributive key.

4 Results

I have shown that the distributive *po*-construction is not directly correlated with unaccusativity. This construction appears to model a prototypical distributive situation as a process or state in which some objects are distributed. Pre-existing relations between distributive key and distributed share cannot be described by the *po*-construction. The distribution of the *po*-construction depends on conditions that must be satisfied by any situation described by a *po*-sentence.

These conditions are more easily satisfied by the objects of transitive verbs and the subjects of unaccusative verbs than by the subjects of transitive verbs and the subjects of unergative verbs, but this correlation

turns out to be an epiphenomenon that can be explained through the specific characteristics of the *po*-construction. The correlation is not absolute, and direct objecthood is not itself a factor in the conditioning of the construction.

References

Arutjunova, N.D., and E.N Širjaev. 1983. *Russkoe predloženie: Bytijnyj tip (struktura i značenie).* Moscow: Russkij jazyk.

Babby, Leonard. 2000. The genitive of negation and unaccusativity. Ms., Princeton University.

Babyonyshev, Maria. 1996. Structural Connections in Syntax and Processing: Studies in Russian and Japanese. Ph.D. dissertation, MIT.

Borik, O.M. 1995. Sintaksičeskij priznak neakkuzativnosti glagola (na materiale russkogo jazyka). Diplomnaya rabota, Filologičeskij fakul'tet OTiPL. MGU.

Choe, J.-W. 1987. Antiquantifiers and a Theory of Distributivity. Ph.D. dissertation, University of Massachusetts, Amherst.

Chvany, Catherine. 1975. *The Syntax of BE-sentences in Russian.* Cambridge, MA: Slavica.

Gil, David. 1995. Universal quantifiers and distributivity. In *Quantification in natural language*, ed. Emmon Bach, Eloise Jelinek, Angelika Kratzer, and Barbara Partee, 321-362. Dordrecht: Reidel.

Harves, Stephanie. 2002a. On the derivation of distributive *po*-phrases in Russian. Abstract, FASL 11.

Harves, Stephanie. 2002b. Unaccusative Syntax in Russian. Ph.D. dissertation, Princeton University.

Iomdin, L.L. 1990. Russkij predlog PO: Etjud k leksikografičeskomu portretu. In Saloni Z., ed., *Metody formalne w opisie języków słowianskih.* Białystok.

Levin, Beth, and Malka Rappaport Hovav. 1995. Unaccusativity. Cambridge, MA: MIT Press.

Perlmutter, David. 1978. Impersonal passives and the unaccusative hypothesis. *Proceedings of the Fourth Annual Meeting of the Berkeley Linguistics Society,* 157-189.

Pesetsky, David. 1982. Paths and Categories. Ph.D. dissertation, MIT.

Rubinstein, M.L. 2002. Imennyje gruppy v russkix distributivnyx konstrukcijax s predlogom "po". Materialy konferencii. *Dialog* 1.

FASL 13, 181–194
Michigan Slavic Publications
2004

On Adjunction and Excorporation*

Mariana Lambova
University of Connecticut and University of Maryland

In this paper I argue that the notions of adjunction and excorporation are needed in the grammar and propose a new theoretical perspective on the two operations. The discussion centers round their relevance to heads as well as to phrases, with evidence drawn from overt focus fronting in Bulgarian (Bg).

Within Bare Phrase Structure (Chomsky 1994), XP adjunction is reanalyzed as multiple specifiers (cf. Koizumi 1994). Kayne (1994) essentially bans it by allowing for only one XP to be merged to a head and its complement. Recently I made a case for multiple adjunction in a single specifier (Lambova 2003). Here I focus on head adjunction, now relegated to PF.

I begin by reviewing Roberts' (1991) original argument and then present additional evidence for excorporation of the host of adjunction with X^0 adjunction. The relevant phenomenon is verum focus in Bg, which I compare to contrastive focus. Next I show how excorporation works with XP adjunction. The evidence comes from dialectal variation in multiple *wh*-fronting (MWF) in Bg. I conclude that excorporation is structurally constrained.

1 Excorporating the Host or the Incorporee

Roberts 1991 extends Baker's (1988) incorporation theory to allow for either the host or the incorporee to leave the resulting structure. Excorporation is defined as "successive cyclic head-to-head movement where one head simply 'passes through', first incorporating and then moving on". His examples are clitic climbing in Italian (1), a case of

* In addition to *FASL 13*, portions of this material have been presented at FASL 11, HUMIT 2001, the Tilburg Workshop on Triggers 2002, the UConn/UMD/ UMass/MIT Syntax Workshop, 26th GLOW, 4th GLOW in Asia, and FDSL 5. The issue of excorporation connects the two phenomena discussed in my thesis, multiple *wh*-fronting and participle auxiliary orders, and arose with Jairo Nunes's criticism of segment excorporation. Thanks to him and to my advisors, Željko Bošković and Howard Lasnik, for helping me shape the present argument. The usual disclaimer applies.

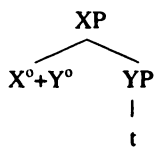
incorporee excorporation, and verb raising in Dutch (2), a case of host excorporation.[1]

(1) **La** volevo **t**+chiamare **t** ieri.
her.CL want-PT.1P.SG call.INF yesterday
'Yesterday I wanted to call her.'

(2) Gisteren **had** ik [[[mijn vriendin op-t] t+t] t+t+t] t+[willen+bellen].
yesterday had I my girlfriend up want call
'Yesterday I wanted to call my girlfriend up.'

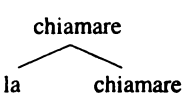
Abstractly, either the host X^o or the incorporee Y^o in the structure in (3)[2] can excorporate.

(3)



Thus in (1) the clitic, which starts as the complement of the infinitive, undergoes head movement by first adjoining to it and then excorporating to the matrix clause.

(4)



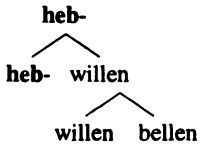
On the other hand, the host excorporates in (2). In a head-final language like Dutch, the most deeply embedded verb *bellen* 'call' should surface immediately after the particle *op* 'up', followed by *willen* 'want' if there were no verb raising. The word order suggests that the verbs cluster via rightward adjunction: first *bellen* 'call' adjoins to *willen* 'want', and then this verbal complex adjoins to the matrix verb[3].

[1] The structures are slightly modified from Roberts 1991. The trace in bold is left by the excorporating head. He assumes that clitics are heads base-generated in complement position and moving leftwards. For Dutch, a V-2 head final language, he posits the formation of a verb cluster (see below).

[2] Headedness is irrelevant: head-initial is for the purpose of illustration.

[3] The matrix verb is uninflected at this stage, hence the form *heb-*.

(5) a. 

b. 

For Roberts the verbal complex raises to I° in two steps, and subsequently I-to-C movement derives the V-2 effect. He proposes that the matrix verb moves alone to pick up inflection, and after the infinitival complex adjoins to I° (which is a case of incorporee excorporation)[4] I° excorporates to C°.[5]

These facts could be interpreted differently. In the Minimalist Program clitics are structurally ambiguous X°/XP elements, so *la* 'her' does not have to adjoin to the matrix verb. Assuming clitic climbing is feature driven (it could be object shift), it may be targeting some (phrasal) position in the IP domain (cf. Jayaseelan 2001). Then passing through the head position of the infinitive may be a consequence of the Head Movement Constraint (HMC, Travis 1994).[6] I suggest this should be the only case of incorporee excorporation and is due to structural ambiguity. Below I show that unambiguous heads or phrases block incorporee excorporation.

As for (2), positing a two-step movement to I° is suspect at least with respect to motivation. Instead, the verbal complex *I°+heb-willen+bellen* may arise via rightward successive cyclic head movement (6a), possibly due to a strong feature on *bellen* 'call'.[7]

More importantly, the structure resulting from the two-step movement (6b) may plausibly disallow excorporation. I assume the verbal complex right-adjoins and the host projects a segment, as i n (6).

Roberts wants *I°+heb-* to excorporate to C°, so he notes that excorporation does not happen in genuine morphological cases, e.g., noun incorporation or affixation, citing Baker's ban on word-internal

[4] It is not clear what motivates the adjunction of the residual verbal complex to I°, as it seems that the surface order will obtain without this extra step.

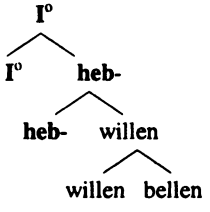
[5] Note that as a result of adjunction the host is realized as two segments (cf. May 1985), and what excorporates in the first step is both segments of the host (5b).

[6] Roberts assumes that HMC can be derived from ECP. Alternatively, HMC is a constraint on movement, as I propose in Lambova (2003).

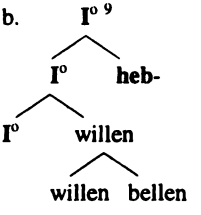
[7] If strength resides in the target, only the closest verb will move; note that an Attract-All property (Bošković 1998) will produce a free order in the cluster.

traces.[8] This may be unnecessary if incorporee excorporation is generally not allowed as I suggested above. I assume that what excorporates is the category that has one segment higher. If *heb-* cannot excorporate alone, it will carry along I°. But excorporation is constrained (Lambova 2003): it must target all segments of the affected category and it must leave behind a constituent. The first condition is not met in (6b). On the other hand, (6a) is fine.

(6) a.



b.



2 Host Excorporation: Verum Focus vs. Contrastive Focus

Verum focus in Bg provides additional evidence for excorporation of the host of adjunction and the structures I argue for.

In a periphrastic verbal form either the main verb (7a) or the auxiliary (7b) can be contrastively focused (shown in small capitals). The latter is known as verum focus.[10]

(7) a. (I said that) John **has READ** the book.
b. (I said/meant that) John **HAS read** the book.

Bg is a focus fronting language, i.e., a contrastively focused element cannot stay in situ but must front to a preverbal position.

---

[8] However, his example **Have John does t gone?* is independently ruled out because English does not have a V-to-C movement. Putting this aside, a word-internal trace does not have to be a problem with affixation, if Nunes (1999) is right about the realization of multiple copies.

[9] Technically, nothing changes if adjunction is to the left, but there is no need to assume that suffixation determines the direction of adjunction.

[10] Verum focus contrasts the polarity of the sentence (Höhle 1992). What is known as contrastive focus on the verb contrasts its lexical content.

(8) a. *Ivan beše pročel KNIGATA.[11]
Ivan Aux.PT.3P.SG read book-the (foc)

b. KNIGATA beše pročel Ivan.
book-the (foc) $Aux_{PT.3P.SG}$ read Ivan

c. Ivan KNIGATA beše pročel.
Ivan book-the (foc) $Aux_{PT.3P.SG}$ read
'Ivan has read the BOOK.'

In a periphrastic verbal form the auxiliary normally precedes the participle of the main verb (9). Note that verum focus does not change this word order, unlike contrastive focus.[12]

(9) (Ivan) **beše** **pročel** knigata. (neutral)
Ivan $Aux_{PT.3P.SG}$ read book-the
'Ivan/he had read the book.'

(10) a. (Kazax, če) **BEŠE** pročel knigata.
say-$_{PT.1P.SG}$ that $Aux._{PT.3P.SG}$ (foc) read book-the
'(I said that) he HADread the book.'

b. (Kazax, če) **PROČEL** beše knigata.
say-PT.1P.SG that read (foc) $Aux_{PT.3P.SG}$ book-the
'(I said that) he had READ the book.'

In Lambova 2003 I argue that contrastive focalization in Bg involves overt movement to one of two preverbal positions: a TP-internal position (8c) or to ΔP, a discourse-related projection in the left periphery (8b). The first option is not available to verbs, since they move obligatorily to T^{o}, i.e., beyond the TP -internal position for contrast. More importantly, the word-order differences in (10) can shed light on excorporation and its structural restrictions. In a nutshell, the reordering in (10b) happens because excorporation can affect the host but not the incorporee.

---

[11] A reviewer notes that (8a) is claimed to be grammatical. This is true, but the focus in question is new information focus, not contrastive focus (Kiss 1998).

[12] The overt subject in (9) is intended to show that the auxiliary is not a clitic which is necessary to rule out one possibility for the reordering in (10b). For reasons of space, I cannot discuss here what happens in (10) when an overt subject is present. As a reviewer notes, an overt subject preceding the verbal complex in (10b) is degraded but fine in (10a); these are cases of topicalization.

A starting assumption is that Bg verbs raise obligatorily out of VP (11), i.e., they must precede a low adverb which marks the left edge of VP. Furthermore, nothing can ever intervene between the auxiliary and the participle (12). In Lambova (2004) I argue that the active L-participle raises to check a strong tense feature, and HMC forces it to adjoin to the auxiliary and move together with it all the way to T°.[13]

(11) Ivan beše pročel **vnimatelno** *pročel) knigata.
Ivan Aux.$_{PT.3P.SG}$ read carefully read book-the

(12) a. Ivan **beše** (*knigata) **pročel**.
Ivan Aux.$_{PT.3P.SG}$ book-the read

b. Ivan opredeleno **beše** (*opredeleno) **pročel** knigata.
Ivan definitely Aux.$_{PT.3P.SG}$ definitely read book-the

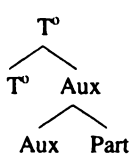
Concerning (10), there is evidence that the focused verbal headcomplex has moved beyond T°. It can precede a sentential adverb, which is assumed to mark the left boundary of the inflectional layer (cf. Watanabe 1993).

(13) a. BEŠE **opredeleno** pročel knigata.
Aux$_{PT.3P.SG}$ (foc)definitely read book-the

b. PROČEL beše **opredeleno** knigata.
read (foc) Aux$_{PT.3P.SG}$ definitely book-the

Note that in the verum focus construction (13a) it is only the auxiliary that precedes the adverb. I propose that this is evidence for excorporation. What excorporates to Δ° is the auxiliary which takes along T°,[14] and the structure allows it.

(14)



[13] The standard account of head adjunction in Bg is that the direction of adjunction is to the right (cf. Bošković 2001). In Lambova (2003) I argue that the same is true for XP adjunction in Bg, at least for reasons of uniformity.

[14] I assume impoverished structure without Agr projections (cf. Chomsky 2000).

While structurally nothing prevents T° from excorporating, it is not likely that the focus feature resides in an inflectional category. Furthermore, the derivation will crash in PF since the affix will be stranded. It is equally unlikely that the inadequacy lies with the auxiliary, since verum focus contrasts the polarity of the sentence. I suggest the strong feature is on target and Economy underlies excorporation. In other words, excorporation is obligatory: if it may happen it must happen because carrying less material is more economical.

(15) a. X $[Y + Z_i]$ t_i, where X, Y, and Z are heads
b. $[_{\Delta P}$ Aux $[_{TP}$ Aux+Part $[_{vP}$ Aux+Part $[_{VP}$ Part]]]]

Significantly, being an incorporee the participle cannot excorporate in the contrastive focus construction (10b). I claim that the whole verb complex moves up to Δ° and the reordering is due to something else, the interaction of syntactic and prosodic constraints on focus in Bg.

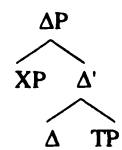
In particular, the syntactic output is as in (16a) but it surfaces as (16b) due to *scattered deletion*, an instance of activating a lower copy of movement (Lambova 2003). I assume with Franks (1998) that what gets normally pronounced is heads of non-trivial chains, but a lower copy of movement can be pronounced in order to avoid a phonological violation (see also Bošković 2001). Scattered deletion, which affects two immediately adjacent copies, in Δ° and T° respectively, is costly and therefore a dispreferred option, but here it is necessary.

(16) a. $[_{DP}$ beše+pročel $[_{TP}$ beše+pročel $[_{vP}$ beše+pročel
$[_{VP}$ pročel knigata]]] =>

b. **[~~beše~~ pročel ... ~~beše~~ ~~pročel~~]**

In Bg, there is a prosodic requirement on the fronted focused element: focus must align with the left edge of the intonational phrase. In the case of a focused XP, this is trivial: the fronted XP maps onto a constituent of its own, a phonological phrase (desig-nated as ϕ).[15]

(17)

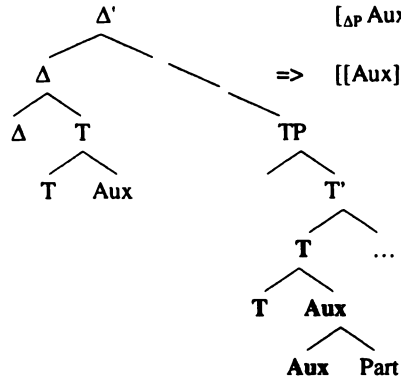


$[_{\Delta P}$ XP] => [XP]ϕ

[15] Remnant XP movement, e.g., V(P)-fronting (see Lambova 2004), works the same way.

In the verum focus construction the excorporating auxiliary head maps onto a phonological word (designated as ω) which is already at the left edge of its phonological phrase.[16]

(18)



Not so in the contrastive focus construction. The focused participle is not at the left edge of its intonational phrase because the whole verbal complex has moved up. I claim that the prosodic requirement causes reordering in PF. With two immediately adjacent copies in Δ° and T°, the participle surfaces first via scattered deletion, i.e., the participle activates its head copy and the auxiliary activates its lower copy (see 19).

On the natural assumption that the computation system works bottom up but interpretation at the interfaces is top down, the preference for pronouncing the head copy of a non-trivial chain is not surprising. I propose that what happens first after Spell-Out is linearization, a process that turns hierarchical relations into precedence ones (cf. Bobalijk 2002). The relevant property is sisterhood. Thus [$_{\Delta'}$ Δ TP] in (18) will produce the string in (20):

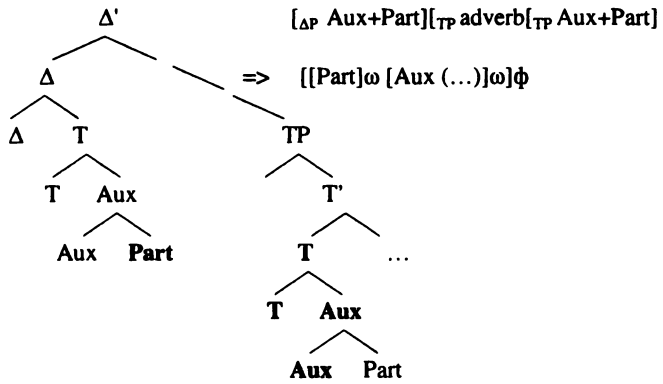
---

[16] The same is true when a modifier of an NP is focused. In Bg there is no sub-phrasal movement such as left-branch extraction (cf. Bošković 2001).

(i) [[NEGOVATA]ω [kniga]ω]ϕ pročetox.
his (foc) book read-PT.3P.SG

[17] It is not possible for an overt subject in SpecTP to surface between Aux and Part because its phonological phrase will disrupt the phonological phrase of the verb (see below). Adverbs obviously behave differently, possibly because they are structurally ambiguous.

(19)



(20) Linearization: [Δ + T + Aux] [T + Aux + Part]

a. $_{\Delta}$[Δ + T] => Δ + T
... $_{T}$[T + Aux] => Δ + T + Aux

b. $_{TP}$[... T'] => ... T'
... $_{T}$[T ...] => T ...
$_{T}$[T + Aux] => T + Aux
$_{Aux}$[Aux + Part] => T + Aux + Part

Next is morphological bracketing, which involves processes such as fusion or fission of features and takes care of the phonological properties of affixes (cf. morphological merger, Marantz 1988). This causes order changes in the initially linearized string.

(21) Bracketing: [Δ + T + Aux] [T + Aux + Part] =>
[[Aux+suffix]ω] Δ] [[Aux+suffix]ω [Part]ω]

In Lambova 2003 I argue that Bg has a null focal marker which is a phrasal affix and requires adjacency to the verb (see Δ above).

What follows is prosodic phrasing, which is responsible for prosodic structure. I assume that the fronted auxiliary and the verbal complex map onto separate phonological constituents, possibly phonological phrases.[18]

(22) Prosodic Phrasing:
[[Aux+suffix]ω Δ]ϕ [[Aux+suffix]ω [Part]ω]ϕ

[18] It may be necessary to distinguish between at least two kinds of phonological phrases. It is well known that a head and its complement often map together to the exclusion of its specifier; for latter case we may use (a capital) Φ.

Finally, lexical insertion puts in the phonological matrices attempting the first available adequate position from left to right. Hence it is more appropriate to talk of copy activation than of copy deletion. In (22) the focused auxiliary must be adjacent to the left boundary so its head copy is activated. However, the same prosodic requirement on the focused participle in (19) will force the activation of a lower copy of the auxiliary.

(23) Lexical Insertion:

[[Aux+suffix]ω Δ]ϕ [[~~Aux+suffix~~]ω [Part]ω]ϕ

[[~~Aux+suffix~~]ω [Part]ω Δ]ϕ [[Aux+suffix]ω [~~Part~~]ω]ϕ

In other words, lexical insertion is sensitive to prosodic factors (see also Bošković 2001 for second position clitics).[19] Following that is stress assignment. Normally, in right-branching languages, such as Bg, stress is assigned to the rightmost element in each phonological constituent (Nespor and Vogel 1986), but contrastive stress can override this rule. I suggest that subsequent readjustment rules put the separate pieces of the verbal complex into a single phonological phrase.

This analysis derives quite a few interesting properties of the verb-focus constructions, which I cannot discuss here (but see Lambova 2003). I will point out, however, though some restrictions on the occurrence of overt XP.

(24) a.	**PROČEL**	(*Ivan)	beše	knigata.
	read (foc)	Ivan	Aux.$_{PT.3P.SG}$	book-the
b.	**BEŠE**	(*Ivan)	pročel	knigata.
	Aux.$_{PT.3P.SG}$ (foc)	Ivan	read	book-the

Thus, a lexical subject, which itself maps onto a phonological phrase, will not intervene in the phonological phrase of the verb in either case.[20] However, a (sentential) adverb, which is realized in the phonological phrase of the verbal complex, can and does. Such an adverb typically precedes the auxiliary and participle complex but surfaces after the excorporated auxiliary.[21]

[19] For this reason it is often observed that phonological phrasing is not isomorphic to the syntactic one (cf. Truckenbrodt 1999).

[20] Descriptive grammars note this fact only for the contrastive focus case. In Lambova 2003 I show that an overt subject can surface in its VP-internal posi-tion below the verb via activation of lower copies of movement.

[21] For reasons of space, I will not discuss adverb patterns here.

(25) a. [adverb Aux+Part]ϕ
b. [Aux adverb ~~Aux~~+Part]ϕ

So far I have shown that excorporation is Economy-driven and can affect only the host of adjunction.

3 Excorporation with Phrases

Further evidence for host excorporation comes from dialectal variation in multiple *wh*-fronting (MWF) in Bg (Lambova 2003). Some speakers allow adjuncts (such as particles, adverbs, or parentheticals) to intervene (Dialect B), while others don't (Dialect A).

(26) (*)**Koj**, kazvaš, **za kogo koga** šte glasuva?
who you're-saying for whom when will vote

Intervening material may only appear after the first fronted *wh*-phrase in the splitting Dialect B (27). Because of this I maintain Rudin's (1988) adjunction in a specifier; a multiple-specifier structure cannot capture the restriction in question:

(27) ***Koj za kogo**, kazvaš, **koga** šte glasuva?
who for whom you're-saying when will vote

Importantly, in the presence of a topic (underlined) both dialects disallow any interveners in the *wh*-cluster (28). The analysis has two ingredients: first, MWF is an epiphenomenon consisting of the familiar *wh*-movement and focus movement (cf. Bošković 1998); second, topic and focus are licensed in a single specially dedicated discourse projection ΔP, which C takes as a complement (cf. Lambova 2003).

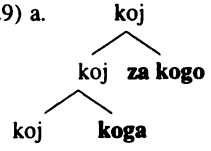
(28) *<u>V Iraq</u> **koj**, kazvaš, **za kogo koga** šte glasuva?
in Iraq (top) who you're-saying for whom when will vote

Specifically, all *wh*-phrases first front to SpecΔP, producing one of two adjunction structures. Both the target Δ° and the moving elements have a strong focus feature to check, so the highest/closest *wh*-phrase lands first with the rest adjoining to it in free order.[22] In (29a) the host remains constant (always the first moved *wh*-phrase), while in (29b)

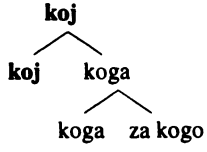
[22] This is known as selective Superiority (cf. Bošković 1998) which I will not discuss here.

each subsequently moving *wh*-phrase is a host:

(29) a.



b.



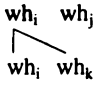
Further movement to SpecCP is driven by a strong feature on C°. Moving a single *wh*-phrase should suffice to satisfy its in-adequacy; hence, excorporation. The advantage is that with the first *wh*-phrase in a separate projection I have space to accommodate intervening adjuncts as well as rule out (27).

It is the dialectal variation that motivates my proposal concerning the structural constraints on excorporation. Thus the strucure in (29b) will allow the operation because it targets both segments of the affected category (shown in bold) and leaves behind a constituent, which is what goes wrong in (29a).[23] If excorporation is not possible, the whole *wh*-cluster must move to SpecCP. This is what happens in the non-splitting Dialect A.

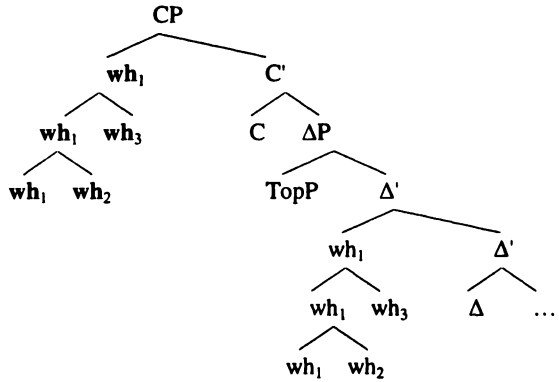
Topics, which always surface before focused/*wh*-phrases, also move to ΔP. In Lambova 2003, I argue that while topics can land in either a lower or a higher specifier, only the latter derivation survives in PF because of an additional morphological requirement on focused elements to be verb-adjacent. I also argue that either the highest *wh*-phrase (Dialect B) or the whole *wh*-cluster (Dialect A) moves to SpecCP over the topic. The reason for (28) is a clash between the intonational requirements of a topic and a preceding fronted *wh*-phrase (for details, see Lambova 2003). As a result, a lower copy of the fronted *wh*-phrase(s) in ΔP is pronounced. Hence there is no difference between the two dialects and no intervening material in the *wh*-cluster.

[23] I am ruling out one undesirable alternative: segment excorporation.

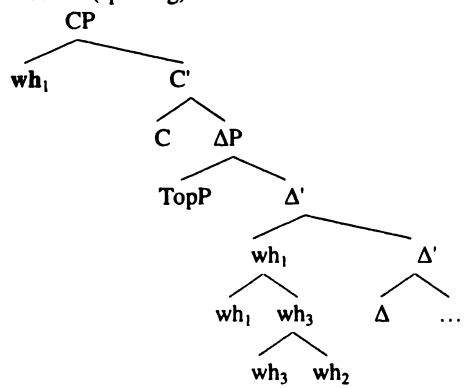
(i) *[$_{SpecCP}$ $\mathbf{wh_i}$ C [$_{SpecΔP}$ $\mathbf{t_i}$ [Δ ...



(30) a. Dialect A (non-splitting)



(30) b. Dialect A (splitting)



Thus, based on MWF in Bg I propose a modification on the phrasal mechanism of adjunction and impose restrictions on excorporation. I make a case for multiple XP-adjunction in a single specifier, which produces two different structures depending on whether the host remains constant or not. The resulting clusters do not behave uniformly with respect to excorporation. Excorporation is obligatory and Economy-driven. Contra Roberts (1991) only the host of adjunction can excorporate. Also, excorporation must be exhaustive, affecting all segments of the targeted category. Additionally it must leave behind a constituent.

Adjunction is relevant to heads as well, and excorporation shows the same kind of restrictions. I conclude that the two operations must be maintained in the theory of grammar.

References

Baker, M. 1988. *Incorporation: A theory of grammatical function changing*. University of Chicago Press.

Bobalijk, J. 2002. A-chains at the PF interface: Copies and "covert movement". *NLLT* 20: 197–267.

Bošković, Ž. 1998. Wh-phrases and *wh*-movement in Slavic. Position paper, Comparative Slavic Morphosyntax Workshop, Indiana University.

Bošković, Ž. 2001. *On the nature of the syntax phonology interface: Cliticization and related phenomena*. Elsevier.

Chomsky, N. 1994. Bare phrase structure. *MIT Occasional Papers in Linguistics* 5.

Chomsky, N. 2000. Minimalist Inquiries: The Framework. In *Step by step: Essays on Minimalism in honor of Howard Lasnik*, ed. R. Martin et al., 89-155. Cambridge, MA:MIT Press.

Franks, S. 1998. Clitics in Slavic. Position paper, Comparative Slavic Morphosyntax Workshop. Indiana University.

Höhle, T. 1992. Über Verum Fokus in Deutschen. *Linguistische Berichte*.

Jayaseelan, K. A. 2001. IP-internal topic and focus phrases. *Studia Linguistica* 55: 39-75.

Kayne, R.1994. *The Antisymmetry of Syntax*. Cambridge, MA: MIT Press.

Koizumi, M. Layered specifiers. *NELS* 24: 255-269.

Lambova, M. 2003. On information structure and clausal architecture: Evidence from Bulgarian. Ph.D. Dissertation, University of Connecticut.

Lambova, M. 2004. V(P)-fronting and V-raising in Bulgarian, *FASL 12*: 269-292.

Marantz, A.1988. Clitics, morphological merger and the mapping to phonological structure. In *Theoretical morphology: Approaches in Modern Linguistics*, ed. M. Hammond and M. Noonan, 253-270. Academic Press.

May, R 1985 . *Logical Form: Its structure and derivation*. Cambridge, MA: MIT Press.

Nespor, M., and I. Vogel. 1986. *Prosodic Phonology*. Dorrecht: Foris Publications.

Nunes, J. 1999. Linearization of chains and phonetic realization of chain links. In *Working Minimalism*, ed. Samuel Epstein and Norbert Hornstein, 217-249. Cambridge, MA: MIT Press.

Roberts, I. 1991. Excorporation and Minimality. *LI* 22: 209-218.

Rudin, C. 1988. On multiple questions and multiple *wh*-fronting. *NLLT* 6: 445-501.

Travis, L. 1984. Parameters and effects of word order variation. PhD. Dissertation, MIT.

Truckenbrodt, H. 1999. On the relation between syntactic phrases and phonological phrases. *Linguistic Inquiry* 30: 219-255.

Watanabe, A. 1993. Agr-based Case theory and its interaction with the A-bar system. Ph.D. dissertation, MIT.

FASL 13, 195–206
Michigan Slavic Publications
2005

On Nominative Objects*

James E. Lavine
Bucknell University

Steven Franks
Indiana University

1 Introduction

Nominative objects appear in certain embedded (or "independent") infinitival clauses in Old (North) Russian and Lithuanian. In both languages the predominant word order of the embedded infinitival is OV rather than the VO order which is standardly displayed by these languages elsewhere. Examples are given in (1) and (2).[1]

(1) Old North Russian (OR)
i tobě emu **isprava** **učiniti**
and you_{DAT} him_{DAT} $justice_{NOM}$ to-do
'and it is for you to do justice to him' [1388, Timberlake 1974:10]

(2) Lithuanian
a. Man nusibosta **laikraštis** **skaityti**.
me_{DAT} $is\text{-}boring_{[-AGR]}$ $newspaper_{NOM}$ to-read
'It is boring for me to read the newspaper.' [Ambrazas et al. 1997:638]

b. **skaityti** **laikraštis** **skaityti** **laikraštį**.
to-read $newspaper_{NOM}$ to-read $newspaper_{ACC}$

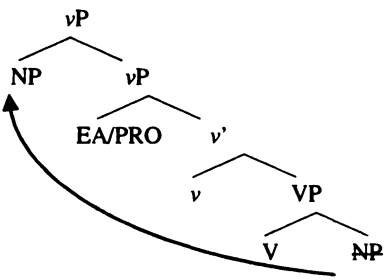
* For assistance with the Lithuanian data, we thank Bill Schmalstieg, Axel Holvoet, and Evelina Gužauskyteæ. We also gratefully acknowledge valuable comments from the FASL editors and an anonymous FASL reviewer. All errors in the analysis of these data remain our own. For a more detailed study of the Lithuanian data, see Franks and Lavine 2004.

[1] We assume that the OV order in OR (despite VO counterexamples) is neutral based on its overwhelming statistical predominance. Zaliznjak (1995:137), for example, reports that the OV order is the rule for nominative objects of infinitives in the Novgorod Birch Bark Letters. Examples from Modern Lithuanian come from the East High Lithuanian (Aukštaitiškas) dialect, a major dialect area including conservative speakers of Vilnius.

Our claim is that a type of Object Shift is at work in these instances. The nominative object in OR and Lithuanian undergoes syntactic movement in order for it to be accessible to a higher case-licensing head. In this way we unify the anomalous nominative marking on objects with the unexpected OV order.

Object shift is movement of an NP unvalued for case to *v*P's outer specifier (its "EPP position") making it visible to further syntax, as schematized in (3).

(3)



The literature on the Nominative Object is concerned with the following questions:

(4) a. Is T^0 the licensing source for *all* instances of nominative?
b. What kind of evidence might suggest alternative sources for nominative?
c. Is the assignment of nominative to the object necessarily counter-cyclic?

A defining property of nominative objects in Balto-Slavic is that they occur with non-finite predicates, that is, where T^0 is not able to value nominative case. As a result, the syntactic activity we identify, a type of Object Shift, is unlikely to be driven by a feature of Tense.

With respect to alternative sources for nominative (4b), the OV order in OR and Lithuanian nominative-object constructions suggests that case assignment on the object is not local (assigned by v^0), since Object Shift fails to occur when the object appears as accusative (2b). We thus posit a **non-local** source for the nominative, one in the functional space between embedded v^0 and matrix T^0.

The issue of counter-cyclicity (4c) arises in the phase-based, cyclic spell-out variety of syntax that we assume. The basic idea, formalized in Yip, Maling, and Jackendoff's Case-Tier theory (1987), is that the case assigned to one NP may depend on the case properties of another, higher NP. In traditional top-down syntax such dependencies are easily formulated, but with the minimalist bottom-up approach look-ahead must be invoked, since the higher NP (as well as its eventual case-licenser) has

not yet been merged into the structure. We will show that this cyclicity problem is not a mere theory-internal concern but one that has empirical consequences. It is precisely the rigorous constraint of cyclic spell-out (of the *v*P phase) that forces the object to move to the "edge" of *v*P, deriving the OV order. We arrive at a type of Object Shift that bears little resemblance to its Scandinavian counterpart. It is entirely case-driven and thus is not sensitive to discourse-semantic functions (see Diesing 1996 on Object Shift in Icelandic).

To review, nominative objects in OR and Lithuanian move to get case; accusative objects are assigned case in situ. Movement targets the outer specifier of *v*P, an "escape hatch" of the strong *v*P phase, which allows the nominative object to be visible to a higher case-valuing probe. We now turn to some details of the theory that underlie this claim.

2 Phase-Based Syntax and the Locality of Accessibility

Our analysis of the OR and Lithuanian constructions in (1 and 2) requires an explicit model of how and why movement takes place. A major innovation of recent versions of minimalism is that case assignment need not involve movement. Case assignment can take place directly from a higher functional case-licensing head. This head probes down the tree to a target NP (its Goal) in situ, with which it agrees, and values the case features of the NP at the same time. This is illustrated by the quirky-subject construction in Icelandic (5), where T^0 values nominative on a lower NP in situ, while having its EPP feature satisfied by a different, thematically higher nominal (Double Agreement in Chomsky 2001):

(5) a. Barninu batnaði veikin.
the-child$_{DAT}$ recovered-from the-disease$_{NOM}$ [Yip et al. 1987:223]

b. [$_{TP}$ Barninu T^0 [$_{vP}$ v^0 [$_{VP}$ batnaði veikin:NOM]]]
EPP AGREE

A second major innovation of recent versions of minimalism is that the search space of a probe must necessarily be constrained. Chomsky implements this idea by means of the concept of a Phase, a subsection of a derivation that is cyclically sent off to the phonological and semantic modules. Each phase consists of its phase-defining head, its edge (or outer specifier), and a complement. In the case of "strong" phases, where the phase-defining head (here, v^0) projects an external argument (in contrast to (5)), its domain is opaque to further syntax. This is in

accordance with the Phase Impenetrability Condition (PIC) (Chomsky 2001), given in (6).

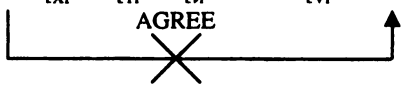
(6) In phase α with head H, the domain of H (its complement) is not accessible to operations outside of α; only H and its edge are.

Compare Icelandic (5) to Lithuanian (7), in which matrix T^0 fails to enter into the same relation:[2]

(7) Lithuanian Nominative Object: Long-Distance Agree

a. *Man nusibosta [skaityti laikraštis].
me_{DAT} is-boring$_{[-AGR]}$ to-read $newspaper_{NOM}$
'It is boring for me to read the newspaper.'

b. $[_{TP}\ T^0 \ldots [_{XP}\ X^0 [_{TP}\ T^0 [_{vP*}\ PRO\ v^0 [_{VP}\ V\ NP{:}NOM]]]]]$



The star on the embedded *v*P in (7b) marks it as a strong phase. As a result, *v*'s complement is not visible to the potential nominative-assigning matrix T^0. Given the notion of phase, Object Shift can easily be construed as movement of an object NP to some outer specifier position, crucially past *v*, in order for its case to be valued by some higher probe. We will argue that it is precisely the impenetrability of *v*P that forces the object to undergo movement.

Recall finally the cyclicity problem entailed by this approach (and indeed by most approaches) to nominative objects: Move needs to apply before the licensing head is merged into the structure. But if the feature that values case on the NP has not yet been introduced into the structure, what causes that NP to move? We argue that this movement is not feature-driven in the standard minimalist sense. We characterize this movement metaphorically as "agnostic" (Franks and Lavine 2004). It is a way of avoiding opacity (which would be fatal) and enabling subsequent visibility (which may save the derivation). Thus, when unvalued features remain at the end of a phase, movement to the left edge is the only operation with the *potential* to avoid an otherwise inevitable crash. So while some deficiency in features is what motivates the movement, no specific look-ahead knowledge is actually invoked.[3]

---

[2] Note that the embedded infinitival T^0 is not a nominative-case assigner.

[3] We take intermediate *wh*-movement to the top of a [–wh] CP to be of the same character. The only thing that drives this movement is the potential of eventual introduction of a higher [+wh] C to value the *wh*-features.

3 The Constructions in Detail

Nominative-object constructions in Balto-Slavic differ from the better-known case of Icelandic in several ways. First, nominative objects in Balto-Slavic occur in non-agreeing, non-finite clauses only. There is never a local source for nominative. Note additionally, in he case of Lithuanian, that embedded infinitival clauses with nominative objects invariably occur with a non-agreeing Matrix T^0, which though finite fails to assign case to the matrix "subject" (which usually bears dative). Crucially, Lithuanian matrix T^0 likewise fails to agree with embedded objects. This differs from nominative objects in Icelandic, which can induce partial subject–predicate agreement (agreement for number but not person).

A second difference concerns Object Shift. While nominative objects in all three languages may undergo Object Shift, in Icelandic Object Shift occurs only for NPs that receive a definite or generic interpretation (Diesing 1996). Indefinite nominative objects in Icelandic receive case in situ (Harley 1995). We argue that Object Shift in Balto-Slavic is case-driven and obligatory, though its effects can be obscured in OR, presumably due to word-order requirements reflecting functional sentence perspective.

3.1 Nominative objects in OR

The nominative object occurs in OR infinitival clauses when the latter's PRO subject is not controlled by a nominative matrix subject (Babby 1991:43). These infinitives generally occur in isolation (often with dative subjects)—the "independent" infinitive of traditional Russian grammar (see also Timberlake 1974).

That these nominative NPs are genuine objects is demonstrated by the fact that they can serve as the target of reflexivization:

(8) OR: Reflexivization

a. tъbě **rožь,** **svoja** **snjati**
you$_{DAT}$ rye$_{NOM}$ REFL to-cut
'it is for you to cut your own rye' [Zaliznjak 1995:137]

b. čtobъ kakъ namъ nedrugu svoemu litovskomu
so-that PRT us$_{DAT}$ enemy$_{DAT}$ REFL Lithuanian$_{DAT}$
[nedružba **svoja** ... **dovesti]**
aggression$_{NOM}$ REFL to-carry-out
'in order for us to carry out our own aggression against our enemy the Lithuanians' [1517, Timberlake 1974:82]

Note additionally that time and distance adjuncts in this construction are likewise preverbal and nominative:

(9) OR: Nominative Time Adjunct

po	otcě	mi ..	po	carě	**godina**	**praviti**
after	father	me_{DAT}	after	tsar	$year_{NOM}$	to-govern

'after my father the tsar, it is for me to govern a year'

[1517, Timberlake 1974:77-78]

When the accusative occurs in embedded infinitivals, no preference for the same OV order is reported (see Borkovskij and Kuznecov 1965, Timberlake 1974, and Zaliznjak 1995, who all report a preference for OV order for **nominative** objects only).

3.2 Nominative Objects in Lithuanian

Nominative objects occur in Lithuanian infinitivals embedded in Experiencer predicates.[4] Additional examples of the Lithuanian construction are given in (10a-b):

(10) a.

Man	atsitiko	**[geras**	**arklys**	**pirkti].**	
me_{DAT}	$happened_{[-AGR]}$	good	$horse_{NOM}$	to-buy	

'I was fortunate to buy a good horse.' [Jablonskis 1928/1957:560-561]

b.

Tėvams	yra	jau	nusibodę	**[ši**	**tema**	**svarstyti].**
$parents_{DAT}$	AUX_{PRES}	already	$bored_{PART.[-AGR]}$	this	$topic_{NOM.FEM}$	to-discuss

'The parents have already become tired of discussing this topic.'

Note that the present perfect tense in (10b) shows unambiguous non-agreement.[5] Compare (10b) to the present perfect in (11), in which the nominative Theme—**not** embedded in an infinitival complement—agrees with matrix T^0:

(11)

Tėvams	yra	jau	nusibodusi	ši	tema.
$parents_{DAT}$	AUX_{PRES}	already	$bored_{PART.FEM}$	this	$topic_{NOM.FEM}$

'The parents have already become tired of this topic.'

---

[4] While nominative objects occur elsewhere in Lithuanian (see Lavine 1999, 2000 and Blevins 2003), it is only in the case of psych predicates that the OV word order is obligatory. For this reason we leave open the possibility of more than one licensing strategy for nominative objects in Lithuanian and discuss here only infinitival complements of psych verbs.

[5] Note that *-ę* in (10b) *nusibodę* 'bored', the historical neuter, now marks only a non-agreeing (defective) T^0. In the modern language all neuter nouns have been assimilated to MASC or FEM.

If we take the nominative normally to be assigned with concomitant subject–predicate agreement (that is, valued by a Tense projection with a full set of agreement features), the source for the nominative in (10) remains a mystery; in any event it cannot be assimilated to the case-assigning strategy in (11). If the source for the nominative in (10) were matrix tense, then we might expect the same agreement relation to hold as in (11), yielding sentences such as (12), in the which the matrix predicate agrees with the object of an embedded infinitival, ECM-style. Such sentences do not occur.

(12) *Tėvams yra jau nusibodusi [ši tema svarstyti].
parents$_{DAT}$ AUX$_{PRES}$ already bored$_{PART.FEM}$ this topic$_{NOM.FEM}$ to-discuss

Based on these facts, we assume that the source for the nominative marking on the objects in (10) must be a head that is not implicated in the standard subject–predicate agreement system. Note also that the facts in (11) and (12) support the constituency we assume, namely, that the nominative NP is an argument of the embedded infinitive rather than of the matrix predicate. To summarize, nominative objects appear in Lithuanian infinitival clauses embedded only in **non-agreeing** matrix predicates.

The second major fact about the Lithuanian nominative object construction is its obligatory OV order. As suggested above, we take the OV order to indicate that the higher, case-licensing head cannot see into the *v*P of the embedded infinitival, a strong phase. Hence, the object moves to the edge of *v*P, its EPP position, where it is visible to higher syntax. Otherwise, it would remain unvalued for case.

Although this construction is accepted by all grammarians, it should be noted that it is historically on the decline. Lithuanian speakers who do not accept nominative objects in the psych construction substitute the accusative. When this happens, the object appears discourse-neutrally **after** the verb, as shown in (13a-b).

(13) Lithuanian: ACC ((13a) repeated from (2b))

a. Man nusibosta **[skaityti laikraštį]**.
me$_{DAT}$ is-boring$_{[-AGR]}$ to-read newspaper$_{ACC}$
'It is boring for me to read the newspaper.'

b. Jiems buvo neįdomu **[klausyti radiją]**.
them$_{DAT}$ was uninteresting$_{[-AGR]}$ to-listen radio$_{ACC}$
'It was uninteresting for them to listen to the radio.'

Here accusative is assigned locally, in the embedded clause. There is no motivation for the object to move. The object is also assigned case

locally when V^0 governs quirky case. Again, in such instances, case is assigned in situ, so that the embedded infinitival is discourse-neutrally VO, as in (14):

(14) Lithuanian: Quirky Case

a. Man nusibosta [rūpintis vaikais].
me$_{DAT}$ is-boring$_{[-AGR]}$ to-take-care-of children$_{INST}$
'It is boring for me to take care of children.'

b. Man nusibosta [#vaikais rūpintis].
children$_{INST}$ to-take-care-of

c. Man nusibosta [*vaikai rūpintis].
children$_{NOM}$ to-take-care-of

To review, our leading idea is that the OV order in the nominative object construction is derived by a kind of Object Shift, a process that displaces the direct object into the search space of some higher case-licensing head. In those instances in which case on the object is assigned within its own clause, we predict no such Object Shift, and indeed there the expected VO order appears.

Additional evidence that a higher case-licensing head induces Object Shift comes from time and distance adjuncts. Such adjuncts normally appear post-verbally, in the accusative. However, as in OR (9), they may also appear in the nominative. When they do, these adjuncts obligatorily occur in the OV order.[6]

(15) Lithuanian: Nominative Time and Distance Adjuncts

a. Ne vaikui **kilometras** nueiti.
not child$_{DAT}$ kilometer$_{NOM}$ to-go
'It is not for a child to walk a kilometer.'

b. Ne jam **valanda** išlaukti.
not him$_{DAT}$ hour$_{NOM}$ to-wait
'It is not for him to wait an hour.' [Ambrazas et al. 1997:520]

(16) a. Ne vaikui nueiti **kilometrą**.
not child$_{DAT}$ to-go kilometer$_{ACC}$

[6] Asya Pereltsvaig (p.c.) points out that such adjuncts should be tested with transitive verbs as well, in order to establish what happens when there are two nominals which undergo the accusative > nominative case shift. We leave these facts and their analysis for future work. See Maling 1993 and Pereltsvaig 2000 for related discussion.

b. Lijo **valandą**.
rained hour$_{ACC}$
'It rained for an hour.' [Ambrazas et al. 1997:501]

4 The Locus of Case Assignment

Non-agreement conspires with Object Shift to identify a nominative-case-licensing head in the functional space between embedded v^0 and matrix T^0. The nominative object evacuates v^0's accusative-case-assigning domain (Object Shift), but cannot be licensed by the defective embedded Tense projection.

Case-driven (agnostic) Object Shift in Lithuanian is not a device restricted to these nominative-object facts. It is part of a larger pattern in the language, affecting all objects whose licensing head is outside of the *v*P phase. The examples in (17-18) are from the Lithuanian purpose clause and the supine, respectively:

(17) Lithuanian Purpose Clause (Dative Object)
Pastatė daržinę **[šienui sukrauti]**.
(they)-built hayloft$_{ACC}$ hay$_{DAT}$ to-keep
'They built a hayloft to keep hay.'

(18) Lithuanian Supine (Gentive Object)
Išvažiavo **[kelio taisyti]**.
(they)-went road$_{GEN}$ to-repair
'They went to repair the road.'

We argue in Franks and Lavine 2004 that the dative and genitive NPs in (17) and (18) also move to *v*P's EPP position—its left edge—for reasons of accessibility to some higher case-valuing head.

Returning to nominative objects, our final task is to identify the relevant case-licensing head. In the case of Icelandic nominative objects, similar impoverished-agreement facts implicate a functional head below matrix T^0 (see Taraldsen 1995 and Harley 1995). This head is identified as Aspect by Alexiadou (2000).[7]

The argument for a matrix Aspect head valuing nominative (ECM-style), rather than matrix T^0, is based on a variety of well-known observations: (i) subject–predicate agreement with the nominative object, if any, is impoverished, a property not typically associated with T^0; (ii) first- and second-person pronouns are apparently not possible in the OR and Lithuanian nominative-object construction (and are degraded in

[7] Movement of the nominative object outside of its VP-domain for accessibility to a higher head was proposed for Japanese by Dubinsky (1992).

Icelandic), a fact that implicates a projection not involved in the subject–predicate agreement system (see (19) below); (iii) nominative is licensed regardless of whether or not the clause is tensed, whereas T^0 ordinarily licenses nominative only in tensed (and agreeing) clauses; and (iv) Asp^0 licenses aspectual modifiers delimiting the event. Notice that nominative time and distance adjuncts display the same case patterns as objects. The leading idea is that Tense is linked with Person agreement (such as first- and second-person agreement), while Aspect is linked with impoverished or no agreement (as in Lithuanian and OR and with nominative objects in non-finite Icelandic clauses). Compare Lithuanian (19a-b):[8]

(19) a. Jiems pasitaikė jis / jį matyti.
they$_{DAT}$ happened$_{[-AGR]}$ he$_{NOM}$ he$_{ACC}$ to-see
'They happened to see him.'

b. Jiems pasitaikė (*tu) / **tave** matyti.
they$_{DAT}$ happened$_{[-AGR]}$ you$_{NOM}$ **you**$_{ACC}$ to-see

When we attribute nominative on the object to Asp^0, some questions remain, most importantly: (i) What governs the case-marking potential of this Aspect head? and (ii) How can valuing of the object's case be "delayed" beyond *v*P? Ordinarily, as in (11), nominative on a psych verb's Theme is assigned by Asp^0 in combination with T^0's agreement features (while the argument that satisfies T^0's EPP requirement is the Dative Experiencer). In (20), however, T^0 is defective and the Theme is an infinitival clause. So instead, Asp^0 probes down, ECM-style, to value this same nominative on the embedded infinitive's object, so long as the object is visible to it.[9] This implements the idea that the structure of the embedded TP is sensitive to the non-agreement property of the matrix TP. The way nominative is valued on the embedded object is schematized in (20).[10]

(20) $[_{TP}\ NP_{DAT}\ T^0_{[-AGR]}\ [_{vP}\ V{+}v^0\ [_{AspP}\ Asp^0\ [_{TP}\ PRO\ T^0_{INF}\ [_{vP}\ NP\ [_{vP}\ V{+}v^0 \ldots\ [_{VP}\ \underline{NP}\ ]]]]]]]$

AGREE: NOM ▲▲ EPP Movement

[8] Note that ergative languages exhibiting a pronoun-split similarly case-mark only third-person pronouns as absolutive (nominative), while first- and second-person pronouns are marked accusative (see Dixon 1994 for discussion).

[9] The PRO subject is not a possible target since it already has (null) case as the subject of the embedded infinitive. This is one factor that differentiates Lithuanian nominative ECM on embedded objects from English accusative ECM on embedded subjects.

[10] We assume the same kind of ECM-style case licensing in OR, although we do not commit ourselves to identifying the exact licensing head.

Crucially, we assume that embedded v^0 need not value accusative on the object. This option of not discharging structural case must be available more generally, not just to obtain nominative objects. We assume it is the same phenomenon as required in Lithuanian and modern Russian for objects that are eventually assigned Genitive of Negation instead of expected accusative. The fact that v^0 comes in two varieties, case-valuing and non-case-valuing, is further evidenced by unergatives in English with optional cognate objects (*she laughed* vs. *she laughed a good laugh*). Note however that when embedded v^0 does indeed value accusative on the object in (20), the head otherwise valuing nominative (in our account Asp^0) fails to discharge this feature, resulting in the alternative standard, i.e., the non-shifted accusative version.

5 Conclusion

An NP direct object not assigned case by ordinary local mechanisms will have to move to a position where it can be assigned case by long-distance Agree. This movement is the only option, once the *v*P phase is completed, in accordance with the Phase Impenetrability Condition. Subsequently, if the derivation is to converge, a higher functional head is merged that can probe down and value nominative on the NP. This account unifies the unexpected OV order with the non-canonical nominative marking on the object.

References

Alexiadou, Artemis. 2000. Locating nominative Case features in the tree. Paper presented at AG 11 Kasustheorie.

Ambrazas, Vytautas, et al. 1997. *Lithuanian grammar.* Vilnius: Baltos lankos.

Babby, Leonard. 1991. Noncanonical configurational Case assignment strategies. *Cornell working papers in linguistics* 9:1-55.

Blevins, James. 2003. Passives and impersonals. *Journal of linguistics* 39(3): 473-520.

Borkovskij, V. I., and P. S. Kuznecov. 1965. *Istoričeskaja grammatika russkogo jazyka.* Moscow: Nauka.

Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in language,* ed. Michael Kenstowicz, 1-52. Cambridge, MA: MIT Press.

Diesing, Molly. 1996. Semantic variables and object shift. *Studies in comparative Germanic syntax* II, ed. Höskuldur Thráinsson et al., 66-84. Dordrecht: Kluwer.

Dixon, R. M. W. 1994. *Ergativity.* Cambridge: Cambridge University Press.

Dubinsky, Stanley. 1992. Case assignment to VP-adjoined positions: Nominative objects in Japanese. *Linguistics* 30:873-910.

Franks, Steven, and James Lavine. 2004. Case and word order in Lithuanian. Ms., Indiana University and Bucknell University.

Harley, Heidi. 1995. Abstracting away from Abstract Case. *NELS* 25: 207-221. GLSA, University of Massachusetts, Amherst.

Jablonskis, Jonas. 1928/1957. *Rinktiniai raštai*, vol. 1, Vilnius: Valstybinė Politinės in Mokslinės Literatūros Leidykla.

Lavine, James. 1999. Subject properties and ergativity in North Russian and Lithuanian. In *Formal Approaches to Slavic Linguistics 7: The Seattle meeting*, ed. Katarzyna Dziwirek et al., 307-328. Ann Arbor: Michigan Slavic Publications.

Lavine, James. 2000. Topics in the syntax of nonagreeing predicates in Slavic. Ph.D. dissertation, Princeton University.

Maling, Joan. 1993. Of nominative and accusative: The hierarchical assignment of Grammatical Case in Finnish. In *Case and other functional categories in Finnish syntax*, ed. Anders Holmberg and Urpo Nikanne, 49-74. Berlin: Mouton de Gruyter.

Pereltsvaig, Asya. 2000. On accusative adverbials in Russian and Finnish. In *Adverbs and adjunction* (*Linguistics in Potsdam* 6), ed. Artemis Alexiadou and Peter Svenonius, 155-176.

Taraldsen, Tarald. 1995. On agreement and nominative objects in Icelandic. In *Studies in comparative Germanic syntax*, ed. Hubert Haider et al., 307-327. Dordrecht: Kluwer.

Timberlake, Alan. 1974. *The nominative object in Slavic, Baltic, and West Finnic*. Munich: Otto Sagner.

Yip, Moira, Joan Maling, and Ray Jackendoff. 1987. Case in tiers. *Language* 63:217-250.

Zaliznjak, A. A. 1995. *Drevne-novgorodskij dialekt*. Moscow: Škola Jazyki russkoj kul'tury.

jlavine@bucknell.edu
franks@indiana.edu

FASL 13, 207–217
Michigan Slavic Publications
2005

The Nominal Quantitative Construction in Russian*

Su Hyoun Lee
Russian State University for the Humanities

This paper is devoted to an investigation of nouns which refer to concrete objects in their original meaning but denote indefinite big quantities as quantifiers in the Nominal Quantitative Construction (NQC), e.g., *kuča ljudej* 'a heap of people', *more slez* 'a sea of tears', etc. In Russian more than 50 words are used in the NQC: *kuča* 'heap', *gora* 'mountain', *gruda* 'pile', *vorox* 'heap', *more* 'sea', *okean* 'ocean', *reka* 'river', *potok* 'stream', *bezdna* 'abyss', *propast'* 'precipice', and others (see Laškevič 1985, Mišurova 1968, Peretjat'ko 1972, Dönninghaus 2001). These nouns are distinguished from other nouns in that they lose some of their nominal syntactic features as a result of partial re-categorization and \have the classifying function depending on the degree of the shift of their meaning.

The goal of this paper is to provide syntactic evidence for the partial recategorization of concrete nouns as quantifiers when used in the NQC. I will show that nouns in the NQC display certain of the well-known properties demonstrated by canonical quantifiers. For convenience I will focus on the noun *kuča,* which unlike the other nouns above has been grammaticalized and already has most of the features of a quantifier.[1]

In section 1 I will define the notions that are crucial to my framework, which is based on cognitive linguistics, specifically on the theory of grammaticalization resulting both from a shift of meaning and

* Thanks to Ekaterina V. Rakhilina and Elena Rudnitskaya for useful discussions and comments on this paper, to Russian native speakers and others for their help in gathering the data, to the audience of FASL 13 for their comments, and especially to the reviewers for their careful and detailed review. Here I would like to express my sincere gratitude to In Young Lee. All errors should be attributed to me.

[1] In the paper, I give examples and present my conclusions only for *kuča*, but the tendency and directionality of the grammaticalization of *kuča* in the NQC applies to other concrete nouns used in the NQC as well (although they have acquired quantifier features in different ways and each of them assumes a different degree of grammaticalization). For more a semantically oriented discussion of the classifying function of nouns in the NQC in relation to the degree of grammaticalization, see Lee (2005).

from metaphorical uses. At the end of section 1 I will present my proposal. In section 2, the NQC *kuča ljudej* 'a lot of people' will be compared to genuine quantifier constructions with numerals such as *pjat' ljudej* 'five people'. In section 3, I will present evidence for the grammaticalization of *kuča* as a quantifier, in particular, its categorial shift from the nominal to the quantifier category.[2]

1 Grammaticalization

The noun *kuča* in *kuča peska* 'a heap of sand' maintains its original meaning. In the NQC the noun *kuča* is used figuratively as a quantifier and has a new quantitative meaning, 'a lot of', and also undergoes partial grammaticalization as a quantifier.[3] The term grammaticalization (of the word *kuča* in the NQC) here means that *kuča* undergoes a shift of grammatical function after losing its lexical meaning.[4]

I propose an account of the semantic extension of *kuča* based on conceptual transfer following Heine (1997:7): "The presence of one linguistic form with several different meanings may suggest conceptual transfer patterns in which the form was first used to denote one meaning before it was extended to designate one or more additional meaning." I consider the concrete meaning of *kuča* 'heap' as the initial meaning because, although we do not insist on unidirectionality of grammaticalization (from concrete to abstract meanings), we do not normally expect a development in the opposite direction, where a quantifier like *kuča* in the NQC would develop into a noun denoting a concrete object. Besides, Russian native speakers regard the usage of *kuča* as a quasi-quantifier as a recent phenomenon.

Kuča in the original meaning refers to the concrete object 'heap', but in the NQC it undergoes a shift of meaning. As a result, *kuča* is grammaticalized and acquires quantifier properties similar to those of *mnogo* 'many/much.' See Table 1.

---

[2] This research has involved textual analysis ofNQC (more than 1,000 examples) as well as native speakers' judgments (approximately 10 students and graduate students at MGU and RGGU). Almost all of the examples were found in the National Corpora of the Russian Language (www.ruscorpora.ru).

[3] Here the term figuratively is used in the sense that figurative uses such as metaphor or metonymy initially motivated these nouns' use as quantifiers. A quasi-quantifier in the NQC only receives the grammatical function as a quantifier, but not lexical meaning or figurative meaning that it receives when its grammaticalization is total.

[4] About grammaticalization see Heine, Claudi, and Hünnemenyer (1997) and Traugott and Heine (1991a, b).

Table 1

Original Construction	NQC	*Mnogo* Construction
kuča musora	*kuča ljudej*	*mnogo ljudej*
heap rubbish $_{GENAD}$	quant. people $_{GENQ}$	many people $_{GENQ}$
'a heap of rubbish'	'a lot of people'	'many people'

With respect to the NQC, two important points should be mentioned. First, the expression *kuča musora* can also be used with the quantification meaning 'a lot of rubbish', i.e., in a deictic situation in which one wishes to say (1). 'How much rubbish there is!', rather than 'There is a heap of rubbish'. Also, we can say *kuča ljudej* 'a heap of people' in the original meaning in the context in (2). For a clearer presentation I will use the construction 'kuča musora' for the original meaning of *kuča*, e.g., the original construction but '*kuča ljudej*' in italics for its quantificational meaning, i.e., the NQC in a normal situation.

(1) *kuča* *musora*! (in the situation described above)
heap$_{NOM}$ rubbish $_{GENQ}$
'There is a lot of rubbish!' or 'How much rubbish there is!'
* 'There is a heap of rubbish'

(2) On sidel na kuče ljudej / **kuče ljudej*
he sat on heap $_{LOC}$ people $_{GENAD}$ / *heap $_{LOC}$ people $_{GENQ}$
'He was sitting on a heap of (dead) people. / *a lot of people'.

Secondly, *kuča ljudej* has more quantifier properties than *kuča del* 'a lot of affairs'. Why is this so? The distinction entails morphological and syntactic consequences. The similarity of the syntactic features of the NQC and those of the original construction appear if and only if the construction has a metaphorical use based on its original meaning. In other words, the more similar to its original meaning the use of *kuča* is or the more prominent its original meaning, the less grammaticalized it is as a quantifier even within the NQC.

For example, *kuča del* is never actually used with the original meaning of *kuča*, but it retains characteristic features of its original meaning of *kuča* which can be seen in metaphorical contexts. Such contexts show that we interpret affairs as concrete countable objects. See (3).

(3) Na nee navalilos' *kuča* *xozjajstvennyx* *del.*
on her fell heap $_{NOM}$ economic affairs $_{GENQ}$
'A lot of economic affairs fell up on her.'

The sentence (3) is normal in a situation where somebody has a lot of work. In this case we metaphorically view affairs as concrete objects.

However, people are not referred to as (metaphorical) concrete objects because it is difficult to imagine a heap of animate beings. That's why *kuča ljudej* shows more grammaticalized syntactic behaviors as a quantificational phrase than *kuča del.*

As shown in Table (1), I assume that with grammaticalization, i.e. the categorical shift or recategorization following conceptual transfer of its meaning, *kuča ljudej* becomes a Nominal Quantitative Construction consisting of a nominal quantifier with a quantified noun in the genitive quantitative (GenQ in a QP). This should be differentiated from *kuča musora* 'a heap of rubbish', which is a usual Nominal Construction with a nominal modifier in the genitive adnominal (GenAd in a NP). The assumption that there are different types of genitive depending on their distinct syntactic status (different syntactic categories) is supported by the fact that this phrasal difference (NP/QP) is reflected differently in their syntactic behaviors.

It suffices to mention that not only the meaning and grammatical features but also the connotation in the NQC depend on the properties of the QP. This reminds us of the opposition between the QP and the NP in the quantitative adverb construction with *mnogo* 'many/much' and in numeral constructions, It also raises the question of headedness (see Fowler 1987, Crockett 1976, Pesetsky 1982, Franks 1995 and 1998, Suprun 1959 and 1964, Corbett 1983 and 1993, Babby 1985 and 1987, Neidle 1988, Radford 1993, Payne 1993, and others). All these notions are relevant for understanding the process in question in this paper. However, since these issues are beyond the scope of this paper, I will not discuss them. Instead, I will show real usages of *kuča* that support the analyses of *mnogo* and numerals in corresponding constructions in the works just mentioned. Here I propose the following analysis of quantificational uses of *kuča*.

Proposal (the analysis of the NQC *kuča ljudej*):

1. Form: ***kuča + X-ov*** $_{\text{GENQ}}$
   (vs. kuča + X-ov $_{\text{GEN. ADNOMINAL}}$ in the original construction)
2. Meaning: non-specified big quantity (cf. *mnogo*)
3. Connotation: existential collective connotation.[5]
4. Grammatical status: *kuča* is in the process of grammaticalization from a noun to a quantifier. From a grammatical point of view, *kuča* is a noun because it has number, gender, and case. Nonetheless, since not only its meaning but also its grammatical features are similar to those of a quantifier, I will call it a 'quasi-quantifier' (like a numeral *pjat'* 'five' in Old Russian).

[5] By existential connotation I mean a notion similar to the cardinality of Milsark (1976) and Deising (1996) or the quantification of Timberlake (1975). It asserts the existence of an object rather than presupposes it.

2 Numerals Such as *Pjat'* 'Five'

2.1 Recategorization: noun 'five' → numeral 'five'

Numerals larger than 'four' used to be nouns in Old Russian. *Pjat'* 'five', for example, in Old Russian was a feminine noun, so the modifier *ta* $_{FEM}$ 'this' agreed with it. But in contemporary Russian *pjat'* has semantic agreement (4a), that is, it agrees with the quantified noun. In (4) it is also shown that in Old Russian *pjat'* had a complement in GenAD as a regular noun. In contemporary Russian *pjat'* takes a quantified noun with GenQ as a result of its recategorization as a numeral.

(4)	In Old Russian				In Contemporary Russian		
a.	ta	pjat'	butylok	vs.	te	pjat'	butylok
	this$_{FEM}$	five$_{FEM}$	bottles$_{GENAD}$		these$_{PL}$	five$_{NOM}$	bottles$_{GENQ}$
b.	toju	pjat'ju	butylok	vs.	temi	pjat'ju	butylkami
	this$_{INST/FEM}$	five$_{INST/FEM}$	bottles$_{GENAD}$		these$_{INST/PL}$	five$_{INST/PL}$	bottles$_{INST/PL}$

'by these five of bottles/ by these five bottles' (Babby1987)

In Old Russian the noun *pjat'* could be assigned all cases and had a Genitive adnominal complement. In contrast, in contemporary Russian *pjat'* with GenQ appears only in the Nom and the Acc while GenQ is assigned in [–oblique] Cases (see (4b)). In (4b), the complement appears as *butylkami* in the instrumental case, not *butylok* in the genitive case.

It is necessary to mention that numerals in contemporary Russian have almost the same properties as quantitative adverbs such as *mnogo* (except for some details related to the existential connotation of *mnogo*). In Old Russian, *pjat'*, *šest'* 'six', etc. were nouns like today's *kuča*, but now they have completely lost their noun properties. I propose that *kuča* in its quantificational meaning is in the process of losing its nominal grammatical properties just as *pjat'* lost its nominal properties in the past. I present the properties of the *pjat'* construction as similar to the *mnogo* construction in order to show the general phenomenon of quantitative constructions with GenQ.

2.2 Number properties

As a numeral *pjat'* does not have number and has default agreement. However, not only default agreement but also semantic agreement is possible, as in (5). Default agreement has an existential connotation whereas semantic agreement has an individual connotation.

(5) Pjat' čelovek prišlo / prišli.
Five $_{NOM}$ persons $_{GENQ}$ came $_{NEUT}$ came $_{PL}$
'Five men/ the five men came.'

2.3 Negation and specificity properties

The *pjat'* construction with default agreement has an existential connotation, which means it isin the scope of sentential negation. Default agreement is not possible in a negated sentence (6), but semantic agreement with an individual interpretation is acceptable.[6]

(6) Pjat' čelovek ne*prislo / prišli.
Five $_{NOM}$ persons $_{GEND}$ $_{NEG}$ came $_{NEUT}$ / came $_{PL}$
'The five men did not come.'

2.4 Individual interpretation

If a numeral construction has a definite modifier, default agreement is impossible, because it entails an existential connotation implying indefiniteness of the quantified objects. Examples (7)-(9) show that in a construction with a non-specific connotation *pjat'* cannot have a definite modifier. It can have such a modifier only when the QP is specific (with semantic agreement). Also, the individual interpretation allows only semantic agreement of a modifier (*èti/ *èto*).[7] This is because default agreement is generally impossible when the quantified noun is individual or, more precisely speaking, referential with a demonstrative pronoun. Also, semantic agreement of an adjective modifier is sensitive to animacy. Cf. (8) and (9).

(7) Èti (*èto) pjat' čelovek prišli / *prišlo.
These $_{PL}$ (*$_{NEUT}$) five $_{NOM}$ persons $_{GENQ}$ came $_{PL}$ / *came $_{NEUT}$
'These five men came.'

(8) Ja videl ètix (*èto) pjat' čelovek.
I saw these $_{ACC=GEN/PL}$ five$_{ACC=NOM}$ persons $_{GEN}$
'I saw these five men.'

---

[6] For details, see Pesetsky (1982), Franks (1995, 1997), Neidle (1988), Borras and Christian (1959), Šaxmatov (1941), Potebnja (1968), Revzin (1973), Avdžan (1994).

[7] According to Corbett's (1983) Agreement Hierarchy (attributive < predicate < relative pronoun < personal pronoun), the predicate should take semantic agreement if the pronoun has semantic agreement. That is, modifiers on the left of the hierarchy are likely to have semantically justified agreement; and if a modifier in a certain position has semantic agreement, then the modifiers to its left must have semantic agreement as well.

(9) Ja videl èti (*èto) pjat' knig.
I saw these $_{ACC=NOM}$ five$_{ACC=NOM}$ books $_{GEN}$
'I saw these five books.'

2 *Kuča* as Quasi-Quantifier in the Process of Grammaticalization

Now, on the basis of the notion of grammaticalization which is displayed in Table 2, let us consider the grammatical properties of the quasi-quantifier *kuča* and compare them to those of such real quantifiers as *pjat'* and *mnogo*.

Table 2

kuča in the original construction	vs.	*kuča* in NQC
kuča musora heap-N rubbish $_{GENAD}$ 'a heap of rubbish'		*kuča ljudej* Quant. people $_{GENQ}$ 'a lot of people'
pjat' in Old Russian		*pjat'* in contemporary Russian
pjat' → pjat' čelovek five-N five-N persons $_{GENAD}$ 'five of persons'		pjat' čelovek five-Q persons $_{GENQ}$ 'five persons'

3.1 Case properties

The quasi-quantifier *kuča* can occur only in Nom and Acc positions as in (10) and (11) but not in oblique-case positions as in (12). The original meaning, however, is present in all cases, unlike the NQC (12).

(10) *Kuča ljudej* prišla.
heap $_{NOM}$ people $_{GENQ}$ came
'A lot of people cGme.'

(11) Oni videli *kuču ljudej*
they saw heap $_{ACC}$ people $_{GENQ}$
They saw a lot of people.'

(12) On podošel k kuče musora / *k *kuč ljudej.*
he approached to heap $_{DAT}$ rubbish $_{GENAD}$ / to heap people$_{GENQ}$
'He went up to a heap of rubbish. / *to a lot of people'

3.2 Genitive case: Assignment of PartQ

PartQ can be assigned to a quantified noun in the NQC as well as GenQ. Examples in (13) and (14) show that the quantified noun can have not

only GenQ but also PartQ.

(13) Oni videli *kuču narodu / naroda.*
they saw heap$_{ACC}$ people $_{PPRTQ}$ / people $_{GENQ}$
They saw a lot of people.'

(14) *Kuča saxaru / saxara!*
heap $_{NOM}$ sugar $_{PARTQ}$ / sugar $_{GENQ}$
'A lot of sugar!'

However, PartQ cannot be assigned to the construction in the original meaning in (15). The reason is evident: The nominal in the construction with the original meaning of *kuča* is not a quantified noun in GenQ, but a complement of *kuča* in GenAD. PartQ is not a substitute for GenAD.

(15) Ja sidel na kuče saxara / **kuče saxaru.*
I sat on heap $_{LOC}$ sugar $_{GENAD}$ / heap $_{LOC}$ sugar $_{PARTQ}$
'I was sitting on a heap of sugar. / *a lot of sugar.'

3.3 Negation and specificity

The NQC cannot be definite because it has an existential connotation similar to the connotation that *mnogo* triggers. The NQC cannot be modified by a definite pronoun, unlike the original construction (16). This is similar to *mnogo*, which refers to the quantity of objects, asserting their existence, e.g., non-specific quantity. Compare (16a-c). Cf. modifier agreement in the construction with *pjat'* (7) – (9) and footnote 6.

(16) a. Tam èta kuča musora / *Tam èta *kuča ljudej.*
there this $_{DET}$ heap rubbish $_{GENAD}$ / this $_{DET}$ heap people $_{GENQ}$
'The heap of rubbish is there. / *The the people are there.'

b. èti mnogie / *èto mnogo
'these many / this many'

c. mnogie iz nas, prisutstvujuščix... / *mnogo iz nas,...
'many of us who are present...'

In Russian, the *tam* 'there' construction has two interpretations, existential and locative. When used in the *tam* construction, *kuča ljudej* receives an existential interpretation whereas *kuča musora* acquires a locative interpretation. Example (17) shows that the expression with *kuča ljudej* must be in the scope of negation, that is, *kuča ljudej* cannot be the

topic which is not included in the negation scope. This property of *kuča ljudej* is also similar to that of *mnogo*.

(17) Na dvore kuči musora (??*kuči ljudej*) ne bylo.
in garden heap$_{GEN}$ rubbish$_{GENAD}$ (heap$_{GEN}$ people$_{GENQ}$) not was
'Outside there wasn't a heap of rubbish.' ??'There weren't a lot of people outside.'

3.4 Grammaticalization: A tendency toward the loss of gender, number, and adjective modifiers

In this section I consider grammatical restrictions on the quantificational *kuča* in *kuča ljudej*, which shows that *kuča* is losing its nominal grammatical properties in this use. This process reminds us of the process of recategorization of *pjat'* 'five' in Old Russian. First, *kuča* in the original construction has its plural form but does not in the NQC.

(18) V komnate byli kuči veščej / *kuči ljudej.
in room were heaps$_{NOM/PL}$ things$_{GENAD}$ / heaps$_{NOM/PL}$ people$_{GENQ}$
'Heaps of things / *lots of people were in the room.'

Secondly, *kuča* has the feature feminine and imposes feminine agreement on the verb. However, in some uses default agreement is also found (19). Here the NQC has an inverse order. If it appeared in a normal order (*kuča narodu*), it would assume agreement in feminine.[8]

(19) *Narodu kuča* navalilo.
People $_{PARTQ}$ heap $_{NOM/FEM}$ be piled $_{NEUT}$
'There came a crowd of people.'

Finally in the NQC, co-occurrence of *kuča* with adjectives is limited. *Kuča* in the original construction can be modified by all kinds of adjectives including attributive adjectives (20). But *kuča* in the NQC can be modified only by non-attributive adjectives such as *celyj* 'whole, entire', which function as intensifiers (21).

(20) Ja videl celuju / bol'šuju / černuju kuču musora.
I saw whole / big / black heap $_{ACC}$ rubbish $_{GENAD}$
'I saw a whole / big / black heap of rubbish.'

---

[8]The phenomenon of default agreement in quantitative constructions with nouns is also found in constructions with *odin, tysjača* and so on: *Utrom bylo*$_{NEUT}$ *odin* $_{MASC}$ *gradus tepla* 'it was +1° in the morning'; *Šlo* $_{NEUT}$ *po ulice tysjača* $_{FEM}$ *čelovek* 'Down the street came 1000 persons ' (Suprun 1964:100).

(21) Ja videl celuju / ??bol'šuju / ??černuju *kuču* *ljudej.*
I saw whole / ??big / ??black heap $_{ACC}$ people $_{GENQ}$
I saw a whole lot of people.'

4 Conclusions

1. There has been a shift in the meaning of *kuča.* In its original construction it refers to a concrete object of large size, but in the NQC it does not refer to an object but to a quantity.
2. *Kuča* in the NQC is losing its grammatical properties as a noun (case, number, and gender) in a similar way as *pjat'* in Old Russian lost its nominal properties.
3. In a synchronic perspective *kuča* is completely stable in the noun category i. But besides its original nominal features, it has acquired certain features of the quantifier category through conceptual transfer/extension from its original concrete meaning and grammaticalization (recategorization). Thus, *kuča* has both N and Q features. It is distinct from *pjat'*, which has completely been recategorized as a Q.

Table 3 below shows the syntactic and semantic similarities among the quantifiers *mnogo, kuča,* and *pjat'* with default agreement.

Table 3. Syntactic and semantic similarity among quantifiers *mnogo, kuča,* and *pjat'*. In default agreement they are is in process of grammaticalization; (–) is closer to – , (+) is closer to +.

Quantifier	*Mnogo*	*Kuča*	*Pjat'* (default agreement)
CASE (+GenQ)	Nom.Acc.	Nom.Acc.	Nom.Acc.
NUMBER	–	(–)	–
GENDER	–	(+)	–
SPECIFICITY	Non-specific	Non-specific	Non-specific
SCOPE OF NEGATION	Inside	Inside	Inside
EXISTENTIAL CONNOTATION	+	+	+

References

Avdžan, F. V. 1994. *Normy soglasovanija skazuemogo s količestvenno-imennym podležaščim v sovremennom russkom literaturnom jazyke*. Maikop: Adygeia.

Babby L. 1985. Prepositional quantifiers and the direct case condition in Russian. In *Issues in Russian morphosyntax*, ed. R. Brecht, 91–117. Columbus, OH: Slavica Publishers.

Babby L. 1986. The locus of case assignment and the direction of percolation: case theory and Russian. In *Case in Slavic*, ed. R. D. Brecht and J. S. Levine, 170–219. Ohio: Slavica Publishers.

Babby, L. 1987. Case. Prequantifiers. and Discontinuous Agreement in Russian. *Natural Language and Linguistic Theory* 5. (1): 91-138.

Corbett G. G. 1983. *Hierarchies: Targets and controllers agreement patterns in Slavic*. Pennsylvania: Pennsylvania State University Press.

Corbett G. G. 1993. The head of Russian numeral expressions. In *Heads in grammatical theory*, eds. G. G. Corbett N. M. Fraser, and S. McGlashan, 11-35. New York: Cambridge University Press.

Fowler, G. 1987. The Syntax of the Genitive Case in Russian. Ph.D. dissertation, University of Chicago.

Franks, S. 1995. *Parameters of Slavic Morphosyntax*. New York: Oxford University Press.

Franks, S. 1998. Parameters of Slavic Morphosyntax Revisited: A minimalist Retrospective. In *Annual Workshop on Formal Approaches to Slavic Linguistics*, eds. .Ž. Bošković, S. Franks, and W. Snyder, 134-164. Michigan Slavic Publications.

Heine, B. 1997. *Cognitive Foundations of Grammar*. New York; Oxford: Oxford University Press.

Heine B., U. Claudi, and F. Hünnemeyer 1991. *Grammaticalization: A conceptual framework*. Chicago: University of Chicago Press.

Hooper P., and E. Traugott. 1993. *Grammaticalization*. Cambridge: Cambridge University Press.

Laškevič, A. I. 1985. *Imennye slovosočetanija so značeniem metaforičeskogo količestva*. Minsk: Vyšejšaja škola.

Lee, Su Hyoun. 2005. Imennaja kvantitativnaja konstrukcija v russkom jazyke tipa *kuča ljudej* i *more slez*: kognitivnyj analiz. Ph.D. dissertation. RSUH, Moscow.

Mel'čuk, I. A. 1985. *Poverxnostnyj sintaksis russkix čislovyx vyraženij* Wiener Slawistischer Almanach Sonderband 16.

Neidle, C. 1988. *The role of case in Russian syntax*. Dordrecht: Kluwer.

Pesetsky, D. M. 1982. Paths and categories. PhD. Dissertation, MIT.

Suprun, A. E. 1959. *O russkix čislitel'nyx*. Frunze: Kirgizskij gosudarstvennyj universitet.

FASL 13, 218–229
Michigan Slavic Publications
2005

On *Wh*-Movement and *Wh*-in-situ in Russian*

Denis Liakin
Concordia University

1 Introduction

Rudin (1988) argued for four main language types in the cross-linguistic typology of *wh*-movement. Some languages like English normally place one and only one *wh*-phrase in the sentence initial position:

(1) a. **What** did you say **to whom**?

b. ***What to whom** did you say?

Other languages like Chinese have all *wh*-phrases in-situ:

(2) John gei-le **šei** **šenme**?
John gave what to whom
'What did John give to whom?' (Bošković, 2002: 352)

In some languages like French *wh*-movement is optional. The example in (3) shows that French can follow either the English or the Chinese pattern.

(3) a. **Qu'** as-tu demandé **à qui**?
what had-you asked to whom
'What did you ask whom?

b. Tu as demandé **quoi** **à qui**?
you had asked what to whom

The fourth group of language includes all of the Slavic languages as well as some others like Romanian. This group places all *wh*-phrases in a clause-initial position, as in Russian:

* I would like to thank two anonymous reviewers for useful comments and suggestions

(4) **Kto čto** ljubit?
who what loves
'Who loves what?'

Bošković (2002) suggests that multiple *wh*-fronting (MWF) languages should be eliminated from the cross-linguistic typology of *wh*-movement in multiple questions, thus leaving three language types, represented by English, French, and Chinese. He argues that MWF languages are scattered across these three types: Bulgarian and Romanian are MWF counterparts of English, because they always have *wh*-movement; Serbo-Croatian patterns with French, in which *wh*-movement is optional, although sometimes required; and Russian patterns with Chinese where no *wh*-movement exists. With respect to *wh*-movement, it follows that Russian is a *wh*-in-situ language just like Chinese, as argued by Stepanov (1997), Strahov (2001), and Bošković (2002). However, this paper, based on the data from Russian, shows that the elimination of the MWF languages from the cross-linguistic typology cannot be reasonably supported.

2 Previous Analyses of Multiple *Wh*-Movement in Russian

Two specific accounts of Russian treat MWF as topicalization (Strahov 2001) and focus movement (Stepanov 1997). Strahov (2001) suggests that *wh*-phrases in MWF constructions in Russian are multiple Topics, because this language allows them:

(5) Maksimu, knigu, Denis (eë) (emu) dal.
to Maxim_{TOP} book_{TOP} Denis it him gave
'The book to Maxim, Denis gave it to him'.

According to Strahov's analysis, both *wh*-phrases in (6) are Topics:

(6) a. **Komu čto** Denis dal?
to whom_{TOP} what_{TOP} Denis gave
'What did Denis give to whom?'

Interestingly, Topics and multiple *wh*-Topics do not behave similarly in terms of extraction from an embedded clause:

(7) Maksim raduetsja, kogda Nataša posylaet mame pis'ma.
Maxim is happy when Natasha sends mother letters
'Maxim is happy when Natasha sends letters to mother.

(8) ? Mame, pis'ma, Maksim raduetsja, kogda Nataša ej ix posylaet.
to mother$_{TOP}$ lettters$_{TOP}$ Maxim is happy when Natasha her them sends
'Letters to mother, Maxim is happy when Natasha sends them to her.'

(9) a. ***Komu čto** Maksim raduetsja, kogda Nataša posylaet?
whom what Maxim is happy when Natasha sends
'To whom is Maxim happy when Natasha sends what ?'.

b. ***Čto komu** Maksim raduetsja, kogda Nataša posylaet?
what whom Maxim is happy when Natasha sends
'What is Maxim happy when Natasha sends to whom?'

While DP topics can be moved to the main clause (8), movement of *wh*-phrases out of embedded clause is aberrant, as is shown in (9). Thus, no strong evidence exists to consider multiple *wh*-phrases as multiple topics.

Stepanov (1997) suggests that all *wh*-phrases in MWF constructions in Russian are adjoined to AgrSP and no movement to Spec, CP occurs. He argues that AgrS has a weak focus feature which is [+interpretable] and therefore is not eliminated upon checking. Thus, in a multiple question all *wh*-phrases move to check their focus feature against the corresponding feature in AgrS. To support the lack of *wh*-movement, Stepanov compares Russian to Chinese, where no *wh*-movement occurs, since the multiple question (10) can trigger either the individual answer (11a) or the multiple pair list answer (11b).

(10) **Kto čto** kupil?
who what bought
'Who bought what?'

(11) a. Denis kupil knigi.
Denis bought books
'Denis bought books.'

b. Denis kupil knigi, a Nataša fotoal'bom.
Denis bought books and Natasha photo album
'Denis bought books, and Natasha a photo album.'

We argue that several positions are possible for *wh*-phrases rather than a unique one. *Wh*-phrases can be split by a Topic, as shown in (12), and thus occupy two different positions:

(12) **Komu** Maksim **kogda** napisal pis'mo?
to whom Maxim$_{TOP}$ when wrote letter
'Maxim, to whom did he write the letter and when?'

Before offering an alternative analysis, let us take a closer look to Stepanov's (1997), Strahov's (2001), and Bošković's (2002) assertions that Russian is *wh*-in-situ language.

Why is a given language a *wh*-in-situ language? Five main reasons are put forward by linguists to support the claim that Russian is one (based on the Chinese and Japanese data adapted from Cheng (1991, 1997)):

(13) a. single-pair or pair-list answers
b. yes/no clausal typing particle;
c. *wh*-clausal typing particle
d. *wh*-elements are indefinite pronouns
e. *wh*-in-situ

2.1 Single-pair or pair-list answers

The context of a multiple question plays an important role in determining whether single-pair or pair-list answers are possible. Consider the first situation: This is a party. Denis is in the kitchen and asks Natasha to find out who will drink red wine, who will drink white wine, and who will drink juice. Natasha comes back and Denis asks her the question:

(14) **Kto** **čto** xočet?
who what wants
'Who wants what?'

In the answer, we expect only pair-list answers: John and Mary will drink red wine, Michael will drink juice, etc.

Consider the second situation: Denis is in the kitchen and some friends in the living room are talking about somebody wanting something. Denis knows what they're talking about but he missed the part of the discussion revealing who wanted what. Denis enters the room and asks the question (14). In this context only a single-pair answer is allowed: *Mary wants to buy a new dress.*

Romanian also allows single-pair and multiple-pair answers (Mirela Parau and Gabriela Alboiu, p.c.). The question in (15) can be asked in both the above-mentioned situations, and we obtain the same types of answers as in Russian:

(15) **Cine** **ce** vrea?
who what wants
'Who wants what?'

Thus, Romanian is similar to Russian in regards to the possibility of types of answers. As for Serbo-Croatian, Bošković (2002) argues that it

allows single-pair and multiple-pair answers in matrix questions and only multiple-pair answers in embedded clauses. Again, both types of answers are permitted.

2.2 Yes/no clausal typing particle

Strahov (2001), following Cheng (1991, 1997), suggests that languages with special marking in yes/no questions are in-situ languages. She also argues that the interrogative particle *li* types a clause as a yes/no question in Russian:

(16) Knigu **li** ty prinës?
book Q you brought
'Was it a book that you brought?'

But the yes-no clausal typing particle *li* also types yes-no questions in Bulgarian (17) and Serbo-Croatian (18):

(17) Knigata **li** donese?
book Q brought
'Was it a book that you brought? ' (Tisheva and Dzhonova 2002: 241)

(18) Knjige **li** Ana čita?
book Q Ana reads
'Does Ana read books?' (Bošković 2001: 27)

The three languages have the same yes-no clausal typing particle *li*. As for Romanian, no explicit marker for yes-no questions exists, but we could suppose that it is phonologically null, because Cheng (1991, 1997) discusses the possibility of null markers. According to this criterion the four languages cannot be split in three groups.

2.3 Wh-clausal typing particle

Following Cheng (1991), Strahov (2001) claims that Russian possesses a phonologically null clausal typing particle that is used to type a clause as a *wh*-question:

(19) **Kuda** ja ego položila.
where I it put
'Where did I put it?'

This particle is in complementary distribution with the particle *li*:

(20) ***Kuda** li ja ego položila.
whereQ I it put
'Where did I put it?'

But in Bulgarian (21) and Serbo-Croatian (22) the same interrogative particle *li* types the sentence as a *wh*-question (21a-22a), and as in Russian the interrogative particle can be phonologically null (21b-22b):

(21) a. **Kâde** li sâm go složila?
where Q am it put
'Where might I have put it?'

b. **Kâde** sâm go složila?
where am it put
'Where did I put it?' (Tisheva and Dzhonova 2002: 246)

(22) a. **Koga** li Petar voli?
who Q Petar loves
'Who does Petar love?' (Bošković 2001: 26)

b. **Koga** Petar voli?
who Petar loves
'Who does Petar love?'

In Romanian, as in Russian, no explicit marker exists, but again we could suppose that it is phonologically null. This argument precludes the reduction of language types from four to three, with Russian belonging to the *wh*-in-situ group.

2.4 Wh-elements are indefinite pronouns

According to Cheng (1991, 1997), languages differ with respect to whether or not the variable (indefinite pronoun in our case) and the question operator are combined into one word in the lexicon. It has been illustrated that in the in-situ languages (Chinese, Japanese) the question words are indefinite pronouns. Strahov (2001) argues that in Russian just as in Japanese it is also possible to use the bare form of a *wh*-word with a non-interrogative (indefinite) meaning:

(23) Esli ty **kogo** vstretiš', to skaži emu, čto menja net doma.
if you who$_{ACC}$ meet then tell him that me$_{GEN}$ not home
'If you see someone, tell him I am not home.'

In (23), the form of the indefinite pronoun *kogo* is the same as that of the *wh*-phrase in (24):

(24) **Kogo** ty ljubiš'?
who$_{ACC}$ you love
'Who do you love?'

But it should be noted that the full form of the indefinite pronoun is *kogo-to*. The basic rule of the formation of indefinite pronouns is: *wh*-phrase + *-to* as illustrated in Table 1:

Table 1.

***Wh*-phrase**	**Indefinite pronoun**
kto (who-Nom)	*kto-to* (someone - Nom)
čto (what)	*čto-to* (something)
gde (where)	*gde-to* (somewhere)
kogo (who - Acc)	*kogo-to* (someone - Acc)
čem (what-Instrumental)	*čem-to* (by something)

In relation to (23), the full form of the indefinite pronoun also may be used as shown in (25), and no interpretation difference exists between those two examples.

(25) Esli ty **kogo-to** vstretiš', to skaži emu, čto menja net doma.
if you who$_{ACC}$ meet then tell him that me$_{GEN}$ not home
'If you see someone, tell him I am not home.'

Compare two other examples:

(26) a. Ona **kuda-to** ušla.
she somewhere went
'She went somewhere.'

b. *Ona **kuda** ušla.
she somewhere went

Example (26b) shows that one cannot claim that *wh*-phrases are always indefinite pronouns in Russian. Only in specific discourse conditions is this the case. A possible explanation is that in a long sentence the speaker has a tendency to drop some syllables of a word provided that the meaning remains unchanged. In our opinion, that is what happens in long sentences in Russian, similar to (23).

In addition, if Russian is compared to Bulgarian, Romanian, and Serbo-Croatian, the same result is obtained concerning the formation of indefinite pronouns: a morpheme is attached to the corresponding *wh*-phrase (*-va* in Romanian, *nja-* in Bulgarian and *ne-* in Serbo-Croatian). The following tables show the formation of indefinite pronouns for these three languages:

Table 2. Romanian

***Wh*-phrase**	**Indefinite pronoun**
cine (who)	*cineva* (someone)
ce (what)	*ceva* (something)
cite (how much)	*citeva* (some number)
unde (where)	*undeva* (somewhere)

Table 3. Bulgarian

***Wh*-phrase**	**Indefinite pronoun**
koj (who)	*njakoj* (someone)
kakvo (what)	*njakakvo* (something)
koga (when)	*njakoga* (at some moment)
kude (where)	*njakude* (somewhere)

Table 4. Serbo-Croatian

***Wh*-phrase**	**Indefinite pronoun**
ko (who)	*neko* (someone)
šta(what)	*nešta* something)
gde (where)	*negde* (somewhere)
kako (how)	*nekako* (somehow)

2.5 Wh-in-situ

Finally, Russian (27), Bulgarian (28), and Serbo-Croatian (29) allow *wh*-in-situ with "echo" interpretation, which is also a criterion in favor of *wh*-in-situ languages:

(27) Denis ljubit **kogo**?
Denis loves whom
'Denis loves whom?'

(28) Denis vizhda **kogo**?
Denis sees whom
'Denis sees whom?' (Ivan A. Derzhanski, p.c.)

(29) Denis voli **koga**?
Denis loves whom
'Denis loves whom?' (Željka Paunović, p.c.)

Interestingly, these five characteristics of *wh*-in-situ languages apply to all MWF languages, including Bulgarian, Serbo-Croatian, and Romanian, which according to Bošković's classification are scattered across three groups. Thus we conclude that multiple *wh*-fronting should not be eliminated from the cross-linguistic typology and that MWF should not be seen as an epiphenomenon.

3 An Alternative

We argue that the highest *wh*-phrase in a multiple question in Russian targets a different position than other *wh*-phrases. Our conclusion is based on the following evidence. The statement in (30) represents the situation where we know the subject (children) but we do not have an indication of the destination (where they will go), whereas the verb *uedut* 'leave' presupposes a destination:

(30) Deti skoro uedut.
children soon will go
'Children will go soon'.

A simple question is possible in both cases: for the subject (31a) and for the destination (31b). But in a multiple question, where the speaker wants clarification regarding the participants and the destination, the *wh*-subject must follow the *wh*-destination (31c vs. 31d):

(31) a. **Kto** skoro uedet?
who soon will go
'Who will go soon?'

b. **Kuda** deti skoro uedut?
where children soon will go
'Where will the children go soon?'

c. **Kuda** **kto** poedet?
where who will go
'Who will go where?'

d. **#Kto** **kuda** poedet?
Who where will go

The inappropriateness of the structure in (31d) can be explained by the fact that the speaker is more interested in the presupposed but unknown fact (destination) than in the known one (children). The fact that the *wh*-phrase *kuda* can precede the *wh*-phrase *kto* in (31c) but cannot follow it in (31d) suggests the presence of two different structural

positions. The same result is obtained if an overt direct object and a presupposed indirect object exist as in (32):

(32) Maksim razdal svoi veščі.
Maxim gave out his clothes
'Maxim distributed his belongings.

(33) a. **Komu čto** on razdal?
to whom what he gave out
'What did he give to whom?'

b. ***Čto komu** on razdal?
what to whom he gave out

Again, the only possible multiple question is the one where the *wh*-phrase which represents an unknown object (destination) precedes the known object as in (33a). But if the unknown object disappears from the sentence, the order of *wh*-phrases becomes free, as in the questions (35, 37) to the statements (34, 36):

(34) Denis uedet v Moskvu, a Maksim uedet v Minsk.
Denis will go to Moscow and Maxim will go to Minsk
'Denis will go to Moscow and Maxim will go to Minsk.'

(35) a. **Kuda kto** poedet?
Where who will go
'Who will go where?'

b. **Kto kuda** poedet?
who where will go

(36) Maxim otdal Saše rubašku, a Sergeju štany.
Maxim gave Sasha shirt and Sergei trousers
'Maxim gave Sasha a shirt and Sergei trousers.'

(37) a. **Komu čto** on razdal?
to whom what hegave
'What did he give to whom?'

b. **Čto komu** on razdal?
what to whom he gave

We argue that in a multiple question in Russian there is always a *wh*-phrase which is more important for the speaker and targets a distinct

projection, while movement of other *wh*-phrases is driven by focalization. This distinct projection can be called D-WhP. It has a *wh*-feature related to the discourse [*wh*-disc] which is always strong in Russian. The strength of the [*wh*-disc] feature can be explained by the fact that no *wh*-phrase can remain in-situ but must move obligatorily[1].

4 Conclusion

In this paper we argued that Russian is not a *wh*-in-situ language like Chinese, Bulgarian, Romanian, and Serbo-Croatian. This allows us to suggest keeping the MWF languages in the cross-linguistic typology of *wh*-movement and may lead us to rethinking the *wh*-typology classification on the basis of the presence of the discourse-related projection D-WhP in main and embedded clauses a factor which determines the free/fixed order of fronted *wh*-phrases:

Table 5.

Language	D-WhP in the main clause	D-WhP in the embedded clause
Russian	+	+
Bulgarian, Romanian	-	-
Serbo-Croatian	+	-
?	-	+

The gap in the last line of this typology can have two explanations. Either an unknown language(s) exist(s) which exhibit(s) the impossibility of finding D-WhPs either in the matrix or embedded clause, or this gap corresponds to an impossibility in principle, since the presence of a D-WhP projection in the embedded clause also entails its presence in the matrix clause.

References

Bošković, Željko. 2001. *On the Nature of the Syntax–Phonology Interface (clitici-zation and related phenomena)*. Amsterdam. Elsevier.

Bošković, Željko. 2002. On multiple *wh*-fronting. *Linguistic Inquiry*, 33: 351-383.

Cheng, Lisa. 1991. On the topology of *wh*-questions. PhD. dissertation, MIT.

Cheng, Lisa. 1997. *On the typology of* wh-*questions*. New York: Garland.

[1] The same is also true for embedded clauses. See Liakin (2003) for detailed description of how D-WhP fits in Russian clausal structure.

Liakin, Denis. 2003. La structure CP en russe et l'hypothèse des spécifieurs multiples. PhD. dissertation, University of Western Ontario.

Rudin, Catherine. 1988. On multiple questions and multiple *wh*-fronting. *Natural Language and Linguistic Theory* 6: 445–501.

Stepanov, Arthur. 1997. On *wh*-fronting in Russian. In *Proceedings of the 24th Meeting of the North East Linguistic Society*, 453-467. GLSA, University of Massachusetts, Amherst.

Strahov, Natalya. 2001. A scrambling analysis of Russian *wh*-questions. In *Formal Approaches to Slavic Linguistics: The Bloomington Meeting 2000*, 293-311. Ann Arbor: Michigan Slavic Publications.

Tisheva, Yovka, and Marina Dzhonova. 2002. Information structure level in TreeBanks. In *Proceedings of The First Workshop on Treebanks and Linguistic Theories (TLT2002)*, 231-252. LML, Bulgarian Academy of Science, Sofia.

FASL 13, 230–240
Michigan Slavic Publications
2005

To Have or To Be: On the Syntax of Perfect Tenses in South Slavic

Krzysztof Migdalski
Tilburg University

1 Introduction

A crucial property of perfect tenses in South Slavic is the fact that it is the verb 'to be' that is by default selected as the auxiliary. It appears with the so-called (resultative) *l*-participle. The *l*-participle always agrees in φ-features with the subject.

(1) Ivanka e čela knigata. (Bg)
Ivanka be$_{3SG.PRES}$ read$_{PART.F.SG}$ book-the
'Ivana has read the book'.

(2) (Jas) sum javil na pregled. (Mac)
(I) be$_{1SG.PRES}$ appear$_{PART.M.SG}$ for examination
'I have appeared for examination'. (Friedman 1977)

Macedonian stands as an exception, being the only Slavic language which can also use 'have' as an auxiliary. The auxiliary 'have' is complemented by a non-agreeing form of the (passive) *n*-participle.

(3) Gi imame kupeno knigite. (Mac)
them have$_{1PL}$ buy$_{PASS.PART.NEUT}$ books-the
'We have bought the books'. (Tomić 1996)

In this paper I will be concerned with the syntax of perfect tenses in two closely related South Slavic languages, Bulgarian and Macedonian. I will contrast structures involving displacement of the two types of

*I am particularly grateful to Hans Broekhuis for long discussions over the material presented here. Moreover, I would like to thank the FASL 13 audience, Mariana Lambova, Svetoslav Marinov, Laszlo Molnarfi, Craig Thiersch, Olga Tomić, Polya Vitkova, and two anonymous reviewers for comments and/or help with the data. All mistakes are my own.

participles over the respective auxiliaries, and I will show that the differences between them result from auxiliary selection.

The paper is organized as follows. First I will briefly outline a relationship between *l*-participle fronting and properties of clitic auxiliaries. Next I will examine participle preposing across the auxiliary 'to be'. I will argue that the movement should be analyzed as locative inversion. I will conclude by demonstrating that participle fronting across the auxiliary 'have' in Macedonian is an instance of VP-topicalization.

2 Participle Fronting and the Properties of Clitics

In South Slavic the present tense forms of the auxiliary 'to be' are clitics, and their clitic requirements differ across the languages. In a nutshell,[1] in Bulgarian the clitics must be verb-adjacent and may not appear clause-initially. As shown in (4) and (5), the participle may be preposed across both the present tense (clitic) auxiliary and a past tense (non-clitic) auxiliary. In the former case, the fronting is obligatory, as otherwise the clitic would be left at the beginning of a clause. The movement is optional with past tense auxiliaries. However, as Lambova (2003) points out, the movement across a non-clitic auxiliary always leads to a focused or contrastive interpretation of the participle.

(4) a. Čel sa⊥m knigata. (Bg)
read$_{PART.M.SG}$ be$_{1SG.PRES}$ book-the

b. *Sam čel knigata.
be$_{1SG.PRES}$ read$_{PART.M.SG}$ book-the
'(I) have read/READ the book'

(5) a. Čel bjax knigata. (Bg)
read$_{PART.M.SG}$ be$_{1SG.PAST}$ book-the

b. Bjax čel knigata.
be$_{1SG.PAST}$ read$_{PART.M.SG}$ book-the
'(I) have READ the book'

In Macedonian, the clitics must also be verb-adjacent. However, they may procliticize on the *l*-participle and finite verbs, and as such they may occur at the beginning of a clause. Because of that, the subject may be dropped (6a). Example (6b) suggests that the properties of clitics determine the movement of the participle. Since the clitics in

[1] For a detailed analysis of the properties of clitics in the Slavic languages, see Franks and King (2000) and Tomić (1996).

Macedonian may procliticize on the *l*-participle, participle raising may be unnecessary and therefore impossible.

(6) a. (Jas) sum javil na pregled. (Mac)
I be$_{1SG.PRES}$ appear$_{PART.M.SG}$ for examination

b. *Javil sum na pregled.
appear$_{PART.M.SG}$ be$_{1SG.PRES}$ for examination
'I have appeared for examination.'

Thus, the generalization one would make is that participle fronting must apply as last resort, only when it is necessary to lend support to the clitics. Otherwise, the movement takes place for focus reasons, as in the case of participle fronting across past tense auxiliaries in Bulgarian (cf. 5a).

L-participle fronting has been extensively discussed in the literature, but so far it has always been analyzed as head raising, either as Long Head Movement from V to C (Lema and Rivero 1989) or as head adjunction of the participle to C (Wilder and Ćavar 1994), to Aux (Bošković 1997), or to a focus projection Delta (Lambova 2003). The main reason for rejecting an XP movement analysis is the impossibility of object pied-piping by the participle.

(7) *Pročel knigata e / beše. (Bg)
read$_{PART.M.SG}$ book-the be$_{3SG.PRES}$ / be$_{3PL.PAST}$

I have argued in previous work (Broekhuis and Migdalski 2003, Migdalski 2003) that head-movement accounts face a number of empirical and theoretical problems. Due to space limitations, I will not include a critique here but rather elaborate on an XP movement proposal.

3 *L*-Participle Fronting in Bulgarian as XP Movement

The analysis of *l*-participle fronting in Bulgarian is based on two main observations. First, both the subject and the *l*-participle always agree in φ-features. The subject carries number, person, and sometimes gender features, whereas the *l*-participle is marked for gender and number.

(8) a. Ivan e čel knigata.
Ivan be$_{3SG.PRES}$ read$_{PART.M.SG}$ book-the

b. Polja e čela knigata.
Polya be$_{3SG.PRES}$ read$_{PART.F.SG}$ book-the

Second, the *l*-participle is always accompanied by a form of the auxiliary 'to be'. This is noteworthy since in the Romance languages the auxiliary 'to be' is found only in unaccusative and passive constructions. In view of this, I will assume that the subject and the participle stay in a predicative relationship, which is overtly manifested through agreement.

I will also follow Hoekstra and Mulder's (1990) analysis of locative inversion in English. According to them, one of the puzzling properties of the construction is the fact that the subject follows the verb, so it cannot be possibly assigned nominative case by I. Still, the output is grammatical.

(9) Down the street rolled the baby carriage.

Hoekstra and Mulder solve the problem by proposing that the fronted PP transmits nominative case from I to the subject of the clause through co-indexing. This is possible because the fronted PP and the subject are in a predicative relationship and form a Small Clause.

(10) $[_{IP}\ PP_i\ [_I\ I\ [\ _{VP}\ V\ [\ _{SC}\ DP_i\ t_i\ ]]]]$

I propose that *l*-participle movement is an instance of locative inversion. However, in the case at hand, the movement is conditioned by agreement. Since both the subject and the participle carry φ-features, either of them may check the φ-features of T by XP-raising to Spec,TP. The proposal predicts that the fronted participle and the subject are in complementary distribution, as they compete for the same position. The prediction is borne out.

(11) a. *Čel Ivan e knigata.
read$_{PART.M.SG}$ Ivan be3$_{SG.PRES}$ book-the

b. *Ivan čel e knigata.
Ivan read$_{PART.M.SG}$ be3$_{SG.PRES}$ book-the

I will also follow the insight of Roberts (1987) and Broekhuis and Van Dijk (1995) concerning auxiliary selection. As is well-known, passive participle morphology absorbs the accusative case and the external argument. The auxiliary 'have' is claimed to reintroduce the agent and assign accusative case to the object. The verb 'to be' is an unaccusative auxiliary, so it may not perform these functions. What this implies in syntactic terms is that when the verb 'to be' is the auxiliary the subject is the external argument of the participle (cf. 12a). When 'have' is selected the subject is the external argument of the auxiliary (cf. 12b).

(12) a. ...[**be** $[_{vp}\ DP_{agent}\ v\ [_{VP}\ V_{PART}\ DP_{theme}]]]$

b. ...[$_{vp}$ DP_{agent} v [$_{VP}$ **have** [$_{VP}$ V_{PART} DP_{theme}]]]

Given that Bulgarian never uses the verb 'to have' as an auxiliary and that the *l*-participle is morphologically distinct from the passive participle, I propose the following structure for Bulgarian.

(13) [$_{TP}$ ... $T_{[+\varphi]}$ ... [$_{vP}$ $subject_{[+\varphi]}$ v [$_{PartP}$ $Part_{[+\varphi]}$ object]]]

The template correctly predicts that when the participle is fronted it is only the PartP that can be moved. Movement of a larger constituent would leave the φ-features on the participle too deeply embedded for them to be checked in T. At the same time, the participle may raise only without its object. Movement of the whole PartP would raise the direct object across its case checking position, so the object must first be evacuated for case checking, and this results in the requirement of remnant movement of PartP to Spec, TP (cf. 7).

However, the analysis still needs some further elaboration. First of all, notice that it is not only the object that must be evacuated from PartP. In fact, the participle must always raise entirely on its own, so all elements that originate as part of the PartP must be stranded before the participle moves to Spec,TP. Thus, PP's may not be pied-piped along with the participle either. Moreover, there is no need for PP's to move for case checking.

(14) a. Ivan e čakal na vlaka.
Ivan $be_{3SG.PRES}$ $wait_{PART.M.SG}$ to train
"Ivan has waited for the train"

b. *Čakal na vlaka e Ivan.
$wait_{PART.M.SG}$ to train $be_{3SG.PRES}$ Ivan

In order to circumvent this potential problem for my analysis, I will follow Barbiers (1995) and Kayne (1999), who suggest that prepositions are merged above the VP.

Consider the examples in (15) and (16). They indicate that the participle must be always adjacent to the auxiliary.

(15) a. *Čel ba⊥rzo e / beše knigata.
$read_{PART.M.SG}$ quickly $be_{3SG.PRES}$/ PAST book-the

b. Ivan e / beše (*ba⊥rzo) čel bŭrzo knigata.
Ivan $be_{3SG.PRES}$/ PAST quickly $read_{PART}$ quickly book
'Ivan has/had the book quickly'. (cf. Lambova 2003)

(16) *Ivan e / beše knigata čel.
Ivan $be_{3SG.PRES}$/ PAST book-the $read_{PART.M.SG}$

The adjacency requirement in (15a) is expected under the assumption that the fronted participle is in Spec, TP, whereas the auxiliary lands in T, so that no phrasal material intervenes between the two constituents. The only elements that may occur between the fronted participle and the present tense auxiliary are clitics forming a clitic cluster.

(17) Dal li mu go e.
give$_{PART.M.SG}$ Q him$_{CL.DAT}$ him$_{CL.ACC}$ be$_{3SG.PRES}$
'Has he given it to him?'

The fact that adjacency is also required when the participle follows the auxiliary (cf. (15b) and (16)) indicates that an obligatory "short" participle movement is at work[2]. Thus, I will suggest a more elaborate template for Bulgarian.

(18) [$_{TP}$ PartP [$_{T}$ *e/beše* [$_{AspP}$ t$_{PartP}$ [$_{Asp}$ t$_{e/beše}$ [$_{AgrOP}$ t$_{Obj}$ [$_{vp}$ Sub v [$_{PartP}$ V$_{PART}$ Obj]]]]]]]

As the phrase structure shows, the object moves to Spec, AgrOP for case checking. Next, PartP obligatorily moves as a remnant XP to Spec, AspP. I propose that it checks [Aspect] there. The auxiliary is merged in Asp[3], and it must move to T to check [Tense]. The subject is merged in Spec, vP[4].

What still needs to be explained is the locality of participle and subject movement. Notice that the participle must obligatorily move to Spec,AspP, and only then may it optionally raise further to Spec,TP. By contrast, the subject does not need an intermediate landing site, as it may raise directly to Spec, TP. I propose that the difference is related to the φ-feature specification: the subject is marked for a full set of φ-features, whereas the *l*-participle carries only the gender and number features.

(19) [$_{TP}$ ... T$_{[+Pers/Num/Gen]}$ ... [$_{AspP}$ Part$_{[+Num/Gen]}$ ... [$_{vP}$ Subject$_{[+Per/Num/Gen]}$]]]

Therefore, assuming with Chomsky (2001) that T is specified for a full set of φ-features, I will argue that the subject is raised when [Person] is selected as the attractor. When [Gender] or [Number] are the attractors on T, the *l*-participle moves.

---

[2] The idea has already been hinted at by Embick and Izvorski (1995).

[3] I assume that the auxiliaries are merged in Asp, as they frequently impose aspectual restrictions on the participle. For example, the future auxiliary *będzie* in Polish is compatible only with imperfective forms of the participle. See also Dostál (1954: 146), who claims that the Proto Slavic *byti* 'to be' is biaspectual.

[4] This is what has been independently argued by Arnaudova (2003:97) to account for the position of "inverted subjects".

To sum up, I have argued that *l*-participle fronting is a case of locative inversion[5]. It is obligatory only when the auxiliary 'to be' is a clitic. Thus, I assume that the movement is triggered by the enclitic requirements of the auxiliary. The φ-feature specification of T only makes the operation *possible*.

4 Properties of 'Have' Perfects in Macedonian

Macedonian is the only Slavic language that can use 'have' as an auxiliary. The auxiliary 'have' selects an invariant form of the passive (*-n-*) participle, which is always marked for the neuter gender irrespectively of agreement marking on the subject.

(20) Gi imame kupeno knigite.[6]
them$_{CL.ACC}$ have$_{1PL}$ buy$_{PASS.PART.N.SG}$ books-the
'We have bought the books' (Tomić 1996)

Moreover, 'have' perfects allow passive morphology on unaccusative participles. This is striking, because unaccusative verbs can never be used in passive constructions.

(21) Imam dojdeno.
have$_{1SG}$ come$_{PASS.PART.N.SING}$
'I have come' (Gołąb 1959)

Friedman (1976) points out that similar constructions are found in Bulgarian and Serbian, even though these languages never use 'have' as an auxiliary.

(22) a. On nema položen nijedan ispit. (Ser)
he not-have$_{3SG}$ pass$_{PASS.PART.M}$ not-single exam$_{M}$
'He has not passed a single examination/He does not have a single exam passed'

b. Toj ima dve nivi izorani.[7] (Bg)
he have$_{1SG}$ two fields plow$_{PASS.PART.PL}$
'He has two fields plowed/He has plowed two fields'
(Dimitrovski 1957: 246, quoted in Friedman 1976)

---

[5] Locative inversion and *l*-participle movement display a number of parallelisms that I do not mention here due to space limitations. For instance, both movements are blocked by negation. I will discuss them in a future work.

[6] *Gi* 'them' is a doubled object clitic.

[7] An anonymous reviewer points out that the example represents a construction which is used in a West Bulgarian dialect spoken near the Macedonian border.

Notice, however, that these are different structures, since the *n*-participle agrees with the object and the construction is only possible with transitive verbs. Friedman argues that they represent intermediate stages in the grammaticalization of the 'have' perfect, which was completed only in Macedonian. According to him, the development occurred in two steps. The first diachronic change consisted in the loss of agreement on the *n*-participle. It was followed by an extension of the construction to intransitive verbs.[8]

Bubenik (2001: 81-82) claims that speakers of some varieties of Macedonian still accept forms with the verb 'have' and a form of the *n*-participle that agrees with the object. Notably, the direct object may then follow or precede the participle.

(23) a. Ja imam taa rabota završena.
she$_{CL.ACC}$ have$_{1SG}$ this$_F$ work$_F$ finish$_{PASS.PART.F}$
'I have that work finished'

b. Ja imam završena taa rabota.
she$_{CL.ACC}$ have$_{1SG}$ finish$_{PASS.PART.F}$ this$_F$ work$_F$
'I have finished this work'

However, once the verb 'to have' develops into an auxiliary, the object may only follow the invariant form of the *n*-participle.

(24) a. *Ja imam taa rabota završeno.[9]
she$_{CL.ACC}$ have$_{1SG}$ this$_F$ work$_F$ finish$_{PASS.PART.N}$

b. Ja imam završeno taa rabota
she$_{CL.ACC}$ have$_{1SG}$ finish$_{PASS.PART.N}$ this$_F$ work$_F$
'I have finished that work'

5 *N*-Participle Fronting in Macedonian as VP-Topicalization

Recall that fronting of the *l*-participle across the auxiliary 'to be' is impossible in Macedonian.

(25) *Javil sum na pregled.
appear$_{PART.M.SG}$ be$_{1SG.PRES}$ for examination
'I have appeared for examination.'

---

[8] In this way Macedonian exemplifies a general pattern of the development of 'have' perfects in Indo-European languages. For example, Salvi (1987) shows the 'have' perfects in Romance languages followed the same path.

[9] Bubenik (2001: 81-82) claims that the form is acceptable in colloquial Macedonian. However, the native speakers I have consulted reject it.

However, in contrast with the *l*-participle structures, 'have' perfects permit VP topicalization.

(26) a Gi imame kupeno knigite
them$_{CL.ACC}$ have$_{1PL}$ buy$_{PASS.PART.N}$ books-the
'We have bought the books'

b. Kupeno knigite gi imame
buy$_{PASS.PART.N}$ books-the them have$_{1PL}$
'Buy the books, we did!' (Tomić 1996)

VP topicalization differs from *l*-participle fronting in several respects. First of all, the *n*-participle does not agree with the subject in φ-features. Secondly, the *n*-participle may pied-pipe the object. Thirdly, it is possible to insert the subject between the fronted participle and the rest of the clause.

(27) Kupeno knigite nie gi imame
buy$_{PASS.PART.N}$ books-the we them have$_{1PL}$
'Buy the books, we did!' (Tomić, p.c.)

Fourthly, fronting of the *n*-participle always gives rise to a focused or topicalized reading of the fronted constituent.

I submit that the contrasts can be straightforwardly explained on the assumption that 'be' and 'have' perfects have different syntactic representations. Recall the templates given in (12), repeated here for convenience.

(28) a. ...[**be** [$_{vp}$ DP_{agent} v [$_{VP}$ V_{PART} DP_{theme}]]] ('be' as aux)

b. ...[$_{vp}$ DP_{agent} v [$_{VP}$ **have** [$_{VP}$ V_{PART} DP_{theme}]]] ('have' as aux)

I have proposed that *l*-participle fronting is an instance of locative inversion. Following Broekhuis and Van Dijk (1995), I have also assumed that the auxiliary 'have' assigns the external theta role. As is well-known (cf. Bresnan 1994), locative inversion is possible only with unaccusative verbs, and most of the time with the verb 'to be'. It is incompatible with verbs that assign external theta-roles. As a result, 'have'-perfects may not raise to Spec,TP, because they are not eligible for locative inversion.

Since the *n*-participle has no appropriate φ-features, it may not target Spec,TP. Hence, it always occurs in the invariant neuter form. For the same reason, the *n*-participle and the subject are not in complementary distribution, as they target different positions in the clause structure.

I have suggested that the *l*-participle in Bulgarian may not pied-pipe the object, because of problems with case feature checking. As indicated

in (26b), in Macedonian the *n*-participle *can* raise together with the object. Again, I propose that the difference relates to the structure of 'have' perfects in (28b), and more specifically, to the size of the moved constituent. As the template for 'have' constructions suggests, it is possible to raise a range of extended projections together with the *n*-participle, including the one in which the case features of the object can be checked.

Given that *n*-participle movement in Macedonian always gives rise to a focused interpretation of the fronted VP, I conclude that it involves raising to the specifier of a Topic/Focus projection, located above the TP. This is A'-movement, on a par with VP topicalization across the auxiliary 'have' in German or Dutch (cf. Den Besten and Webelhuth 1987).

(29) a. Jan heeft het $boek_i$ niet [$_{VP}$ t_i gelezen]
Jan has the book not read

b. [$_{VP}$ het boek gelezen] heeft Jan niet t_{VP}

6 Conclusion

In this paper I have contrasted participle movement across the auxiliary 'to be' and 'to have' in South Slavic. I have argued that VP fronting over the auxiliary 'to have' occurs for focus reasons, on a par with the well-studied cases of VP-topicalization in Germanic. I have also demonstrated that raising of the *l*-participle across the auxiliary 'to be' should be analyzed as locative inversion. It seems that the main merit of the proposal lies in the fact that the movement operations are linked to more general patterns found in non-Slavic languages.

References:

Arnaudova, O. 2003. Focus and Bulgarian Clause Structure. Ph.D. dissertation, University of Ottawa.

Barbiers, S. 1995. *The Syntax of Interpretation*. Ph.D. dissertation, University of Leiden.

Bošković, Ž. 1997. *The Syntax of Non-finite Complementation. An Economy Approach.* Cambridge, MA: MIT Press.

Bresnan, J. 1994. Locative Inversion and the Architecture of Universal Grammar. *Language* 70: 72-131.

Broekhuis, H., and K. van Dijk. 1995. The syntactic function of the auxiliaries of time. In *Linguistics in the Netherlands 1995*, ed. M. den Dikken and K. Hengeveld, 1-12. Amsterdam/: Benjamins.

Broekhuis, H., and K. Migdalski. 2003. Participle fronting in Bulgarian. In *Linguistics in the Netherlands 2003*, ed. P. Fikkert and L. Cornips, 1-12. Amsterdam: Benjamins.

Bubenik, V. 2001. *Morphological and Syntactic Change in Medieval Greek and South Slavic Languages*. Munich: Lincom Europa.

Chomsky, N. 2001. Derivation by phase. In *Ken Hale: A Life in Language*, ed. M. Kenstowicz, 1-52. Cambridge, MA: MIT Press.

Den Besten, H., and G. Webelhuth. 1987. Remnant topicalization and the constituent structure of VP in the Germanic SOV languages. *GLOW Newsletter* 18: 15-16.

Dimitrovski, T. 1957. Revija na izvestija na instituta za bŭlgarski ezik. *Makedonski Jazik* 8: 245-248.

Dostál, A. 1954. *Studie o vidovém systému v staroslověnštině*. Prague: Státní pedagogické nakladatelství.

Embick, D., and R. Izvorski. 1995. On long head movement. In *Proceedings of ESCOL '94*, 104-115. University of South Carolina, Columbia.

Franks, S., and T. H. King. 2000. *A Handbook of Slavic Clitics*. New York: Oxford University Press.

Friedman, V. A. 1976. Dialectal synchrony and diachronic syntax: The Macedonian perfect. In *Papers from the Parasession on Diachronic Syntax*, 96-104. Chicago: Chicago Linguistic Society.

Friedman, V. A. 1977. *The Grammatical Categories of the Macedonian Indicative*. Columbus, OH: Slavica Publications.

Gołąb, Z. 1959. Some Arumanian-Macedonian isogrammatisms and the social background of their development. *Word* 15: 415-435.

Hoekstra, T., and R. Mulder. 1990. Unergatives as copular verbs: Locational and existential predication. *Linguistic Review* 7: 1-79.

Kayne, R. 1999. Prepositions as attractors. *Probus* 11: 39-73.

Lambova, M. 2003. On Information Structure and Clausal Architecture: Evidence from Bulgarian. Ph.D. dissertation, University of Connecticut.

Lema, J. and M-L. Rivero. 1989. Long head movement: ECP vs. HMC. In *Proceedings of NELS 20*, 333-347. GLSA, University of Massachusetts, Amherst.

Migdalski, K. 2003. The syntax of the *l*-participle in Bulgarian and Serbo-Croatian. Paper presented at Formal Description of Slavic Languages, 5, University of Leipzig, November 26-28. To appear in the conference proceedings.

Roberts, I. 1987. *The Representation of Implicit and Dethematized Subjects*. Dordrecht: Foris.

Salvi, G. 1987. Syntactic restructuring in the evolution of Romance auxiliaries. In *Historical Development of Auxiliaries*, ed. M. Harris and P. Ramat, 225-236. Berlin: Mouton de Gruyter.

Tomić, O. 1996. The Balkan Slavic clausal clitics. *Natural Language and Linguistic Theory* 14: 811-872.

Wilder, C,. and D. Ćavar 1994. Long head movement? Verb movement and cliticization in Croatian. *Lingua* 93: 1-58.

k.m.migdalski@uvt.nl

FASL 13, 241–252
Michigan Slavic Publications
2005

Small Nominals in Russian*

Asya Pereltsvaig
Yale University

1 Introduction

Explanations in linguistics can often be found when patterns found in one constructions are replicated in a seemingly unrelated one. In this paper I argue for the Small Nominals Hypothesis for the well-known agreement patterns in (1) and against the Positional Hypothesis (cf. Franks 1994, Stepanov 2001, and Bošković 2003). The two hypotheses are outlined in (2).

(1) a. [Pjat' xirurgov] operirovali Džejmsa Bonda.
Five surgeons operated$_{PL}$ James Bond
'Five surgeons operated on James Bond.'

b. [Pjat' xirurgov] operirovalo Džejmsa Bonda.
Five surgeons operated$_{NEUT}$ James Bond
'Five surgeons operated on James Bond.'

(2) a. *Small Nominals Hypothesis (SNH):*
An agreeing subject in (1a) is a DP, whereas a non-agreeing subject in (1b) is a Small Nominal, i.e., a nominal lacking the DP projection.

b. *Positional Hypothesis (PH):*
An agreeing subject in (1a) is in Spec,TP, whereas a non-agreeing subject in (1b) is lower, e.g., in Spec,VP.

My argument in favor of the SNH is based on a comparison of the contrast involving subjects in (1) with the contrast involving objects in (3).

(3) a. Džejms Bond skopiroval [djužinu čertežej].
James Bond copied dozen blueprints
'James Bond copied a dozen blueprints.'

---

* I thank Len Babby, John Bailyn, Steve Franks, and Jim Lavine for their comments, and my Russian consultants for their contribution. All remaining errors are mine.

b. DžejmsBond na-kopiroval[djužinu čertežej].
James Bond CUM-copied dozen blueprints
'James Bond copied a whopping dozen blueprints.'

I show (Section 2) that the objects of verbs with the cumulative prefix *na-* in (3b) are Small Nominals, that is, they do not project a DP; in contrast, in the absence of the cumulative *na-* the object may project a DP. Furthermore, I show (Section 3) that the objects of verbs with the cumulative prefix *na-* in (3b) pattern with the non-agreeing subjects in (1b) with respect to five tests. Unlike their counterparts in (1a) and (3a), non-agreeing subjects and objects with cumulative *na-* cannot have a specific or a partitive interpretation, cannot take non-isomorphic wide-scope, and cannot function as controllers of PRO or antecedents in binding. To account for these similarities I propose that what objects of verbs with of the cumulative *na-* and non-agreeing subjects have in common is the lack of the DP projection (obviously not their position in the clause): both are Small Nominals. Thus, the SNH provides a unified explanation for both subject and object data, whereas the PH is limited to subjects only. In Section 4, I suggest that these five diagnostics are related to referentiality (that is, reference to individuals). Further predictions from this analysis with respect to individuated interpretation and Approximative Inversion are shown to be borne out. Finally, I suggest that the SNH provides a unified account for three additional approximation constructions in Russian which the PH fails to account for.

2 Objects of the cumulative *na-* as Small Nominals

Franks and Pereltsvaig (2004) argue on the basis of case patterns that objects of the cumulative prefix *na-* are at least QPs, that is, they include at least one functional projection. Here I show that objects of verbs with the cumulative *na-* are at most QPs, that is, they lack the DP, as can be seen from the fact that they cannot include D-level elements, such as a demonstrative, a pronoun, or a proper name.

(4) a. * Džejms Bond na-priglašal [ètu djužinu krasotok].
James Bond CUM-invited this dozen babes
intended: 'James Bond invited these dozen babes.'

b. * Džejms Bond na-priglašal {[nas] / [Ivanovyx]}.
James Bond CUM-invited us / Ivanovs
intended: 'James Bond invited {us / Ivanovs} a lot.'

Note that in the absence of the cumulative *na-*, the object can contain a demonstrative, a pronoun, or a proper name.

(5) a. DžejmsBond priglasil [ètu djužinu krasotok].
James Bond invited this dozen babes
'James Bond invited these dozen babes.'

b. DžejmsBond priglasil {[nas] / [Ivanovyx]}.
James Bond invited us / Ivanovs
'James Bond invited {us / (the) Ivanovs}.'

Hence I conclude that objects of the cumulative *na-* are Small Nominals lacking the DP. In contrast, in the absence of the *na-*, as in (5), the object may be a DP.

3 Non-agreeing subjects as Small Nominals

In the previous section I showed that objects of the cumulative *na-* are Small Nominals. In this section I argue that the non-agreeing subjects in (1b) are likewise Small Nominals.

One seemingly straightforward argument is that non-agreeing subjects cannot contain a D-level element such as a demonstrative, a pronoun, or a proper name. If such a D-level element is present, the subject must trigger plural agreement.

(6) a. [Èti pjat' xirurgov] {operirovali / *operirovalo} Bonda.
thesefive surgeons operated$_{PL}$ / operated$_{NEUT}$ Bond.
'These five surgeons operated on Bond.'

b. [Oni] {operirovali / *operirovalo} Džejmsa Bonda.
they operated$_{PL}$ / operated$_{NEUT}$ James Bond
'They operated on James Bond.'

c. [Ivanovy] {operirovali / *operirovalo} Džejmsa Bonda.
Ivanovs operated.$_{PL}$/ operated.$_{NEUT}$ James Bond
'The Ivanovs operated on James Bond.'

However, Bošković (2003) provides an explanation for the pattern in (6) under the PH.[1] He observes that the subject is compatible with default agreement only if the (highest element in the) subject can be construed as a caseless form. For example, in (1b) the highest element in the subject is the numeral *pjat'* 'five', which Bošković considers homophonous

[1] Bošković (2003) considers only subjects containing a demonstrative, but his analysis extends easily to data in (6b-c).

between the nominative case and a caseless form. In contrast, in (6a) the demonstrative *èti* 'these' and hence the subject as a whole is unambiguously nominative. Assuming that nominative can be checked only in Spec,TP (itself a not uncontroversial assumption in the recent minimalist framework; cf. inter alia Lavine and Franks, this volume), the subject containing a demonstrative in (6a) must be in Spec,TP, a position in which the subject triggers agreement under the PH (see (2b) above), whereas the subject containing a numeral in (1) need not be in Spec,TP. It may stay lower, in a position where it does not trigger agreement under the PH.

Can Bošković's analysis jeopardize the claim made in Section 2 that objects of the cumulative *na-* are Small Nominals? The answer is no: unlike non-agreeing subjects, objects of the cumulative *na-* need not be construed as caseless. For example, the quantity noun in (7) is unambiguously accusative.

(7) DžejmsBond na-kopiroval[djužinu čertežej]. = (3b)
James Bond CUM-copied dozen_{ACC} blueprints
'James Bond copied a whopping dozen blueprints.'

In this paper I provide another argument for non-agreeing subjects being Small Nominals which is based on their similarity to objects of verbs with the cumulative *na-*.[2] The relevant facts (to be illustrated and discussed below) are summarized as follows.

	non-agreeing subjects	agreeing subjects	objects of *na-*	other objects
specificity	*	✓	*	✓
partitivity	*	✓	*	✓
wide scope	*	✓	*	✓
control	*	✓	*	✓
binding	*	✓	*	✓

The outline of the argument is as follows: objects of verbs with the cumulative *na-* are Small Nominals; non-agreeing subjects pattern with objects of the cumulative *na-*; hence, non-agreeing subjects are also Small Nominals. In Section 4, I explain why these particular tests are relevant for detecting the absence of the DP.

[2] An additional argument for the PH comes from the alleged *that*-trace effect (see Franks 1994). Space limitations prevent me from discussing this issue in detail here, but the reader is referred to Pereltsvaig (forthcoming), where I show that this argument rests on shaky empirical grounds.

3.1 Specificity

Specificity is understood here as reference to specific individuals and diagnosed with adjectives glossed as 'certain', 'particular', or 'specific'. As can be seen below, objects with cumulative *na-* do not allow such adjectives (cf. Filip 1992).[3]

(8) *Džejms Bond na-sobiral [opredelënnyj buket cvetov].
James Bond CUM-picked particular bunch flowers
intended: 'J. Bond picked a particular bunch of flowers.'

In this respect, objects with cumulative *na-* contrast with other objects compatible with such adjectives:

(9) Džejms Bond sobral [opredelënnyj buket cvetov].
James Bond picked particular bunch flowers
'James Bond picked a particular bunch of flowers.'

Similarly, the non-agreeing subject in (10a) is incompatible with *opredelënnyj*, in contrast to the agreeing subject in (10b).

(10) a. *[Opredelënnye pjat' xirurgov] operirovalo Bonda.
particular five surgeons operated$_{NEUT}$ Bond
intended: 'A particular five surgeons operated on Bond.'

b. [Opredelënnye pjat' xirurgov] operirovali Bonda.
particular five surgeons operated$_{PL}$ Bond
'A particular five surgeons operated on Bond.'

3.2 Partitive Interpretation

As with the specific interpretation discussed in the previous section, objects with cumulative *na-* contrast with other objects with respect to the availability of the partitive interpretation (in the sense of Enç 1991, where the partitive refers to a subset of a previously introduced set). Objects with cumulative *na-* do not allow such an interpretation, whereas other objects do.

(11) *Context:*
V sejfe ležala kipa čertežej.
in safe lay pile blueprints
'There was a pile of blueprints in the safe.'

[3] Objects of the cumulative *na-* are compatible with *opredelënnyj* 'particular' only if the adjective modifies the noun and is marked genitive. However, in such instances we get a kind of interpretation that is irrelevant to the present argument (see Pereltsvaig forthcoming for details).

a. *Džejms Bond na-kopiroval [sotnju iz nix].
James Bond CUM-copied hundred of them
intended: 'J. Bond copied a whopping hundred of them.'

b. Džejms Bond skopiroval [sotnju iz nix].
James Bond copied hundred of them
'James Bond copied a hundred of them.'

And as with the specific interpretation, non-agreeing subjects pattern with objects of the cumulative *na-* in that they do not allow the partitive interpretation, whereas agreeing subjects do.

(12) *Context:*
Džejms Bond často rabotal s agentami Ce-Er-U.
James Bond often worked with agents CIA
'James Bond often worked with CIA agents.'

a. *[Pjat' iz nix] daže znalo Džejmsa Bonda v lico.
five of them even $\text{knew}_{\text{NEUT}}$ James Bond in face
intended: 'Five of them even knew James Bond by sight.'

b. [Pjat' iz nix] daže znali Džejmsa Bonda v lico.
five of them even knew_{PL} James Bond in face
'Five of them even knew James Bond by sight.'

3.3 Wide Scope

The third test involves scope. Although an in-depth analysis of scope cannot be untertaken here, it should be noted here that Russian speakers always prefer the interpretation in which scope is isomorphic with the linear order. However, some nominals can take non-isomorphic wide scope while others cannot. Specifically, objects of verbs with the cumulative *na-* cannot take wide-scope over other elements, but DP objects can.

(13) a. Každyj agent nakopiroval [djužinu čertežej].
every agent CUM-copied dozen blueprints
'Every agent copied a dozen blueprints.' unambiguous: $\forall > 12$

b. Každyj agent skopiroval [djužinu čertežej].
every agent copied dozen blueprints
'Every agent copied a dozen blueprints.' ambiguous: $\forall > 12$ or $12 > \forall$

Similarly, non-agreeing subjects cannot take non-isomorphic wide scope, whereas agreeing subjects can.

(14) a. Každyj raz [pjat' xirurgov] operirovalo Bonda.
each time five surgeons operated$_{NEUT}$ Bond
'Each time five surgeons operated on Bond.'
unambiguous: ∀ > 5

b. Každyj raz [pjat' xirurgov] operirovali Bonda.
each time five surgeons operated$_{PL}$ Bond
'Each time five surgeons operated on Bond.'
ambiguous: ∀ > 5 or 5 > ∀

3.4 Control

As with the other tests above, non-agreeing subjects pattern with objects with cumulative *na-* in that neither can be a controller.

First, note that objects with cumulative *na-* cannot function as controllers of PRO.[4] In the following example, the presence of a distributive construction in the infinitival clause requires a plural distributive key; essentially, the controller of PRO must be plural, which excludes the singular *Džejms Bond* as a possible controller. However, the object of verbs with cumulative *na-*, although plural, cannot be a controller either, since that makes the sentence ungrammatical.

(15) *Bond napriglašal krasotok [PRO vypit' po martini].
Bond CUM-invited babes to-drink DISTR Martini
intended: 'Bond invited (many) babes for a Martini each.'

In contrast, other objects can be controllers of PRO, as in the following example:

(16) Bond priglasil krasotok [PRO vypit' po martini].
Bond invited babes to-drink DISTR Martini
'Bond invited {some/the} babes for a Martini each.'

Once again, non-agreeing subjects pattern with objects with cumulative *na-*, as they cannot be controllers either. In this respect as well they contrast with agreeing subjects, which can be controllers (this contrast was first noted in Franks 1994).

(17) a. * Pjat' banditov pytalos' [PRO ubit' Džemsa Bonda].
five thugs tried$_{NEUT}$ to-kill James Bond
intended: 'Five thugs tried to kill James Bond.'

[4] Examples in this section illustrate control of PRO in infinitival clauses. The same patterns obtain with gerunds and secondary predicates, two constructions which, at least under certain assumptions, involve control of PRO. But space limitations do not allow me to present all the data here.

b. Pjat' banditov pytalis' [PRO ubit' Džemsa Bonda].
five thugs tried$_{PL}$ to-kill James Bond
'Five thugs tried to kill James Bond.'

3.5. Binding

Reflexives are subject-oriented in Russian, as shown in (18).

(18) [Džejms Bond]$_i$ rasskazal Aleku$_k$ pravdu o sebe$_{i/*k}$.
James Bond told Alec truth about self
'James Bond told Alec the truth about himself [J. Bond].'

Binding contrasts may be illustrated with reciprocals. As with control, objects of verbs with cumulative *na-* differ from other objects in that they cannot be antecedents of reciprocals.

(19) a. *Bond na-priglašal [krasotok]$_i$ na dni roždenija [drug druga]$_i$.
Bond CUM-invited babes on days birth each other
intended: 'Bond invited (many) babes to each other's birthdays.'

b. Bond priglasil [krasotok]$_i$ na dni roždenija [drug druga]$_i$.
Bond invited babes on days birth each other
'Bond invited {some/the} babes to each other's birthdays.'

And as with control, non-agreeing subjects pattern with objects with cumulative *na-* in that they cannot be antecedents of reciprocals (cf. Franks 1994). In contrast, agreeing subjects can be antecedents of reciprocals.[5]

(20) a. *[Pjat' banditov]$_i$ prikryvalo [drug druga]$_i$ ot pul' Bonda.
five thugs covered$_{NEUT}$ each other from bullets Bond
intended: 'Five thugs covered each other from Bond's bullets.'

b. [Pjat' banditov]$_i$ prikryvali [drug druga]$_i$ ot pul' Bonda.
five thugs covered$_{PL}$ each other from bullets Bond
'Five thugs covered each other from Bond's bullets.'

---

[5] The same pattern is replicated with respect to the binding of reflexives:
(i) a. *[Pjat' banditov] prikryvalo sebjaot pul' Džejmsa Bonda.
five thugs covered$_{NEUT}$ self from bullets James Bond
intended: 'Five thugs covered themselves from James Bond's bullets.'
b. [Pjat' banditov] prikryvali sebjaot pul' Džejmsa Bonda.
five thugs covered$_{PL}$ self from bullets James Bond
'Five thugs covered themselves from James Bond's bullets.'

4 Small Nominals, Referentiality, and the DP

In Section 2 I have shown that objects with cumulative *na-* are Small Nominals which do not project the DP layer. In Section 3, I showed that non-agreeing subjects pattern with objects with cumulative *na-* with respect to five tests: specific interpretation, partitive interpretation, (non-isomorphic) wide scope interpretation, control, and binding. I have thus proposed to analyze non-agreeing subjects likewise as Small Nominals lacking the DP projection. In this section I provide an explanation for why these particular five tests diagnose the presence/absence of the DP projection, and I consider further predictions of the analysis.

The essence of the explanation is that all five tests require a referential nominal, that is, one that denotes an individual referent, as opposed to a group, a set, a kind, or a property—all semantic types associated with Small Nominals. Following Longobardi (1994) and others, I assume that referentiality is encoded in the functional projection DP. Under this assumption, Small Nominals are non-referential.

Let us now consider the five tests and ask why they require a referential nominal. To start with the specific and partitive interpretation tests, it is obvious that a nominal that does not have reference at all cannot have specific or partitive reference. Furthermore, the availability of wide scope interpretation depends on the availability of specific reference. Finally, both control and binding involve the matching of reference between the controller and PRO or between the antecedent and anaphor. A nominal that is not referential cannot be a controller or an antecedent, because there is nothing against which to match the reference of PRO or the anaphor.

Under this analysis, which reduces the contrasts in (1) and (3) to the size of the nominals and ultimately their semantic type, we also receive an explanation for the contrasts with respect to the availability of an individuated interpretation. Since only DPs and not Small Nominals denote individuals, we predict that the two types of Small Nominals identified in this paper (i.e., non-agreeing subjects and objects of cumulative *na-*) are incompatible with verbs with predicates selecting an individuated argument. This prediction is borne out. First, speakers perceive a clear contrast between agreeing and non-agreeing subjects combined with such predicates:[6]

(21) a. [Desjat' banditov] povernuli golovu k dveri.
ten thugs turned$_{PL}$ head toward door
'Ten thugs turned their heads to the door.'

[6] Some speakers prefer plural objects in such sentences (e.g., *golovy* 'heads'), but they too perceive a clear contrast between the two agreement patterns.

b. *[Desjat' banditov] povernulo golovu k dveri.
ten thungs turned$_{NEUT}$ head toward door
intended: 'Ten thugs turned their heads to the door.'

Second, verbs that select an individuated object are incompatible with the cumulative *na-*:

(22) *Džejms Bond na-ljubil [krasivyx ženščin].
James Bond CUM-loved beautiful women
intended: 'James Bond loved many beautiful women.'

Note further that this analysis allows us to make a further prediction: if a certain construction requires a non-referential nominal, it will involve only objects with cumulative *na-* (as opposed to other DP objects) and non-agreeing subjects (as opposed to agreeing subjects). My claim is that such a construction indeed exists. It is the so-called Approximative Inversion (AI), where the noun inverts around the numeral in a resulting approximative interpretation. As has been noted in Franks (1994) and illustrated below, AI is possible with non-agreeing but not with agreeing subjects.

(23) a. [Banditov dvadcat'] napalo na Džejmsa Bonda.
thugs twenty attacked$_{NEUT}$ onJames Bond
'About twenty thugs attacked James Bond.'

b. *[Banditov dvadcat'] napali na Džejmsa Bonda.
thugs twenty attacked.$_{PL}$ onJames Bond
intended: 'About twenty thugs attacked James Bond.'

Furthermore, objects with cumulative *na-* allow AI.

(24) DžejmsBond na-pakoval [galstukov dvadcat'].
James Bond CUM-pack ties twenty
'James Bond packed approximately 20 ties.'

But note that AI is not possible in DP objects (of verbs without cumulative *na-*). In order to make sure that the object is indeed a DP, a demonstrative is used inside the object.

(25) *Džejms Bond na-pakoval [èti galstukov dvadcat'].
James Bond CUM-pack these ties twenty
intended: 'J. Bond packed these approximately 20 ties.'

Thus AI is possible only with nominals analyzed here as Small Nominals. Why? My proposal is that approximation requires a nominal that denotes a quantity, not an individual, because individuals cannot be

approximated. Therefore, referential DPs are excluded with AI and non-referential Small Nominals are allowed.

I maintain that this semantic account for the contrasts in (23) and (24) vs. (25) is superior to Stepanov's (2001) syntactic alternative. He assumes the PH for the contrast between agreeing and non-agreeing subjects and subsumes the contrast in (23) under a more general prohibition against phrasal adjunction to heads of non-trivial chains. Specifically, he claims that (23b) is ungrammatical because it involves phrasal adjunction of the inverting NP (here, *banditov*) to the subject that moves to Spec,TP, where it triggers plural agreement (under the PH, see (2b)). There are three problems with Stepanov's analysis. First, it does not extend easily to the contrast in object position (i.e., (24) vs. (25)). Second, it relies crucially on the assumption that AI is phrasal movement.[7] However, this assumption is problematic because it is only the head N that inverts around the numeral, stranding complements, modifiers, and possessors to the right of the numeral (the example below illustrates complement stranding; for more data, see Pereltsvaig forthcoming).

(26) a. Agentov desjat' britanskoj razvedki
agents ten British intelligence
'approximately ten agents of the British intelligence'

b. *agentov britanskoj razvedki desjat'
agents British intelligence ten
intended: 'approximately ten agents of the British intelligence'

Third, even if Stepanov's account worked for AI, it could not be extended to three other approximation constructions in Russian, all of which replicate the patterns found with AI but involve merger of overt lexical material (approximative Ps *okolo* 'near' or *s* 'with', or a classifier-like noun *čelovek* 'people', *štuk* 'items') rather than movement. All three constructions are allowed with non-agreeing subjects (whereas agreeing subjects are flawed; cf. Graudina et al. 1976:29-30).[8]

(27) a. **[Okolo** milliona čelovek ...] pereezžaet na dači.
about million people move.NEUT to summer-houses
'Approximately a million people ... move to summer houses.'

[7] Given what we know about head movement, it is not possible to claim that heads do not adjoin to heads that subsequently move.

[8] For lack of space only the *okolo* construction is illustrated here.

b. ***[Okolo** milliona čelovek ...] pereezžajut na dači.
about million people move$_{PL}$ to summer-houses
intended: 'Approximately a million people ... move to summer houses.'

Furthermore, these constructions are possible with objects of verbs with cumulative *na-* and not possible with DP objects (e.g., objects containing a demonstrative). These patterns are illustrated below:

(28) a. DžejmsBond na-kopiroval[okolo dvadcati čertežej].
James Bond CUM-copied about twenty blueprints
'James Bond copied about twenty blueprints.'

b. *Džejms Bond skopiroval [èti okolo dvadcati čertežej].
James Bond copied theseabout twenty blueprints
intended: 'J. B. copied these approximately 20 blueprints.'

To recap, a semantic account of the AI associated with the SNH is preferable to Stepanov's (2001) syntactic alternative associated with the PH.

References:

Bošković, Željko. 2003. A minimalist account of genitive of quantification. Paper presented at FDSL-5, Leipzig, November 2003.

Enç, Murvet. 1991. The semantics of specificity. *Linguistic Inquiry* 22:1-25.

Filip, Hana. 1992. Aspect and interpretation of nominal arguments. In *Papers from the 28th Regional Meeting of the CLS*, 139-158.

Franks, Steven. 1994. Parametric properties of numeral phrases in Slavic. *Natural Language and Linguistic Theory* 12: 597-674.

Franks, Steven, and Asya Pereltsvaig. 2004. Functional categories in the nominal domain. In *Formal Approaches to Slavic Linguistics 12*. Michigan Slavic Publications.

Graudina, L. K., V. A. Ickovič, and L. P. Katlinskaja. 1976. *Grammatičeskaja pravil'nost' russkoj reči.* Moscow: Nauka.

Lavine, James, and Steven Franks. 2005. On nominative objects. This volume.

Longobardi, Giuseppe. 1994. Reference and proper names: A theory of N-movement in syntax and logical form. *Linguistic Inquiry* 25: 609-665.

Pereltsvaig, Asya. Forthcoming. Small nominals. *Natural Language and Linguistic Theory.*

Stepanov, Arthur. 2001. Late adjunction and minimalist phrase structure. *Syntax* 4: 94-125.

FASL 13, 253–264
Michigan Slavic Publications
2005

Synthetic Agent Compounds in Serbian: An Incorporation Analysis*

Ljiljana Progovac
Wayne State University

1 Introduction

This paper looks at synthetic compounds denoting Agents[1] in Serbian and proposes an incorporation analysis for both endocentric (*kamenorezac* 'stonecarver') compounds and the so-called exocentric (*secikesa* 'pick-pocket') compounds. Morphologically, the endocentric type (henceforth *-ac* compounds) involve the root of the incorporated (Theme) noun (*kamen*), the vowel *-o-*, which I analyze as default neuter agreement, the result of head-to-head incorporation of the (Theme) noun, the root of the verb (*rez*), and the agentive suffix *-ac* (comparable to English *–er*). On the other hand, the so-called exocentric compounds (henceforth Verb-Object or VO compounds) rather surprisingly involve the verb in its imperative form (as opposed to the root seen in *trbosek* 'stomach-ripper', *presek* 'crosscut,' *sekač* 'cutter,' etc.), followed by the Theme noun, which is inflected for the Case assigned to the compound as a whole. The VO compounds have no (overt) agentive suffix, but they

* Many thanks to Relja Vulanović for numerous inspiring discussions of Serbian compounds, as well as for supplying a wealth of data. Sincere gratitude to Paweł Rutkowski for data from Polish and for great comments on many versions of this paper; also to Željko Bošković, Sarah Murray, Tom Roeper, Franca Ferrari, Martha Ratliff, and the FASL 13 audience. For great examples, thanks to Asya Pereltsvaig, Yana Pugach, Maria Babyonyshev, and Dina Brun for Russian, to Olexandra Gideon for Ukrainian, to Olga Tomić for Macedonian, to Dris Soulaimani for Tashelhit Berber, to Sarah Murray for Spanish, and to Franca Ferrari for Italian. Last but certainly not least my gratitude also extends to the anonymous FASL reviewers/editors for their sharp and constructive comments.

[1] Such compounds are typically referred to as agentive compounds, even though the theta-role involved can also be an instrument or an experiencer, suggesting that one is dealing here with external arguments and not necessarily agents. I am using the term AGENTIVE COMPOUND because of its familiarity, and the term Agent here is to be taken as an abstraction for essentially external theta-roles.

arguably involve a null suffix whose non-overt nature may have to do with the choice of the imperative form of the verb. Furthermore, I argue that VO compounds also involve overt head-to-head incorporation, albeit checking for different features and resulting in a different surface order than *-ac* compounds. With the adoption of Baker-style (1988, 1996) incorporation, which advocates argument visibility through a variety of morphological means, the analysis provides a rationale for the (otherwise mysterious) agreement morphology in *-ac* compounds as well as for the imperative morphology on VO compounds. The proposed analysis of Serbian synthetic compounds, both *-ac* and VO compounds, can be extended to other languages, including but not limited to Slavic (see fn. 1 for some examples), although this is beyond the scope of this paper.

2 Endocentric *-ac* Compounds in Serbian

The standard analysis of English *truckdriver* type compounds (e.g., Selkirk 1982, Spencer 1991) is that they involve N-N compounding, with the second noun being derived by *-er* suffixation. However, many such derived nouns without the incorporated Theme would be ungrammatical (see (1)), especially with Serbian *-ac* (see (2)), suggesting rather that a tripartite (small clause) analysis of such compounds is preferable, that is, an analysis in which the verb and its two arguments are all generated independently in a VP, as they would be in a corresponding sentence (see sections 4 and 6).

(1)	a.	bricklayer	(*layer, as Agent)
	b.	storyteller	(*teller as human Agent)
(2)	a.	kamen-o-rez-ac	(*rezac)
		stone-$_{AGR}$-carve-$_{AGENT}$	'stone-carver'
	b.	bakr-o-rez-ac	'copper-carver'
	c.	srebr-o-ljub-ac	(*ljubac)
		silver-$_{AGR}$-love-$_{AGENT}$	'money-lover'
	d.	žen-o-mrz-ac	(*mrzac)
		woman-$_{AGR}$-hate-$_{AGENT}$	'woman-hater'
	e.	ver-o-lom-ac	(*lomac)
		faith-$_{AGR}$-break-$_{AGENT}$	'apostate'
	f.	knjig-o-vez-ac	(*vezac)
		book-$_{AGR}$-bind-$_{AGENT}$	'bookbinder'
	g.	rib-o-lov-ac	(also lovac 'hunter')
		fish-$_{AGR}$-hunt-$_{AGENT}$	'fisherman'

Both the verb and the noun in Serbian *-ac* agentive compounds are in the root form and show the morphological make-up Theme$_{ROOT}$-*o*-

$Verb_{ROOT}$-*ac*. Propose that the *-o-* in Serbian compounds represents the default agreement marking, neuter singular, otherwise appearing on adjectives and participles agreeing with neuter nouns and in impersonal constructions, where it is used as default (3):

(3) Spaval-o se sve do podne.
$slept_{SG.NEU}$ SE all till noon
'People slept until noon.'

3 'Exocentric' VO Compounds in Serbian

It is standardly assumed that English VO compounds illustrated in (4) are exceptional in that they are exocentric (i.e., not headed).

(4) scarecrow, killjoy, pickpocket, spoilsport, turncoat

Nonetheless, such compounds are rather pervasive across languages and even productive in some languages, such as Spanish (see, e.g., Murray 2002). Even though the VO compounding process is not productive in Serbian, I have collected a sizable sample of over 60 such compounds (5), including some names.

(5) a. palikuća 'burn-house=one who burns houses'
b. derikoža$_{IMP}$ 'rip-skin=one who rips you off'
c. cepidlaka 'split-hair=one who splits hairs'
d. secikesa$_{IMP}$ 'cut-purse=pick-pocket'
e. razbibriga$_{IMP}$ 'break-worry=entertainment'
f. vadičep 'takeout-cork=corkscrew'
g. vrtiguz 'spin-bottom=restless person'
h. vucibatina$_{IMP}$ 'pull-whip=good-for-nothing' [2]

[2] Additional Serbian examples:

guli-koža	'peel-skin = who rips you off'
jebi$_{IMP}$-vetar	'screw-wind = idle, useless person' (vulgar)
jedi$_{IMP}$-vek	'eat-life = who constantly annoys'
krpi-guz	'patch-bottom = who/what clings to you'
liži$_{IMP}$-sahan	'lick-sink = boot-licker' (dialectal)
muti-voda	'muddy-water = who muddies waters'
pali-drvce	'burn-stick = matches'
pazi-kuća	'keep-house = house-keeper'
podvi$_{IMP}$-rep	'fold-tail = who is crestfallen'
prši$_{IMP}$-petlja	'sow-loop = who clings onto another'
probi$_{IMP}$-svet	'break-world = wanderer'
raspi$_{IMP}$-kuća	'waste-house = who spends away property'
teci$_{IMP}$-kuća	'earn-house = who runs household well'
vrti-rep	'spin-tail = restless person'

While in English one cannot tell what exactly the form of the verb is (root, base, present tense, or imperative), the examples from Serbian clearly show the form of the verb to be imperative. The imperative analysis seems also consistent, if not synchronically then diachronically, with the examples from the other languages I have looked at, including English, Spanish, Italian, Macedonian, Russian, Polish, Ukrainian, Tashelhit Berber—consistent in the sense that while, e.g., the English data may be described otherwise, they can also be described as involving imperative forms. Some verb forms in Serbian VO compounds are also ambiguous between the imperative form and the base form, used as the (default) third person singular present tense form, e.g., *pali* (*paliti*$_{INF}$, *pali*$_{3SG.PRES}$, *pali*$_{IMP}$), *vadi* (*vaditi*$_{INF}$, *vadi*$_{3SG.PRES}$, vadi$_{IMP}$). However, many verbs have distinct forms for the base and for the imperative (these are marked $_{IMP}$ in the examples above, as well as in fn. 3). Whenever this is the case, the form used in the compound is the imperative form, e.g., *secikesa, vucibatina, derikoža,* etc. Thus the morphological make-up of Serbian VO compounds is Imperative + (Theme) Noun. Even though the Theme noun is the Theme/object of the (imperative) verb, it is not in the Accusative Case which the imperative verb would assign. Instead it carries the case that is assigned to the compound as a whole.

Thus, even though both types of agentive compounds involve the same three constituents—verb, Theme noun, and agentive affix (overt or covert)—and result in a similar (agentive) interpretation, their morphological makeup is different. Notice also that the VO compounds across languages tend to refer either to non-human Agents (or instruments), e.g., *scarecrow* or *vadičep* 'corkscrew', or when used for humans to have a derogatory interpretation, possibly because they imply a [–Human] feature (*pickpocket, secikesa, vucibatina*, etc.). On the other hand, the overt agentive suffix implies the feature [+Human] and correlates with the agreement morphology.[3] The following sections explore a unified incorporation analysis of both types of compounds, where the differences derive from the morphological properties of the verb, which determine movement and feature checking.

4 A Preliminary Analysis

Murray (2002) offers a unified analysis of *-er* compounds and VO compounds in English and Spanish by proposing a small-clause base generation of the three constituents in a VP. She argues that *-er* as well

[3] As it will become clear in Section 6, the agreement here is not with the subject or agent, but instead it has to do with the theme that incorporates, and is thus an instance of the so-called object agreement.

as its null counterpart in *pickpocket* compounds is generated in the Spec of VP as an Agent argument. Then the Theme noun incorporates into V and the whole complex moves overtly to the suffix *-er*, deriving *truckdriver*. On the other hand, the null suffix does not induce movement before LF, preserving the surface word order (*pickpocket*).[4] It is possible to extend this analysis to accommodate Serbian agreement morphology in *-ac* compounds, if we adopt VP shells. Assume that the agreement feature *-o-* is checked in an (agreement) functional projection between VP and vP (for an Agr projection between the VP shells, see, e.g., Bobaljik 1995, Bošković 1995, Koizumi 1995, Lasnik 1999). Assume next that *-ac* (or its null counterpart) is the Agent generated in v (a possible association between *-er* and the vP layer was hinted at in Roeper 1999, fn. 32), while the Theme is generated as the complement of V (in accordance with UTAH):

(6) *knjigovezac* 'bookbinder'
[$_{VP}$ –ac [$_{FP}$(AgrP/AspP) -o- [$_{VP}$ vez.$_{ROOT}$ knjig.$_{ROOT}$]]]

(7) *cepidlaka* 'split-hair'
[$_{VP}$ Ø [$_{FP}$(AgrP/AspP) IMP [$_{VP}$ cepi.$_{IMP}$ dlaka]]]

While this analysis of Serbian agentive compounds is on the right track and can capture the otherwise mysterious agreement morphology in *-ac* compounds, it needs further refinement for both empirical and theoretical reasons. Empirically, this analysis still has nothing to say about the difference in morphological makeup between the two compound types, more specifically, about the cluster of properties in VO compounds: the absence of agreement morphology, the null Agent affix, and the imperative morphology on the verb. Another problem is that VO compounds in Serbian receive a single (compound) stress, indicating that the incorporation process is completed already in overt syntax. Since they generate Agents in the light vP shell, recent proposals have placed Theme arguments in the specifier positions of VP, rather than in complement positions (Baker 1996, Chomsky 1995, Radford 1997). If this proposal is adopted, then the VO order in VO compounds cannot be basic but must be derived, requiring a more complex analysis of VO compounds. Given the analysis so far, it is also not clear how the two compound types in question provide visibility for their arguments, in the absence of the canonical Case-checking procedure which is unavailable

[4] For the possibility of implicit -er Agents, see, e.g., Roeper 1999; see also Lees 1960, Roeper and Siegel 1978, Hale and Keyser 1993. For noun incorporation see Baker 1988, 1996.

to nominal heads (see Section 6 for details). To explain the different types of incorporation processes in the two kinds of compounds, the following section makes a detour into the theory of and motivation for Incorporation.

5 Theoretical Ingredients of the Incorporation Proposal

First, I assume the relevance of the following syntactic principles to the derivation of synthetic compounds: the Theta-Criterion, UTAH (the Uniformity of Theta Assignment Hypothesis), and Head Movement/ Incorporation (see, e.g., Fabb 1984, Sproat 1985, Roeper 1988 and Baker 1988). Next, I assume that Theta roles not only can be assigned **to morphemes** (cf. the assignment of the Agent role to the passive morpheme in Jaeggli 1986, Baker 1988 and Baker, Johnson, and Roberts 1989, and of the Theme role to the anti-passive morpheme in Baker 1988), but also **by morphemes** (e.g., the Agent role by the causative affix in Baker 1988, Chomsky 1995). Postulating VP in the Lexicon is also not a new idea: for nominalizations see, e.g., Lees 1963, Lebeaux 1986, and Fu, Roeper, and Borer 1995); see also the analysis of verbal idioms *the cat (is) out of the bag* (Koopman & Sportiche 1991) or *give/get the boot, give/get the creeps* (Richards 2001). I also assume, with Baker (1988: 41) and Baker (1996), that argument theta visibility can be achieved by morphological mechanisms other than structural Case, namely by Agreement and Incorporation (note that standard structural Case can only affect DPs, not nominal heads; see Longobardi 1994). With Baker, I also assume that only one theta role (per compound) can be made visible by a single morphological process, whether incorporation or agreement. Finally, I assume that nominal heads (Ns) cannot refer (see Sproat 1985, Roeper 1988) and thus that incorporated nouns in compounds cannot be referential (they are generic). Synthetic compounds would thus differ in this respect from incorporation in polysynthetic languages discussed in Baker (1988, 1996), which involve referential phrases.

The two compound types seem indeed to be related by movement, since they show systematic variation in word order. (The symbol # precedes examples that are not in my own vocabulary but are accepted by other speakers or are found in reference books; @ precedes unattested but not ungrammatical examples.)

(8) derikoža vs. kožoderac
'ripskin' vs. 'skin-ripper'

(9) #ližisahan vs. čankolizac (attested in different regions)
'lickbasin' vs. 'basinlicker = bootlicker'

(10) ispičutura vs. čuturoispilac
'drink.up-flask' vs. 'flask-drinker.upper = drunkard'

(11) #kljujdrvo 'peckwood' vs. English 'woodpecker'

Such alternations in word order are typically invoked as an argument for movement (e.g., for Passive/Active alternations, for noun and verb incorporation in polysynthetic languages, Baker 1988, 1996). In compounds, however, morphology plays a bigger role in bleeding the more productive (*-ac*) compounds in the presence of the less productive VO alternative, so that variation is usually restricted to different dialects/idiolects(/languages).

Another argument for the small-clause/incorporation analysis of agentive compounds comes from the fact that they obey the Theta-Criterion. First of all, as already pointed out with respect to the data in (1-2), obligatorily transitive verbs must incorporate the object (to satisfy the Theta Criterion). Only very few non-incorporated agentive nouns in Serbian are formed with *-ac*, such as *lovac* 'hunter', suggesting that *-ac* is specialized for synthetic compounds. Non-compound agentive nouns are typically formed with other suffixes, possibly lexical, such as *rezač* 'sharpener', *čitač* 'reader.' Also, as noted in Baker (1988), multi-transitive verbs cannot incorporate, possibly because there are not enough means to make each argument visible morphologically. In the analysis proposed above, this would follow if there is only one AgrP between the two VP shells which can check the (*-o-*) agreement features:[5]

(12) *churchgiftgiver (one who gives money to churches)

(13) *crkvenodarodavac

It also follows from the Theta Criterion that, when the object is incorporated there can be no Theme complement in the genitive form, either in English or in Serbian:

[5] As pointed out by an anonymous reviewer, it is not clear why indirect objects find a way to be visible in sentences but not in compounds, which are analyzed here as mini sentences. I can only speculate here that a full sentence has more means of providing visibility to its arguments than a synthetic compound. For one thing, a compound cannot make use of standard Case assignment due to the fact that its arguments are nominal heads and not DPs. Also, Baker (1988) argues that the so-called dative shift constructions in English involve incorporation of an abstract preposition into the verb, comparable to applicative constructions in other languages, and it may be that such preposition incorporation is incompatible with theme incorporation in compounds.

(14) *pasta-eater of spaghetti, *bus driver of double-deckers

(15) *vadičep zatvarača 'corkscrew of covers'

(16) *ženomrzac plavuša 'woman-hater of blondes'

Notice that such uniqueness conditions are not imposed on root compounds. If a *bedroom* is a room with a bed, one can still form phrases of the kind *a bedroom with a queen bed.*

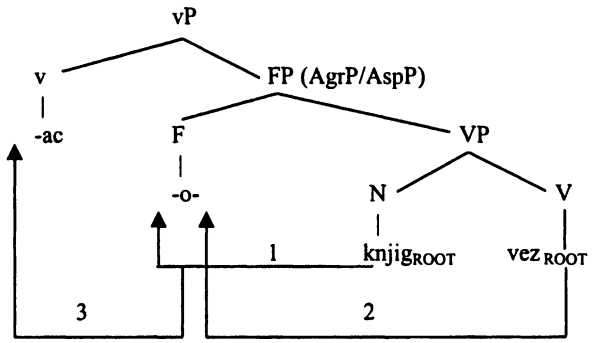
6 Toward a More Precise Account

Even though the proposal in Section 4 for Serbian compounds has an intuitive appeal and I believe constitutes the core of the analysis, it cannot be the whole story. The analysis so far does not shed light on the morphological makeup of the two types of compounds and does not explain how the two arguments achieve LF visibility in the absence of the canonical Case mechanisms. I propose a tentative analysis in this section, hoping that it will stimulate thinking in this direction. The following derivation of an *-ac* compound in Serbian is consistent with the generation of Theme in specifier of VP position as well as with the generation of agreement in AspP (see Baker 1996). The Theme N moves from specifier of VP into F to check agreement, the agreement morphology being responsible for making its Theta role visible. Next, the verb moves successive-cyclically to F (by right adjunction), and then together with the adjoined noun to v to check the causative feature (for right adjunction of adjacent non-feature checking relationships, and subsequent Move to a higher head, see, e.g., negative incorporation into Aux as in *Hasn't he already done that*).[6] By incorporating the Agent

[6]To avoid right adjunction it is possible to explore an alternative analysis, as suggested also by an anonymous reviewer, in which the verb moves first into F, then the noun left-adjoins to the verb, at which point the agreement *-o-* morpheme is introduced, to surface between the noun and the verb. (This analysis would imply a slightly different approach to the analysis of VO compounds as well (see the diagram in (18)), which would in that case be analyzed as the noun moving into F first, and then the verb left-adjoining to the noun.) Each analysis has its strengths and its weaknesses. The strength of the alternative analysis would be its ability to avoid right adjunction, its weakness in the ad-hoc-ness of generating agreement only at, and exactly at, the point at which the noun moves to F. Space limitations do not allow an in-depth comparison of the two approaches, and I offer one alternative here for concreteness.

morpheme in the process, the verb makes the Agent argument visible by incorporation[7]

(17) *knjigovezac* 'book-o-bind-er'



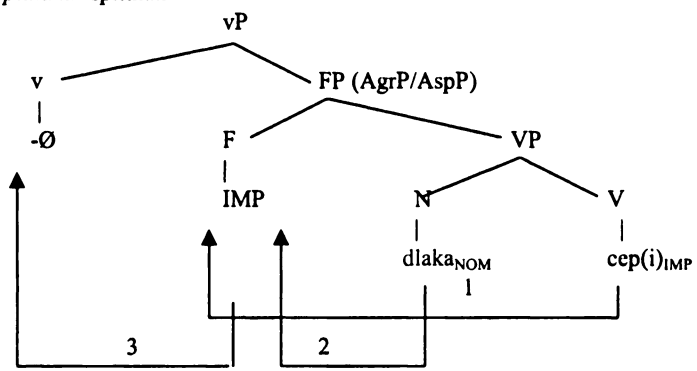
Baker's (1996) finding that only one theta-role can be made visible by a single morphological process, such as incorporation or agreement, explain the obligatory presence of the agreement morphology in Serbian *-ac* compounds; the English counterparts might be claimed to carry null agreement. One can also suggest that the agreement morphology in Serbian compounds is necessarily default (neuter singular *-o-*), since only the bare root moves to Agr and the root cannot have referential gender/number properties; see Baker 1988 for the argument that default 3SG.N Agr in Ukrainian/Polish makes visible the passive morpheme (arbitrary Agent). I conclude that Baker's (1986) Polysynthesis Parameter is directly applicable to agentive compounds as well, even though in compounds one is dealing only with nominal heads and not with referential arguments.

This line of thinking offers a maximally parallel (non-exocentric) analysis of VO compounds. Suppose that the difference in morpheme ordering between (17) above and (18) below follows from the different morphological makeup of the two compound types, determining different movement options. Assume, first, that the imperative verb raises to F to

[7] It can further be assumed that the light vP combines with D to form a DP node, given that -ac has a nominal [+N/n] feature, extending Abney's (1987) DP analysis of -ing nominalizations. Notice that the light vP cannot combine with Tense here to form a TP, given that there are no DPs to check the Case features of the finite verb (see Bošković 1997 for Inverse Case Filter; also references cited there for previous insights along these lines.)

check the imperative feature (perhaps aspectual in nature). Next, the noun *dlaka* adjoins to the verb to the right, rendering its Theme theta role visible by incorporation (for an alternative, see Footnote 7). The complex verb then incorporates into the affix in v, in order to check the causative feature.

(18) *cepidlaka* 'splithair'



If Baker is right that only one N can make its theta role visible by incorporation, then the implicit Agent argument/suffix must have its role made visible by a different mechanism. Perhaps this is correlated with the (unexpected) imperative morphology in VO compounds, which can be assumed to render the null Agent argument visible (notice that imperative morphology also licenses the external (implicit) argument in imperative sentences, even though in the second person.[8] If true that the Theme argument is made visible by incorporation and that the Agent argument is made visible by imperative morphology, there is no need to utilize agreement for visibility purposes; hence the severe ungrammaticality of ***cepiodlaka*.

The analysis proposed in this section makes an additional prediction. Namely, if there exist null affix compounds which are formed with the verb root rather than with the imperative form, then both incorporation and agreement will be necessary, since the null argument now cannot not be identified by the imperative morphology. There are indeed compounds of that type in Serbian, typically denoting non-human Agents or Instruments:

[8] Note however the possibility in English of using second person in the generic sense, as in You do not accuse unless you have evidence; cf. also the use of Historical Imperative in Serbian (in narratives) with any person (see Stevanović 1974)).

(19) kišobran 'rain-stop = umbrella'
oblakoder 'cloud-scrape = skyscraper'
biljojed 'plant-eat(er)'

The existence of such compounds indicates that the null suffix *per se* is not what blocks noun incorporation to the left of the verb, or even what conditions imperative form. Rather, Baker's (1988) insight seems to be on the right track: there are morphological mechanisms that can be used instead of canonical Case checking to make arguments visible. I have shown that these mechanisms include not only incorporation and agreement but also imperative morphology. This analysis has allowed me to capture, in sound theoretical terms and in a unified fashion, the otherwise surprising properties of both types of Serbian synthetic compounds. Many details of execution, however, remain for future research.

References

Abney, Steven. 1987. The English noun phrase in its sentential aspect. Ph.D. dissertation, MIT.

Baker, Mark. 1988. *Incorporation: A theory of grammatical function changing.* Chicago: University of Chicago Press.

Baker, Mark. 1996. *The polysynthesis parameter.* Oxford: Oxford University Press.

Baker, Mark, Kyle Johnson, and Ian Roberts. 1989. Passive arguments raised. *Linguistic Inquiry* 20: 219-251.

Bobaljik, Jonathan D. 1995. Morphosyntax: The syntax of verbal inflection. Ph.D. dissertation, MIT.

Bošković, Željko. 1995. Principles of economy in nonfinite complementation. Ph.D. dissertation, University of Connecticut.

Bošković, Željko. 1997. *The syntax of nonfinite complementation: An economy approach.* Cambridge, MA: MIT Press.

Chomsky, Noam. 1995. *The Minimalist program.* Cambridge, MA: MIT Press.

Fabb, Nigel. 1984. Syntactic affixation. Ph.D. dissertation, MIT.

Fu, Jinggi, Thomas Roeper, and Hagit Borer. 1995. The VP within nominalizations: Evidence from adverbs and do so. Ms., University of Massachusetts.

Hale, Kenneth, and S. Jay Keyser. 1993. On argument structure and the lexical expression of syntactic relations. In *The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger*, ed. Kenneth Hale and S. Jay Keyser, 53-109. Cambridge, MA: MIT Press.

Jaeggli, Osvaldo A. 1986. Passive. *Linguistic Inquiry* 17: 587-622.

Koizumi, Masatoshi. 1995. Phrase structure in minimalist syntax. Ph.D. dissertation, MIT.

Koopman, Hilda, and Dominique Sportiche. 1991. The position of subjects. *Lingua* 85:211-258.

Lasnik, Howard. 1999. *Minimalist analysis.* Oxford: Blackwell.

Lebeaux, David. 1986. The interpretation of derived nominals. *Chicago Linguistic Society* 22, ed. Anne M. Farley, Peter T. Farley, and Karl-Erik McCullough, 231-247.

Lees, Robert B. 1963. *The grammar of English nominalizations.* The Hague: Mouton.

Longobardi, Giuseppe. 1994. Reference and proper names: A theory of N-movement in syntax and logical form. *Linguistic Inquiry* 25.4: 609-665.

Murray, Sarah. 2002. Truckdriver and scarecrow compounds in English and Spanish: A unified approach. Ms., Wayne State University.

Radford, Andrew. 1997. *Syntactic theory and the structure of English: A minimalist approach.* Cambridge: Cambridge University Press.

Richards, Norvin. 2001. An idiomatic argument for lexical decomposition. *Linguistic Inquiry* 32: 183-192.

Roeper, Thomas. 1988. Compound syntax and head movement. *Yearbook of Morphology* 1: 187-228.

Roeper, Thomas. 1999. Leftward movement in morphology. Ms., University of Massachusetts.

Roeper, Thomas, and Dorothy Siegel. 1978. A lexical transformation for verbal compounds. *Linguistic Inquiry* 9: 199-260.

Selkirk, Elisabeth, O. 1982. *The syntax of words.* Cambridge, MA: MIT Press.

Spencer, Andrew 1991. *Morphological theory.* Oxford: Blackwell.

Sproat, Richard. 1985. On deriving the lexicon. Ph.D. dissertation, MIT.

FASL 13, 265–275
Michigan Slavic Publications
2005

Optimizing Russian Gender: A Preliminary Analysis

Curt Rice
University of Tromsø

Research has established that nouns are assigned to gender classes as a function of meaning and shape (Corbett 1991, Comrie 1999).* Once this point has been made for several individual languages, research should move towards the establishment of a typologically robust theory of gender assignment. One example of such a theory is Optimal Gender Assignment Theory (OGAT, Rice 2004), which formalizes several of the key insights in Steinmetz 1985, 1986.

A robust theory of gender assignment must identify the general principles that are relevant for gender assignment while at the same time providing a strategy for correctly assigning nouns to their gender category. The burdens on a theory of gender assignment also include the requirement that it apply cross-linguistically. Finally, the construction of a theory of gender assignment should avoid idiosyncrasies and aspire to a formalism independently shown to be motivated for other domains of grammar.

The purpose of this article is to apply the principles of OGAT to the gender assignment system of Russian. The Russian system is particularly prominent in the literature on gender assignment; cf. Corbett 1991. Our particular interest here lies in the notions of markedness and gender-conflict resolution, and in a comparison of Corbett's analysis with that offered by OGAT.

1 Markedness

The notion of markedness is employed in analyses in many domains of grammar. In the case of assignment to classes, it figures prominently in Pinker (1999).

* For helpful feedback, I thank the audience at Formal Approaches to Slavic (University of South Carolina, February 27-29, 2004), especially Jaye Padgett, Adam Tattoos, Asya Pereltsvaig, and John Alderete. For helpful discussion throughout the preparation of this article as well as for written feedback, I thank Tore Nesset, Asya Pereltsvaig, Don Steinmetz, and two anonymous reviewers. Responsibility for errors of course lies with the author alone.

What does markedness mean in the context of a theory of gender assignment? Part of a theory of gender assignment for a particular language will include the identification of features that are relevant for assignment to the various categories. Gender-relevant features can refer to either the shape or the meaning of a noun. One use of markedness is with nouns that have no gender-relevant features. These nouns are not randomly distributed across the gender categories but instead are assigned to just one of them, and this is the least marked category.

The advantage of invoking markedness is that for one of the gender categories it becomes unnecessary to identify gender-relevant features. The least marked category will be the one that requires the most gender-relevant features to account for. It is the category that is most diffuse in terms of the set of gender-relevant features that assigns nouns to it. By invoking markedness, that set can be left out of the theory, and the task is reduced to identifying the gender-relevant features for the marked categories.

Even among the marked categories, however, one will be relatively more marked than another, and this will be crucial for the theory advocated here. Relative markedness becomes relevant in cases of gender assignment conflict, where a noun with two gender-relevant features leading to different marked categories can be assigned to a gender class by identifying which of the conflicting categories is least marked. The theory, then, uses not only a distinction between marked and unmarked, but a hierarchy of markedness.

In the case of Russian, the criteria given above suggest that masculine is the least marked category while neuter is the most marked one. To formalize this within Optimality Theory, we propose three constraints, each of which bans a noun from belonging to a gender category, as in (1). Their hierarchical arrangement is such that the constraint banning the most marked category dominates the constraint banning the next most marked constraint. The lowest ranked constraint is the one banning the least marked category, as in (2).

(1) a. *NEUTER: A noun is not neuter.
b. *FEMININE: A noun is not feminine.
c. *MASCULINE: A noun is not masculine.

(2) *NEUTER » *FEMININE » *MASCULINE

With this ranking, nouns are assigned masculine, as in Tableau 1.

Tableau 1

		stol 'table'	*NEUT	*FEM	*MASC
☞	a.	stol, m.			*
	b.	stol, f.		*!	
	c.	stol, n.	*!		

Candidates (a-c) in Tableau 1 represent the possibility of assigning the noun to any of the three gender categories. It is the job of the grammar to identify which candidate is optimal. Candidate (c)–the neuter option–is promptly eliminated by its violation of the most highly prioritized constraint, namely the prohibition against assigning a noun neuter gender, leaving candidates (a) and (b) to compete with one another. In the competition between candidates (a) and (b), candidate (b)–the feminine option–loses, because of its violation of the relatively highly prioritized constraint prohibiting the assignment of nouns to the feminine category. Even though candidate (a) violates the constraint prohibiting assignment to masculine, it is nonetheless optimal because this constraint is sufficiently far down the hierarchy that no alternative candidate remains under consideration. In this way, the noun *stol* is correctly predicted to be assigned masculine gender. At this point, the approach suggested here suggests that all Russian nouns will be masculine. And, indeed, they will be — unless there is a reason to assign them to one of the marked categories.

2 Some Russian gender assignment constraints

Three morphological criteria play a role in the assignment of Russian nouns to their gender categories. Nouns ending in the morpheme *+a* are feminine. This can be captured with an OT constraint punishing nouns which have this shape but which are either masculine or neuter. In other words, a '*' is awarded if a noun ending in *+a* is masculine or neuter.

(3) *+A# ⇒ MASCULINE, NEUTER: A noun ending in the morpheme *+a* is not masculine and is not neuter.

Nouns ending in *-o* (or its predictable variant *-e*) are neuter. This can be captured with a constraint assigning an asterisk to nouns which have this shape but which are either masculine or feminine, as in (4); no asterisk is recorded when a noun ending in *-o* is neuter. Whether a noun is declinable or not is information speakers must store in their lexicon. This information is available to the grammar. In Russian, indeclinable nouns are neuter, as in (5).

(4) *+O ⇒ MASCULINE, FEMININE: A noun ending in *-o* is not masculine and is not feminine.

(5) *INDECLINABLE ⇒ MASCULINE, FEMININE: An indeclinable noun is not masculine and is not feminine.

Three semantic criteria also play a role in the assignment of gender in Russian. Nouns denoting animates may not be neuter. They are usually masculine, but there are also many animate nouns that are feminine. The constraint in (6) captures the fact that animates are either masculine or feminine, since these two categories have an obvious semantic connection to the notion of animacy. No asterisk appears in the tableau when an animate noun is either masculine or feminine.

(6) *[+ANIMATE] ⇒ NEUTER: A noun denoting an animate being is not neuter.

Nouns denoting males are masculine. This is captured in (7) with a constraint punishing nouns which have this meaning but which are either feminine or neuter. Nouns denoting females are feminine. This is captured in (8) with a constraint punishing nouns which have this meaning but which are either masculine or neuter.

(7) *[+MALE] ⇒ FEMININE, NEUTER: A noun denoting a biological male is not feminine and is not neuter.

(8) *[+FEMALE] ⇒ MASCULINE, NEUTER: A noun denoting a biological female is not masculine and is not neuter.

These constraints interact with the markedness hierarchy to assign nouns with the relevant features to either of the marked categories–feminine or neuter. To achieve this, each of these constraints must dominate the markedness hierarchy, as in Tableaux 2 and 3.

In Tableau 2 the feminine candidate (b) is selected as optimal for the noun *kniga* 'book'; the masculine and neuter candidates are eliminated by the constraint referring to final *+a*. Given that candidate (b) is the only candidate to satisfy this constraint, the default hierarchy is irrelevant here.

For the neuter noun *boa* 'boa' (the garment) (see Tableau 3), the relevant constraint punishes indeclinable nouns that are either masculine or feminine. This constraint eliminates candidates (a) and (b), such that the neuter candidate (c) is optimal. The fact that candidate (c) violates *NEUTER is irrelevant to the selection of the optimal candidate here.

Tableau 2

		kniga 'book'	*+A⇒M,N	*NEUT	*FEM	*MASC
	a.	knig+a, m.	*!			*
☞	b.	knig+a, f.			*	
	c.	knig+a, n.	*!	*		

Tableau 3

		boa 'boa'	*INDEC⇒M,F	*N	*F	*M
	a.	boa, m.	*!			*
	b.	boa, f.	*!		*	
☞	c.	boa, n.		*		

At this point, nine constraints have been introduced: three in the default hierarchy, three referring to the shape of a noun, and three referring to a noun's semantic features. Simply allowing nouns in the domain of a gender-relevant feature (shape or meaning) to be assigned the relevant gender–alternatively allowing assignment by default–will be adequate to account for the vast majority of gender assignments in Russian. (The statistics presented in Corbett and Fraser 2000 suggest that as many as 97% of Russian nouns may be accounted for in this way.)

Most masculine nouns will fail to fall into the domain of any gender-relevant constraint and will be assigned masculine by default. Most feminine nouns will have a final *+a,* which leads to correct gender assignment.[1] Most neuters are assigned neuter either because of a final *-e* or *-o* or because they are indeclinable. It is the nouns which are not assigned in this simple matter which are especially interesting, and which we turn our attention to in the next section.

3 Gender Assignment Conflicts

While we can easily determine that any single constraint referring to a gender-relevant feature must dominate the subhierarchy of markedness constraints, a more difficult question involves the relative ranking of what I call the gender-feature constraints. The determination of relative rankings can only be made by identifying conflicts.

[1] In addition to the feminine nouns ending in *+a* – the 2nd declension – there are also the 3rd declension nouns which are feminine, i.e., a set of nouns ending in soft consonants. Of course, many nouns ending in soft consonants are masculine, or 1st declension. Considerable progress has been made in uncovering the gender principles relevant for words ending in soft consonants; Nesset (2003c) and Steinmetz (2000).

Gender assignment conflicts involve nouns with two gender-relevant features. The three genders of Russian present the logical possibility of three pair-wise conflicts, all of which are attested.

A noun may be in the domain of one feature suggesting masculine and another suggesting feminine. For example, nouns denoting males but ending in *+a* are of this type, e.g., *djadja* 'uncle', *mal'čiška* 'urchin', *deduška* 'grandfather', etc. (including many diminutive names).

Nouns which denote animates but which are indeclinable show a conflict between masculine and neuter, e.g., *boa* 'boa' (snake), *gnu* 'gnu', *kenguru* 'kangaroo', *marabu* 'marabou'. Also nouns that denote males but are indeclinable are also of this type, e.g., *attaše* 'attaché' (cf. Corbett 2001:40).

A conflict between feminine and neuter can be seen in nouns which denote females but which are indeclinable, e.g., consonant-final names of females, such as *Liv*, etc. Another example with this type of conflict is *ledi* 'lady'.

When a conflict arises in the assignment of a noun to a gender category, the conflict is resolved. In other words, these kinds of conflicts do not lead to indecision or variation for speakers. We turn now to two proposals about how this resolution might be implemented.

4 Conflict Resolution I: Meaning » Shape

Corbett (1991:38) claims that conflicts are resolved by looking at the nature of the features in conflict and that "the semantic assignment rules take precedence". Corbett and Fraser (2000:307) state that "both sets of rules [semantics and morphology–CR] are required, and the semantic rules dominate." This view is also advanced by Comrie (1999:459), who writes that "the exceptions in Russian are interesting in that they show how semantics can intervene".

In the cases sketched in §3, the conflicts are all between one semantic feature and one morphological feature. For nouns such as *djadja*, the rule requiring nouns denoting males to be masculine is in conflict with the rule requiring nouns ending in *+a* to be feminine. These nouns are in fact masculine, which is the gender suggested by the meaning. For nouns such as *boa* (the snake), the conflict is between the rule requiring that animates be masculine and the rule requiring that indeclinables be neuter. Again, the nouns are masculine, which again is the gender indicated by their meaning. Finally, the conflict which arises for consonant-final names denoting females is in the domain of the rule requiring nouns which designate females to be feminine, while it is also in the domain of the rule requiring that indeclinable nouns be neuter. The nouns are feminine, which shows the conflict being resolved in favor of the rule sensitive to meaning at the cost of the rule sensitive to

morphology. We conclude that Corbett's proposal about conflict resolution correctly assigns these nouns to their gender categories.

While this principle delivers correct results for the cases above, its success may be the result of a spurious correlation, and the principle therefore must be subjected to further inquiry. An equally robust alternative analysis for these conflicts would be to state that conflicts are resolved in favor of the least marked of the conflicting categories. The conflicts masculine vs. feminine and masculine vs. neuter are both resolved in favor of masculine, which is less marked than either feminine or neuter. The feminine vs. neuter conflicts are resolved in favor of feminine, which also is less marked than neuter.

How could one distinguish a claim that conflicts are resolved in favor of semantics from a claim that conflicts are resolved in favor of the less marked category? Such a distinction could be achieved by finding a conflict in which the semantic feature is associated with a more marked category while the morphological feature is associated with the less marked category.

In Russian, this could mean finding a masculine vs. feminine conflict in which the masculine feature is morphological and the feminine feature is semantic. But there are no morphological features pushing nouns towards masculine. This also explains why there are no masculine *vs.* neuter conflicts that could determine the matter either.

We could also search for a feminine *vs.* neuter conflict in which the feminine feature is morphological and the neuter feature is semantic. We have yet to uncover any productive process assigning nouns neuter gender on the basis of a semantic category, and this type of conflict also seems unlikely to be found in Russian.

In short, the properties of the Russian gender system are such that a distinction between semantics trumps shape and unmarked trumps marked cannot be made. Fortunately, there are languages showing unmarked shapes in conflict with marked meanings. For example, Rice (2004) notes that the German nouns *die Pflanze* 'plant', *die Waffe* 'weapon', and *die Wette* 'bet' bear two well-established gender-relevant features. They each have a final *-e*, suggesting feminine, and they denote superordinates, suggesting neuter (Zubin and Köpcke 1983). The nouns are feminine, which is the less marked category of the two. They are not neuter, even though the relevant semantic features would point in that direction.

To the extent that those analyses are correct, the MEANING » SHAPE principle is demonstrated to be untenable as a cross-linguistic principle, which in turn raises questions about its status in Russian.

5 Conflict Resolution II: Optimal Gender Assignment Theory

The present paper asks whether Rice's (2004) OGAT can successfully be applied to Russian. The core strategy of the theory is to assign nouns to the least marked category by default. Nouns are assigned to a marked category when there is a reason for that, and the markedness hierarchy is irrelevant when a noun has a single gender relevant feature. The markedness hierarchy asserts its relevance when there are conflicts, as when a noun having two gender-relevant features is assigned to the less marked of the two competing categories.

To allow the markedness hierarchy to assert itself, it is crucial that the constraints referring to gender-relevant features are equally ranked. Rice (2004) demonstrates for German that groupwise and individual rankings are untenable, supporting the claim of crucial equal ranking. I have already shown how the markedness hierarchy works alone and how a single constraint dominating the markedness hierarchy leads to assignment to a marked category. What remains is to demonstrate the mediation of conflicts, as can be seen in Tableaux 4 and 5.

One of the best known conflicts in Russian involves the nouns which denote biological males but which end in *+a*. Tableau 4 illustrates how such a noun is assigned masculine gender. There are two relevant constraints, one prohibiting a noun denoting a male from being either feminine or neuter and one prohibiting a noun ending in the segmentable morpheme *+a* from being masculine or neuter. These two constraints are crucially equally ranked, and dominate the markedness hierarchy.

Tableu 4

		djadja	GENDER FEATURES *[+MALE]⇒F,N	GENDER FEATURES *+A#⇒M,N	*N	*F	*M
☞	a.	djadj+a, m.		*			*
	b.	djadj+a, f.	*			*!	
	c.	djadj+a, n.	*	*!	*		

The first constraint is violated by candidates (b) and (c), since the noun denotes a male. The second constraint is violated by candidates (a) and (c). Since candidate (c) violates both of the equally ranked constraints while candidates (a) and (b) each violate just one, candidate (c) is ruled out at this point, as indicated by the exclamation point. Candidates (a) and (b) are distinguished by the markedness hierarchy. Specifically, candidate (b) is ruled out by the relatively highly ranked constraint *FEMININE, leaving candidate (a) as optimal. Hence, a conflict between an animate noun which ends in *+a* will be resolved in favor of the least marked of the conflicting categories, in this case masculine.

Tableau 5

		boa 'snake'	GENDER FEATURES *[+ANIM] ⇒N	*IND.⇒M,F	*N	*F	*M
☞	a.	boa, m.		*			*
	b.	boa, f.		*		*!	
	c.	boa, n.	*		*!		

In Tableau 5, all candidates incur one violation of gender features. Since the constraints are crucially equally ranked, none of the candidates are ruled out at this point. The markedness hierarchy performs as expected, yielding the masculine candidate as optimal, in a typical emergence-of-the-unmarked effect.

One criticism of this approach is that it involves counting, which is something that grammars do not do. Another is that crucial equal ranking is a radical modification of OT. Rice (2004) argues that both of these criticisms are false, but space restrictions prohibit their discussion here.

6 Further Comparisons and Conclusion

The comparison of Corbett's approach with that advocated here can only be done by looking at very small sets of data, primarily those showing conflict. I noted above that the general properties of the Russian system do not facilitate finding the right kind of case to test MEANING » SHAPE. However, there are some nouns in Russian that would seem to be counterexamples to Corbett's generalization, i.e., nouns in which SHAPE » MEANING. If these cases are probative, Russian at least allows us to argue against groupwise constraint ranking, implicitly lending support to OGAT.

Consider first three animate nouns that are neuter, noted by Corbett (1991:42): *čudovišče* 'monster', *životnoe* 'animal', and *nasekomoe* 'insect'. Why are these animate nouns neuter? Corbett does not address this question, but the theory he develops there incorrectly leads one to expect that these nouns will be masculine. Perhaps they are neuter because of the final *+e*, or perhaps they are neuter for some reason relevant just to deadjectival nouns. Regardless of the details, if these nouns are neuter because of their shape or some other aspect of their morphology, they would be a counterexample to MEANING » SHAPE.

A better example of a semantic feature yielding to a morphological one comes from ongoing work by Tore Nesset (2004, in prep). Nesset's insight is that nouns of the type seen below may present a serious challenge to Corbett's data. I will argue here that they are straightforwardly reconciled with OGAT.

Nouns like *boa* (masculine, 'the snake') show that the Russian gender system includes a rule sensitive to animacy. Corbett (1991:41) assigns animates masculine gender. The fact that this noun is masculine even though it is indeclinable motivates the explicit rule for animates (and the assertion that meaning wins).

However, not all animates are masculine. As an example, consider the following nouns, denoting fish, all of which are feminine: *ryba* 'fish', *ščuka* 'pike', *treska* 'cod', *beluga* 'white sturgeon'. Some nouns denoting fish are masculine, as are *gol'jan* 'minnow', *karp* 'carp', *sazan* 'wild carp', *karas'* 'carp', and *osëtr* 'sturgeon'.

Why are some of these nouns feminine and others masculine? The difference resides in the morphology. Specifically, the feminine ones have a final *+a*. This is a conflict which is resolved in favor of the noun's shape at the expense of its meaning.

Of course, this might also seem to be a case in which resolution favors the marked category over the unmarked one. Though superficially correct, this observation rests on an imprecise generalization about animate nouns. In particular, the generalization about animate nouns in Russian is not that they must be masculine, but rather that they cannot be neuter. With this correction, the nouns in question are straightforwardly assigned feminine gender.

Tableau 6

		beluga	GENDER FEATURES *[+ANIM] ⇒N	*+A⇒M,N	*N	*F	*M
	a.	belug+a, m.		*!			*
☞	b.	belug+a, f.				*	
	c.	belug+a, n.	*	*!	*		

The neuter candidate (c) violates both the GENDER FEATURES constraints and is thereby eliminated. The masculine candidate violates only one of these constraints, but the feminine candidate satisfies both GENDER FEATURES constraints, and the single violation incurred by the masculine candidate is therefore enough to eliminate it. The markedness hierarchy plays no role here, and the noun is correctly assigned feminine gender.

The core conclusion of this article is that the assignment of nouns to their gender class in Russian is straightforwardly accomplished by OGAT. This approach differs from others in examining nouns that have more than one gender-relevant feature, suggesting that gender conflict will be a fruitful domain for gaining deeper insights into the nature of gender assignment.

References

Comrie, B. 1999. Grammatical gender systems: A linguist's assessment. *Journal of Psycholinguistic Research* 28(5): 457-466.

Corbett, G. 1991. *Gender*. Cambridge: Cambridge University Press.

Corbett, G., and N. Fraser. 2000. Default genders. In *Gender in grammar and cognition*, ed. B. Unterbeck et al., 55-97. Berlin: Mouton de Gruyter.

Nesset, T. 2001. How pervasive are sexist ideologies in grammar? in R. Dirven, E. Sandikcioglu and B. Hawkins, ed. *Language and Ideology: Cognitive Theoretical Approaches,* 197-227. Amsterdam: John Benjamins.

Nesset, T. 2003a. Gender meets the Usage-Based model: Four principles of rule interaction in gender assignment. Ms. University of Tromsø. Under journal review.

Nesset, T. 2003b. Rule counting vs. rule ordering: Universal principles of rule interaction in gender assignment. Paper presented at MMM4, Catania, Italy.

Nesset, T. 2003c. The assignment of gender and declension to Russian nouns in soft consonants: Predictability and rule interaction. *Journal of Slavic Linguistics* 11:287-322.

Nesset, T. 2004. in prep. Meta-constraints: Constraint interaction and gender assignment in Ukrainian. Talk presented at Berkeley Linguistics Society 30.

Pinker, S. 1999. *Words and rules*. New York: Basic Books.

Prince, A. and P. Smolensky 1993. *Optimality theory: Constraint interaction in generative grammar*. Manuscript, Rutgers University and University of Colorado, Boulder.

Rice, C. 2004. Optimizing gender. Ms. University of Tromsø. Under journal review. Available at roa.rutgers.edu.

Steinmetz, D. 1985. Gender in German and Icelandic: Inanimate nouns. In *Germanic linguistics. Papers from a symposium at the University of Chicago*, ed. J.T. Faarlund, 10-28. Bloomington, Ind: IULC.

Steinmetz, D. 1986. Two principles and some rules for gender in German: Inanimate nouns. *Word* 37:189-217.

Steinmetz, D. 2000. Lectures on gender. Tromsø.

Zubin, D., and K.-M. Köpcke. 1983. Natural classification in language: A study of the German gender system. Paper presented at the *Symposium on categorization and noun classification.* University of Oregon.

curt.rice@hum.uit.no, http://castl.uit.no

FASL 13, 276–288
Michigan Slavic Publications
2005

Russian Anticausatives with Oblique Subjects*

María-Luisa Rivero
University of Ottawa

Ulyana Savchenko
University of Toronto

1 Introduction

This work examines the two Russian anticausative constructions in (1) and (2), which consist of (a) a genitive with a preposition in (1) or in bare form in (2), (b) a nominative as logical object, (c) a verb that participates in the anticausative alternation and agrees with the nominative, and (d) a reflexive marker *-s' / -sja*. While such constructions have not attracted particular attention in generative grammar, their equivalents in other Slavic and some Romance and Balkan languages have. They are discussed by Rivero (2003, 2004), which inspires our ideas even though we reach a different conclusion.[1]

(1) U Ivana očki slomali-s'.
P John$_{GEN}$ glasses$_{NOM.PL}$ broke$_{PL}$+Refl

a. Possessor reading: 'John's glasses broke.'
b. Causer reading: 'John caused {his own/somebody else's} glasses to break.'

(2) Ivana očki slomali-s'.
John$_{GEN}$ glasses$_{NOM.PL}$ broke$_{PL}$+Refl

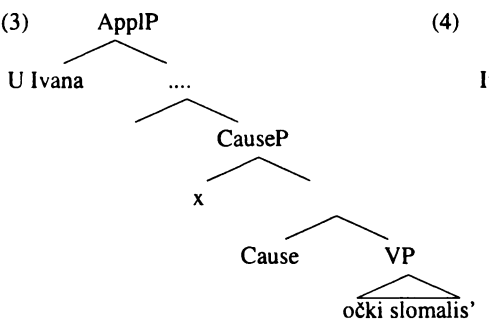
* Research for this paper was subsidized by SSHRC Grant 410-2003-0167 to María-Luisa Rivero. Judgments come from the second author and several native speakers of Russian residents of Canada, whom we thank. We also thank for helpful comments participants of FASL 13, Rok Zaucer, and two anonymous reviewers who do not necessarily agree with our claims. Mistakes are our own.

[1] Discussions of similar anticausative constructions with oblique subjects include Dąbrowska (1997) and Kibort (2001) for Polish, Kallulli (1999) for Albanian, and Cuervo (2003) and Fernández Soriano (1999) for Spanish. In South Asian languages so-called "involuntative causatives" combine causative morphology and oblique subjects to express nonvolition (Verma and Mohanan 1991).

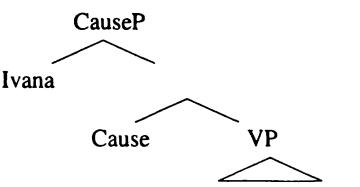
a. Possessor reading: 'John's glasses broke.'
b. Causer - Possessor reading: 'John caused his own glasses to break.'

We propose that the genitives in (1) and (2), interpreted in (1b) and (2b) as nonagentive Causers, are oblique subjects that differ structurally.[2] The genitive in (1) is, as in (3), a subject of predication, i.e., a semantic topic in the Spec of a high Applicative (cf. Rivero 2003). On the view that anticausatives contain a Cause predicate, we locate the genitive in (2) in the subject position of such a predicate, as in (4). The Applicative genitive in (3) binds an implicit argument (a variable) in the Spec of Cause.

(3)



(4)



Besides Causer the genitive in (2) must simultaneously have a (2b) interpretation as Possessor and undergoes Bundling (Reinhart and Siloni 2003), which results in a complex Theta-role in a unique argument.

In our view there are similarities and differences between Russian genitives and Polish dative subjects, as in (5).

(5) Jankowi złamały się okulary.
John$_{DAT}$ broke$_{FEM.PL}$ Refl glasses$_{FEM.PL}$

a. Possessor reading: 'John's glasses broke.'
b. Causer reading: 'John broke the glasses involuntarily.'
c. Bene-/Malefactive: 'John was affected by the glasses breaking.'

A similarity is that anticausatives have oblique subjects as invol-

[2] For several native speakers of Russian including an anonymous reviewer, (1) and (2) do not have the Causer readings described in (1b) and (2b), which makes our claims controversial. The reviewer suggests that the Genitive in (1) is a Locative. Landau (2003) proposes that oblique Experiencers of psychological verbs are Locatives, which suggests that nonvolitional participants including ordinary Experiencers and our involuntary Causers could perhaps be unified as Locatives.

untary Causers in the two languages. A difference is that oblique subjects are genitive in Russian and dative in Polish. Another difference is interpretation: Russian genitives exhibit Possessor and Causer readings but lack the Benefactive/Malefactive reading. The dominant reading of Russian (1) and (2) in (1a) and (2a) is with the genitive (*U*) *Ivana* as possessor of *očki*. The second interpretation of interest to this paper is the Causer reading in (1b-2b), which emphasizes that *Ivan* behaved irresponsibly when he, directly or indirectly, caused the glasses to break. Yakov Testelets (p.c.) notes an interesting correlation between interpretation and the order $Ivana_{GEN}$ $očki_{NOM}$, which in our view supports the Causer reading. Such an order implies that *Ivan* needs to be in proximity to the possessum *očki*, suggesting that he is responsible for the event. The nominative-genitive order *Očki Ivana slomali-s'* implies that *Ivan* can be far away from the possessum. Such a difference suggests that *Očki Ivana slomali-s'* is an ordinary anticausative with a Possessor role and no Causer role for the genitive.

Section 2 examines subject properties in genitives. Section 3 looks at the anticausative core. Section 4 looks at Bare Genitives as Causers/ Possessors. Section 5 concludes the paper.

2 Russian Genitives as Quirky Subjects

Raising and adverbial modification show that the genitives in (1) and (2) are obliques that resemble Icelandic and Romance quirky subjects (for Icelandic see Zaenen, Maling, and Thraisson (1985) and later work; for Romance see Masullo (1993), Cuervo (1999), and Fernández Soriano (1999)).

2.1 Raising

Icelandic oblique subjects raise to satisfy requirements such as EPP features. The same is true of logical subjects of psych predicates in Russian. Raising verbs systematically agree with nominatives, but a nominative raises in (8) and a dative in (9):

(8) Petr načal uvlekat' - sja lingvistikoj.
Peter$_{NOM}$ began fascinate - Refl linguistics$_{INSTR}$
'Peter began to be fascinated with linguistics.'

(9) Petru načala nravit'-sja lingvistika.
Peter$_{DAT}$ began$_{FEM}$ like -Refl linguistics$_{NOM.FEM}$
'Peter began liking linguistics.'

Raising applies to the genitives in (1) and (2) with different results. Let us examine the *u* + genitive in (10).

(10) a. U Pavla načal lomat'-sja komp'jiter.
at $Paul_{GEN}$ $began_{MASC}$ $break_{INF}$-Refl $computer_{NOM/MASC}$

b. ?U Pavla načal komp'jiter lomat' -sja.
at $Paul_{GEN}$ $began_{MASC}$ $computer_{NOM/MASC}$ $break_{INF}$-Refl

c. U Pavla komp'jiter načal lomat' -sja.
at $Paul_{GEN}$ $computer_{NOM/MASC}$ $began_{MASC}$ $break_{INF}$ -Refl

d. Komp'jiter u Pavla načal lomat' -sja.
$computer_{NOM/MASC}$ at $Paul_{GEN}$ $began_{MASC}$ $break_{INF}$-Refl

e. Komp'jiter načal lomat' -sja u Pavla.
$computer_{NOM/MASC}$ $began_{MASC}$ $break_{INF}$ -Refl at $Paul_{GEN}$
Causer reading: 'Paul began to cause the computer to break.'

The genitive can raise, (10a-b), the nominative can raise, (10e), and descriptively, both elements can raise, (10d), suggesting a double Specifier structure. The raising verb always agrees with the nominative, indicating (long) Agree (Chomsky 2000) without intervention effects.[3]

Russian psych verbs display similar characteristics. The dative can raise as in (9) above, and the nominative can also raise as in (11), without intervention effects. Agreement is with nominatives.

(11) Lingvistika načala nravit'-sja Petru.
$linguistics_{NOM.FEM}$ $began_{FEM}$ $like_{INF}$-Refl $Peter_{DAT}$
'Peter began to like linguistics.'

A technical account of how obliques and nominatives raise in (10) is beyond the scope of this paper. However, *u* + Genitive is in a high Applicative in (3), which, if viewed as an escape hatch for raising as in McGinnis (2004), would void intervention effects.

Russian genitives resemble Romance oblique subjects. Romance psych verbs agree with nominatives, and obliques or nominatives raise without intervention effects, as in Spanish (12a-b). Spanish anti-causatives with quirky subjects are similar, as in (13a-b).

(12) a. A Pedro empiezan a gustarle las matemáticas.
$Peter_{DAT}$ $begin_{3PL}$ to like the $mathematics_{NOM.PL}$

[3] An anonymous reviewer notes that the various word orders in (10) correlate with different information structures. This is compatible with our proposal that ties movement to EPP features, dubbed OCC(urrence) by Chomsky (2001), with edge semantic effects relating to information notions such as topic or contrastive focus.

b. Las matemáticas empiezan a gustarle a Pedro.
the mathematics$_{NOM.PL}$ begin$_{3PL}$ to like Peter$_{DAT}$
'Peter begins to like mathematics.'

(13) a. A Pedro empieza a rompersele la computadora.
Peter$_{DAT}$ begin$_{3SG}$ to break the computer$_{NOM.SG}$

b. La computadora empieza a rompersele a Pedro.
the computer$_{NOM.SG}$ begin$_{3SG}$ to break Peter$_{DAT}$
Causer reading: 'Peter begins to cause the computer to break.'

Now let us turn to Bare Genitives, which can raise, as in (14a-b) and arguably (14c), so are subjects. However, (14e) is deviant, suggesting the embedded Bare Genitive as intervener when the nominative raises.[4]

(14) a. Ivana načali lomat' -sja očki.
John$_{GEN}$ began$_{3PL}$ break$_{INF}$ -Refl glasses$_{NOM/PL}$

b. Ivana načali očki lomat' -sja.
John$_{GEN}$ began$_{3PL}$ glasses$_{NOM/PL}$ break$_{INF}$ -Refl

c. Ivana očki načali lomat'-sja.
John$_{GEN}$ glasses$_{NOM/PL}$ began$_{3PL}$ break$_{REFL/INF}$

d. Očki Ivana načali lomat' -sja.
Glasses$_{NOM.PL}$ John$_{GEN}$ began$_{3PL}$ break$_{INF}$ -Refl

e. *Očki načali lomat' -sja Ivana.
glasses$_{NOM.PL}$ began$_{3PL}$ break$_{INF}$ -Refl John$_{GEN}$
Causer reading: 'John begins to cause the glasses to break.'

The structure of Bare Genitives with anticausatives in (4) lacks an Applicative Phrase, hence an escape hatch, and contains a Causer that c-commands the Theme. If (4) is embedded under a raising predicate, the Causer is closer to the matrix and should block raising by the Theme, so (14e) looks like a Minimal Link Condition violation.

In sum, both *u* and Bare Genitives can front with raising predicates but differ as to intervention effects. This provides support for an Applicative in (3) and no Applicative in (4).

2.2 Adverbial modification

Some adverbs display ambiguity with transitive predicates with a causative reading and nominative subjects, as in (15).

[4] Some examples in (14) are pragmatically odd, but judgments vary.

(15) Alex broke the car again.
  a. It was the second time that Alex breaks the car.
  b. It was the second time that the car has been broken.

For von Stechow (1995) *again* can take an external argument inside its scope when it modifies an Event Phrase, or it can leave that argument outside of its scope when it modifies a VP. The same ambiguity is found in Russian anticausatives with genitives,:

(16) (U) Ivana mašina slomala-s' opjat'.
  (P) $John_{GEN}$ $car_{NOM.SG}$ $broke_{PL}$-Refl again
  a. 'John caused [(his) car to become broken again / to go back to being broken].'
  b. 'Again, John involuntarily caused (his) car to break.'

The adverb can modify the change of state, which corresponds to the VP in (3) and (4), leaving *U Ivana* outside of its scope. So the genitive can be merged in a high position, as in (16a), reflecting the narrow scope reading of *opjat'*. Alternatively, the adverb may scope over the whole event, which corresponds to CauseP in (4), and include the Causer. The wide scope reading of *opjat'* is given in (16b).

3 The Anticausative Core

In this section we adopt the idea that anticausatives contain a Cause predicate with a formally represented external argument, or Causer, and argue that (1) and (2) share such a core but differ. In (1) the Causer is a variable/implicit argument that is not syntactically represented. In (2) it is an explicit/syntactic argument as Bare Genitive. We modify the feature system for Theta roles of Reinhart (2000) in order to distinguish the Causers in (1) and (2) from Agents and Experiencers. We conclude by pointing to differences between our analysis and that in Rivero (2003, 2004).

3.1 Implicit vs. explicit causers

There are several views on anticausatives. Chierchia (1989) and Reinhart (1996) propose a derivation from causative to anticausative. Parsons (1990) and Pesetsky (1995) derive the transitive from the intransitive by adding Cause. Levin and Rappaport Hovav (1995) suggest that both transitive and intransitive forms involve Cause. In this paper we propose that (1) and (2) repeated as (17a-b) contain Cause with a formal Causer, as in (3) and (4) repeated as (18a-b). The Causer is implicit (a variable) with the *u* + Genitive in (18a), and the (explicit) Bare Genitive in (18b).

(17) a. U Ivana očki slomali -s'.
P $John_{GEN}$ $glasses_{NOM.PL}$ $broken_{PL}$ -Refl

b. Ivana očki slomali -s'.
$John_{GEN}$ $glasses_{NOM.PL}$ $broken_{PL}$ -Refl

(18) a. [$_{AppP}$ U Ivana... [$_{CauseP}$ x [Cause [$_{VP}$ očki slomali-s']]]]

b. [$_{CauseP}$ Ivana [Cause [$_{VP}$ očki slomali-s']]]

A sign of subjecthood in Russian dative subjects is that they antecede subject-oriented possessive reflexives, *svoj* in (19a). Such datives also antecede possessive pronouns, *ego* in (19b).[5]

(19) a. $Goše_i$ očen' nravit-sja $svoj_i$ dom.
$Gosha_{DAT}$ very like -Refl self house

b. $Goše_i$ očen' nravit-sja ego_i dom.
$Gosha_{DAT}$ very like -Refl his house
'Gosha likes his (own) house very much.'

Russian genitive subjects differ from dative subjects. On the one hand, *u* + Genitives can antecede possessive pronouns as in (20a) but not possessive reflexives, as in (20b).

(20) a. U $Ivana_i$ slomal-sja ego_i komp'jiter.
at $John_{GEN}$ broke -Refl his computer
'John caused his own computer to break (accidentally).'

b. *U $Ivana_i$ slomal-sja $svoj_i$ komp'jiter.
at $John_{GEN}$ broke -Refl self computer

On the other hand, Bare Genitives cannot antecede possessive pronouns or possessive anaphors as shown in (21).

(21) *Ivana ego / svoj komp'jiter slomal-sja.
$John_{GEN}$ his_{GEN} / self $computer_{SG}$ broke -Refl
*'John's own computer broke.'
*'John broke his own computer (accidentally).'

We attribute such differences to (18a-b). The *u* + Genitive is a semantic topic in a high Applicative Phrase, (18a), comparable to a Hanging Topic/Left-Dislocated phrase. The Applicative takes as complement a structure that contains CauseP with an external argument and a VP

[5] In (19b) *ego* can also refer to somebody determined from the context.

complement with the Theme. If the external argument of Cause is implicit in (18a), namely, a saturated argument available in semantics but not syntax, then it cannot be a syntactic binder of a possessive anaphor, which correctly excludes (20b). The possessive pronoun in (20a) is a resumptive item for the *u* + Genitive in the Applicative equivalent to a structural Topic.

U + Genitives differ from dative logical subjects. A common assumption is that dative Experiencers are explicit syntactic arguments of psych verbs and c-command the Theme. On this view, Experiencers can antecede possessive anaphors as in (19a).

In sum, if *u* + Genitives are (a) in an Applicative as in (18a), (b) not semantic / syntactic arguments of the predicate, and (c) bind an implicit external argument of Cause, they should not display the antecedence relations of dative Experiencers usually considered the most prominent argument of psych verbs.

Bare Genitives cannot antecede pronouns or anaphors, as in (21). Inspired by Takehisa (2001), we propose a Case-theoretic account for this restriction. A traditional idea is that reflexive markers in anticausatives indicate absence of an Accusative, with nominative valued with the Theme. We see the Bare Genitive in (17b) as the external argument of Cause, nominative is for the Theme, there is no accusative, and genitive on the Causer is valued via the Spec position within the Theme by means of (long distance) Agree. On this view, the Spec in the Theme cannot contain an overt category because its case feature would remain unvalued, which correctly excludes (21). By contrast, the genitive in (17a) can value case via *u*, so in this instance the nominative can contain a genitive in its Spec, as in (20a). In §4, we argue against the alternative with Bare Genitive in the Theme raising.

In sum, there is a Cause predicate in both (17a-b), with an external argument implicit in (17a), and explicit in (17b).

3.2 Involuntary causers vs. agents

As stated above, genitives may be interpreted as involuntary Causers. But the semantics of Agent are inappropriate for such Causers. Consider (22a-b).

(22) a. Ivan razbil stakan
John$_{NOM}$ broke glass$_{ACC}$
'John broke the glass'

b. (U) Ivana stakan razbil-sja
at John$_{GEN}$ glass$_{NOM}$ broke-Refl
'John broke the glass involuntarily'

In the nominative-accusative frame in (22a), *Ivan* may denote an Agent that willfully brings about the state of affairs defined by the verb. Such a reading is absent from *(U) Ivana* in (22b). In genitive-nominative frames, the human genitive receives an accidental reading: a causer that lacks control over the event defined by the verb. With this reading the genitive must be human, so (23b) is comprehensible, but odd, because it confers animacy on the wind. Oblique subjects are nonagentive, which in (22b) translates as accidental with a genitive as Causer.

(23) a. Veter razbil stakan
wind$_{NOM}$ broke glass$_{ACC}$
'The wind broke the glass.'

b. ??U vetra razbil-sja stakan
at wind$_{GEN}$ broke-Refl glass$_{NOM}$
?'The wind caused the glass to break.'

Accidental causation cannot be accommodated in the feature system of Reinhart (2003) in (24), with *m* for mental state, and *c* for cause.

(24) a. [+c+m] — agent
b. [+c-m] — instrument
c. [-c+m] — experiencer
d. [-c-m] — theme / patient
e. [+c] — cause (Unspecified for m); consistent with either (a) or (b).
f. [+m] — ?
g. [-m] — (Unspecified for c): subject matter /locative source
h. [-c] — (Unspecified for /m): goal, benefactor typically dative (or PP).

No cluster in (24) captures genitives as involuntary Causers in Russian, or datives in other languages discussed in Rivero (2003, 2004). For Experiencers of class II verbs such as *fascinate* (24c) comes close to describing genitive subjects but does not mention cause, so is not appropriate. Reinhart unifies Goals and Experiencers of class III verbs such as Italian *piacere* 'appeal' under (24h), which is unsuitable for Causers. The [+c] feature in (24e) if paired with [+m] to reflect that genitives are non-volitional results in Agent in (24a). One possibility is a new feature VOLITION [v], with genitive subjects in anticausatives specified [+c], and [-v], which could imply [+m] or be subsumed under [+m]. In sum, Russian anticausatives with genitives have an argument with [+m] and a (non)volitional feature in Cause.

3.3 Comparing our analysis with that of Rivero (2003, 2004)

Rivero (2003, 2004) develops an analysis for languages with anticausative constructions of the type of Polish (5), proposing that the dative is

a subject of predication in a high Applicative Phrase. In this paper, we have adopted this general idea for the Russian genitive in (17a), as in (18a). The crucial difference between that analysis and our proposal here resides in the anticausative core. (Another difference that we do not discuss is that there could be variation as to the level where the high Applicative attaches.) We assume that anticausatives contain a formally represented Causer. Rivero (2003, 2004) assumes that anticausatives undergo Argument Suppression (Reinhart 1996), so the anticausative core in (5) lacks a formally represented Causer both in syntax and semantics. In those works the three interpretations of (5) result from an inferential procedure dubbed Ethical Strategy, which does not conflict with the reading assigned in semantics to formally present arguments. On that view, the dative in (5) is inferentially interpreted as an accidental Causer, because it is a subject of predication with a nonagentive dimension that combines with *Złamały się okulary* 'The glasses broke', where the Causer has undergone Argument Suppression.

In this paper, we assign to anticausatives a formal Causer without Argument Suppression. On this view, Russian genitives in (18a-b) derive their readings from formal grammar, not inference. There is an implicit Causer bound by the *u* + Genitive in an Applicative and an explicit Causer as Bare Genitive, also interpreted as Possessor. The interpretation of the Russian constructions in (18 a-b) seems compositional, with the Benefactive/Malefactive reading but with unclear formal characteristics absent. Argument structure, then, is the core ingredient in this interpretation of Russian genitives with anticausatives.

4 Bundling and the Bare Genitive

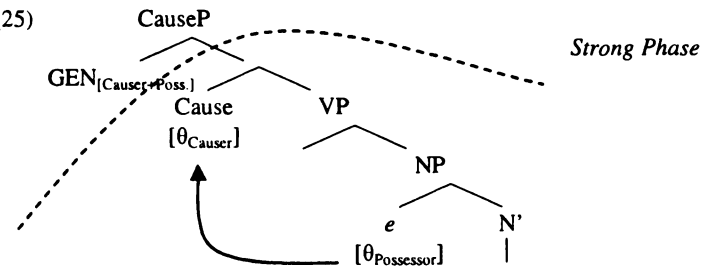
Our last task is a preliminary account of why the Bare Genitive in (2) (=17b) is a Causer and a Possessor. We propose that this results from Bundling (Reinhart and Siloni 2003), which combines two roles in a unique argument.

Let us introduce Bundling. Syntax receives as input items from the lexicon and cannot modify their content. If a role is part of the Th(eta)-grid of a predicate, it must either be merged as an argument, or have a residue in syntax or interpretation. Reduction of Th-roles is banned in syntax, while bundling/combination of Th-roles is not excluded. Reinhart and Siloni propose that French *Jean se lave* 'John washes' indicates Bundling, with two Th-roles residing in a unique argument. Within the minimalist view, where structure is built bottom up, the choice of morphology (*se*) reduces a case. An internal Th-role is not mapped onto its canonical position due to lack of case. The unassigned role is kept on the verb until the external argument is merged. Bundling retains an unassigned Th-role on the verbal projection until the relevant merge

determined by the cycle (or phase), which is coupled to the Extended Projection Principle (EPP). Merge as canonical Th-assignment is not available for predicates with case-reducing morphology, so noncanonical Th-assignment as Bundling applies and must be morphologically marked. In GB, the Theta Criterion prevents Bundling of this type, but this Criterion has not been part of the view of reflexivization since Chierchia (1989), nor is it a minimalist principle (Hornstein 1999).

In Russian anticausatives of the type in (17b) the genitive in the Spec of Cause is simultaneously interpreted as Causer/Possessor due to Bundling, as shown in (25). The Possessor role associated with the Spec of the logical object remains stored and unassigned in the lower NP, a weak phase in the sense of Chomsky (2001). Upon Merge of the external argument at the strong phase or CauseP, Possessor is bundled with Causer, and both are assigned to the Bare Genitive as external argument.

(25)



One technical implementation of the above idea follows. When the NP is formed, a Specifier for *očki* is projected but remains empty (*e*), so the Possessor Th-role is not assigned, stays on the noun, and can be carried along the derivation. Such an empty Spec nevertheless contains an unvalued uninterpretable feature (i.e., genitive case). When the VP is formed, reflexive morphology (*-sja*) reduces the ability of the verb to value Accusative, so Nominative on *očki* will be valued subsequently via Agree. If we close the phase at the level of the VP, the derivation would crash for two reasons: first, VP is not a phase (while CauseP is); second, there is no host to be assigned Possessor. Reinhart and Siloni suggest that the proper domain for the derivation is a cycle/ phase, which requires the EPP to be satisfied too. According to Chomsky (2001), there are strong and weak phases. Roughly, strong phases are potential targets for movement, carrying an optional EPP-feature, while weak phases are not targets for movement and do not carry an EPP-feature. Our claim is that the proper cyclic domain or strong phase for the derivation of Russian anticausatives with genitives is CauseP. At that stage two Th-roles need assignment: the unassigned [Th$_{\text{POSSESSOR}}$] of the noun, which has been retained, and [Th$_{\text{CAUSER}}$] of the verb. Upon merging of [Th$_{\text{CAUSER}}$],

Bundling applies, that is, [$Th_{POSSESSOR}$] unifies with the assigned [Th_{CAUSER}], so that both are discharged on the Bare Genitive in the Spec of CauseP, which is thus necessarily interpreted both as Causer and Possessor. In addition, we proposed in §3 that the Bare Genitive case feature values the uninterpretable feature on the empty Specifier of the lower NP.

An alternative to the above analysis consists in generating the Bare Genitive in the Spec of the nominative with the role of Possessor, and movement to the Spec of Cause for the Causer role (see Lee-Schoenfeld 2003 on German dative possessives), reminiscent of Possessor Raising (PR) (Landau 1999, among others). PR in Russian identifies the situation where the raised possessor is marked dative and not genitive, as in (26):

(26) Ivanu v drake slomali rebro.
Ivan$_{DAT}$ in fight broke$_{3PL}$ rib$_{ACC}$
'They broke John's rib in a fight.'

Russian PR is restricted to inalienable possession (Šarić 2002). Thus, Bare Genitives in anticausatives do not display the semantic or formal properties of PR, so Possessor does not move to Causer in (17b).

5 Conclusion

This paper develops a preliminary analysis of Russian anticausative constructions with *u* + Genitives and Bare Genitives. We argued that such genitives are oblique subjects. The *u* + Genitive in (1a) and the Bare genitive in (1b) differ in structure while sharing an involuntary Causer reading. The *u* + Genitive is a subject of predication in an Applicative Phrase and binds an implicit Causer in the Spec of Cause. The Bare Genitive is in Spec of Cause and bundles two Th-roles, Causer and Possessor.

References

Chierchia, G. 1989. A semantics for unaccusatives and its syntactic consequences. Ms. .Cornell University.

Chomsky, N. 2000. Minimalist Inquiries. In *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*, eds. R. Martin, D. Michaels, and J. Uriagereka, 89-155Cambridge, MA: MIT Press.

Chomsky, N. 2001. Derivation by Phase. In *Ken Hale, A life in language,* ed. M., Kenstowicz, 1-51. Cambridge, MA: MIT Press.

Cuervo, M.C. 1999. Quirky but not eccentric: Dative Subjects in Spanish. *MIT Working Papers in Linguistics* 34: 213-227.

Cuervo, M.C. 2003. Datives at large. Ph.D. dissertation, MIT.

Dąbrowska, E. 1997. *Cognitive semantics and the Polish dative.* Berlin: Mouton de Gruyter.

Fernández Soriano, O. 1999. Datives in constructions with unaccusative *se*. *CatWPL* 7: 89-105.

Hornstein, N. 1999. Movement and control. *Linguistic Inquiry* 30:69-96.

Kallulli, D. 1999. Non-active morphology in Albanian and event (de)composition. In *Crossing boundaries*, ed. I. Kenesei, 263-292. Amsterdam: Benjamins.

Kibort, A. 2001. The Polish passive and impersonal in Lexical Mapping Theory. In *Proceedings of the LFG01 Conference University of Hong Kong*, eds. Miriam Butt and Tracy Holloway King.

Landau, I. 1999. Possessor raising and the structure of VP. *Lingua* 107: 1-37.

Landau, I. 2003. *The locative syntax of experiencers*. Ms. ,Ben Gurion U.

Lee-Schoenfeld, V. 2003. German possessor datives: Raised and affected. Ms. University of California, Santa Cruz.

Levin, B., and M. Rappaport Hovav. 1995. *Unaccusativity at the syntax semantics interface*. Cambridge, MA: MIT Press.

Masullo, P. 1993. Two types of quirky subjects: Spanish versus Icelandic. *NELS* 23:303-317.

McGinnis, M. 2004. Lethal ambiguity. *Linguistic Inquiry* 35: 47-95.

Parsons, T. 1990. *Events in the semantics of English: A study in subatomic semantics*. Cambridge: Mass,: MIT Press.

Pesetsky, D. 1995. *Zero Syntax: Experiencers and Cascades*, Cambridge, Mass.: MIT Press.

Reinhart, T. 1996. Syntactic effects on lexical operations: Reflexives and unaccusatives . *UIL OTS Working Paper*, Utrecht University.

Reinhart, T. 2003. The theta system: an overview. To appear in *Theoretical Linguistics*.

Reinhart, T., and T. Siloni. 2003. Thematic arity operations and parametric variation. Ms. Tel Aviv University.

Rivero, M. 2003. Reflexive clitic constructions with datives: Syntax and semantics. *Formal Approaches to Slavic Linguistics: The Amherst Meeting 2002*, 469-494. Ann Arbor, MI: Michigan Slavic Publications.

Rivero, M. 2004. Datives and the non-active voice/reflexive clitic in Balkan languages. In *Balkan Syntax and Semantics*, ed. O. Tomić, 237-267. Amsterdam: Benjamins.

Šarić, L. 2002. On the semantics of the "dative of possession" in the Slavic languages: An analysis on the basis of Russian, Polish, Croatian/Serbian and Slovenian examples. In *GLOSSOS*, 3.

von Stechow, A. 1995. Lexical decomposition in syntax. In *Lexical Knowledge in the Organization of Language*, eds. Egli *et al.*. Amsterdam: John Benjamins.

Takehisa, T. 2002. The Agent/Affectee ambiguity and beyond. *Proceedings of the 10th Meeting of the Student Organization of Linguistics in Europe (ConSOLE X)*, 199-213, University of Leiden, The Netherlands.

Verma, M.K., and K.P. Mohanan. 1991. *Experiencer subjects in South Asian languages*. Stanford, CA: CSLI.

Zaenen, A., J. Maling and H. Thráinsson. 1985. Case and grammatical functions: The Icelandic passive. *NLLT* 3: 441-483.

mrivero@uottawa.ca ulyana.savchenko@utoronto.ca

FASL 13, 289–299
Michigan Slavic Publications
2005

Classification Projection in Polish and Serbian: The Position and Shape of Classifying Adjectives *

Paweł Rutkowski
Warsaw University and Wayne State University

Ljiljana Progovac
Wayne State University

The aim of this paper is to analyse the syntax of constructions containing classifying adjectives in Polish and Serbian. We will show that, where Polish requires such adjectives to follow nouns, in Serbian they appear in the long form. We will propose a unified account of the Polish and Serbian data, both of which involve N-movement from the underlying position in N to the head of a higher functional projection (overt in Polish and covert in Serbian). This paper argues for a distinct functional projection in the nominal domain located immediately above NP. We will tentatively label this projection Class(ification)P(hrase).

1 Classifying Adjectives in Polish and in Serbian

In Polish (P) attributive adjectives generally precede nouns. How-ever, examples such as (1a-3a) below show that certain adjectives can also appear in postposition. Interestingly, as demonstrated in (1b-3b), their Serbian (S) equivalents have to take the so-called long form, i.e., long inflectional ending (LA, as opposed to the short adjectival form which will be abbreviated as SA).

(1)	a.	dyrektor generalny	~	*generalny dyrektor	general director	(P)
	b.	generalni $_{LA}$ direktor	~	*generalan direktor $_{SA}$		(S)
(2)	a.	komitet centralny	~	*centralny komitet	central committee	(P)
	b.	centralni $_{LA}$ komitet	~	*centralan $_{SA}$ komitet		(S)

* The authors gratefully acknowledge the Kosciuszko Foundation grant to Paweł Rutkowski which made it possible for him to spend the Fall of 2003 at Wayne State University.

(3) a. niedźwiedź polarny ~ *polarny niedźwiedź polar bear (P)

b. polarni$_{LA}$ medved ~ *polaran$_{SA}$ medved (S)

It seems that the above structures are possible only with adjectives which have been referred to in the literature as classifying (Warren 1984), transpositional (Marchand 1966), relational (Bosque and Picallo 1996), or pseudo-adjectives (Bartning 1980). Such modifiers tend not to occur in predicative positions, nor can they be separated from the head noun, coordinated with other adjectives, geminated, or graded (see Warren 1984). They refer to entities and not properties. They most often derive from nouns and relate the noun they modify to another noun. In this paper we will use the term classifying in the following sense: an adjective is classifying if it marks the entity as belonging to a certain category/type/class. Classifying adjectives differ substantially from regular qualifying/attributive adjectives, whose sole purpose is to describe certain non-categorizing properties of the noun they modify. We assume that the term classifying describes the function of a particular adjective in a particular sentence rather than a permanent characteristic of its lexical entry. As shown below, the same lexical item can be used both as a classifying (4a-b) and qualifying (5a-b)modifier.

(4) a. Słyszę jakiś język obcy. (P)
hear$_{1SG}$ some language strange

b. Čujem neki strain jezik. (S)
hear$_{1SG}$ some strange$_{LA}$ language
'I can hear some foreign language.'

(5) a. Słyszę jakiś obcy język. (P)
hear$_{1SG}$ some strange language

b. Čujem neki stran jezik. (S)
hear$_{1SG}$ some strange$_{SA}$ language
'I can hear some unfamiliar language.'

Thus, the classifying interpretation is not driven by the semantic properties of a given adjective but must be derived syntactically.

The classifying/qualifying distinction may be universal, with different reflexes in different languages. As shown by Bosque and Picallo (1996), in languages that do not mark the classifying function syntactically, structures containing adjectives might be ambiguous. Example (6) might refer either to a person that belongs to a class of actors that are comic as opposed to tragic (classifying interpretation,

restrictive reading) or to an actor that happens to be funny (qualifying interpretation, non-restrictive reading).

(6) actor cómico (Spanish)
actor comic
'comic/comedy actor'

This is precisely the difference in meaning that must be reflected in word order in Polish:

(7) a. aktor komiczny (P)
actor comic
'comedy actor' (a type of actor)

b. komiczny aktor (P)
comic actor
'comic actor' (an actor that we describe as comic)

This word-order reversal is fully productive in Polish (8-12), unlike in other Slavic languages such as Czech (13-14), where it appears only in scientific terminology and in poetry (Veselovská 1995).

(8) ogród zoologiczny (P)
garden zoological
'zoo'

(9) wartości chrześcijańskie (P)
values Christian
'Christian values'

(10) kryzys polityczny (P)
crisis political
'political crisis'

(11) książka telefoniczna (P)
book $telephone_{ADJ}$
'telephone book'

(12) sprawy międzynarodowe (P)
affairs international
'international affairs'

(13) kysličník uhličitý (Czech)
oxygen $carbon_{ADJ}$
'carbon dioxide'

(14) skokan zelený (Czech)
frog green
'green frog' (a type of frog)

We follow Bosque and Picallo (1996) in assuming that classifying N–A complexes are not compounds (but see Crisma 1990 for a collocation/ compound approach). Compounds such as *pasta do butów* (P) 'shoe polish' and *bledoliki* (S) 'pale-faced' (15-16) cannot elide their head noun, whereas classifying adjectives (17-19) can:

(15) *Kupiłem dwie tubki pasty do zębów i trzy tubki [e] do butów. (P)
bought$_{1SG}$ two tubes paste$_{GEN}$ for teeth and three tubes [e] for shoes
'I bought two tubes of toothpaste and three tubes of shoe polish.'

(16) *Videla sam jednog mladolikog čoveka i jednog bledo[e]. (S)
Saw AUX$_{1SG}$ one young-faced man and one pale-[e]
'I saw one young-faced man, and one pale-faced.'

(17) Zaprezentowałem dwie analizy syntaktyczne i trzy [e] fonologiczne. (P)
presented$_{1SG}$ two analyses syntactic and three [e] phonological
'I presented two syntactic analyses and three phonological ones.'

(18) Videla sam dva obična medveda i dva polarna [e]. (S)
saw AUX$_{1SG}$ two ordinary bears and two polar [e]
'I saw two ordinary bears and two polar bears.'

(19) Widziałem dwa zwykłe niedźwiedzie i dwa [e] polarne. (P)
saw$_{1SG}$ two ordinary bears and two [e] polar
'I saw two ordinary bears and two polar bears.'

Examples (17-19) show that classifying complexes, similarly to regular non-idiomatic structures, undergo a purely syntactic process of ellipsis. Therefore, we argue that combinations of nouns and adjectives such as those presented in (1a-3a) for Polish and (1b-3b) for Serbian are derived syntactically, in a fully productive process.

2 Proposal: ClassP (Classification Phrase)

We propose that both in Polish and in Serbian (and possibly universally) there is a distinct functional projection in the nominal domain located immediately above NP. We will tentatively label this projection Class-(ification)P(hrase):

(20) $[_{DP}\ D^0 \ldots [_{ClassP}\ Class^0\ [_{NP}\ N^0]]]$

We assume (with Bosque and Picallo 1996) that classifying adjectives are base-generated as APs in the specifier position of the NP projection. Both pre-modifying and post-modifying adjectives in Polish agree in case, number, and gender with the head noun. Therefore, the deep structure agreement configuration must be the same in both cases: all adjectives are base-generated as specifiers above the noun. The fact that some of them end up in postposition means that in such constructions the head noun is raised to a higher functional head. This leaves the adjective behind and results in a classifying interpretation:

(21) $[_{DP}\ D^0\ [_{ClassP}\ N^0_i\ [_{NP}$ classifying adjective $t_i]]]$

To unify the data, we assume that in Serbian N-raising over the classifying adjective is covert (in LF). However, the long adjective (LA) form is a reflex of movement of the noun across it, because the trace has to be licensed (adjectival inflection licenses empty categories in many inflectional languages; see, e.g., Kester 1996). For details, see Section 3.

The ClassP analysis finds support in the following data, which show that there can be only one adjective following the noun:

(22) a. międzynarodowy kryzys wojskowy (P)
international crisis military
'international military crisis'

b. *kryzys międzynarodowy wojskowy (P)
crisis international military

(23) a. parlamentarna komisja budżetowa (P)
parliamentary committee $budget_{ADJ}$
'parliamentary budget committee'

b. *komisja budżetowa parlamentarna (P)
committee $budget_{ADJ}$ parliamentary

On the other hand, there is no limit to the number of pre-nominal adjectival modifiers. This suggests that we need to differentiate ClassP from other functional projections that accommodate APs. There is only one ClassP and only from this projection does the N–A complex get its classifying reading. Interestingly, if a class needs to be identified with the use of two distinct adjectives, they must, both in Polish and in Serbian, form a compound:

(24) a. gramatyka transformacyjno-generatywna (P)
grammar transformational-generative
'transformational generative grammar'

b. *gramatyka transformacyjna generatywna (P)
grammar transformational generative

(25) a. transformaciono-generativna gramatika (S)
transformational-generative grammar
'transformational generative grammar'

b. *transformaciona generativna gramatika (S)
transformational generative grammar

This means that ClassP is non-iterable, unlike functional phrases that host typical qualifying/attributive adjectives (see Cinque 1994, Scott 1998, Laenzlinger 2000). Therefore, we assume that ClassP is an integral part of the basic DP skeleton, not an adjunct.

3 Why Long Adjectival Form in Serbian

When used only with a noun, long forms in Serbian are obligatory in three basic contexts: 1) when the noun phrase is definite, 2) when the adjective has the classifying function discussed above, and 3) in vocative constructions. These three uses are illustrated below.

Definiteness[1]:

(26) a. U sobu je ubauljao ranjeni čovek. (S)
in room AUX_{3SG} stumbled $wounded_{LA}$ man
'The wounded man stumbled into the room.'

b. U sobu je ubauljao ranjen covek. (S)
in room AUX_{3SG} stumbled $wounded_{SA}$ man
'Into the room stumbled a wounded man.'

(27) a. Nedostaje mi crveni kaput. (S)
$miss_{3SG}$ I_{DAT} red_{LA} coat
'I'm missing the red coat.'

[1] Note that ellipsis occurs with both long and short forms, depending on definiteness:

(i) *Nedostaje mi crveni kaput, ne zeleni* [e]. (S)
$miss_{3SG}$ I_{DAT} red_{LA} coat not $green_{LA}$ [e]
'I'm missing the red coat, not the green one.'

(ii) *Nedostaje mi crven kaput, ne zelen* [e]. (S)
$lack_{3SG}$ I_{DAT} red_{SA} coat not $green_{SA}$ [e]
'I'm lacking a red coat, not a green one.'

b. Nedostaje mi crven kaput. (S)
lack$_{3SG}$ I$_{DAT}$ red$_{SA}$ coat
'I'm lacking a red coat.'

Classifying[2]:

(28) a. Jela sam beli luk. (S)
ate AUX$_{1SG}$ white$_{LA}$ onion
'I ate (some) garlic.'

b. ?Jela sam beo luk. (S)
ate AUX$_{1SG}$ white$_{SA}$ onion
'I ate (some) onion which happened to be white.'

(29) a. Upala sam u živi pesak. (S)
fell AUX$_{1SG}$ into alive$_{LA}$ sand
'I fell into quick sand.'

b. ?Upala sam u živ pesak. (S)
fell AUX$_{1SG}$ into alive$_{SA}$ sand
'I fell into sand which was alive.'

Vocatives:

(30) a. Mudri čoveče, progovori! (S)
wise$_{LA}$ man$_{VOC}$ speak
'Wise man, speak!'

b. *Mudar čoveče, progovori! (S)
wise$_{SA}$ man$_{VOC}$ speak

(31) a. Umorni putniče, odmori se! (S)
tired$_{LA}$ traveller$_{VOC}$ rest

b. *Umoran putniče, odmori se! (S)
tired$_{SA}$ traveller$_{VOC}$ rest
'Weary traveller, rest!'

---

[2] We assume that certain compound-like phrases that are non-transparent from the semantic point of view, e.g., *slepi miš* 'bat' (lit. 'blind mouse') or *beli luk* 'garlic' (lit. 'white onion'), conform to the classifying pattern outlined in this paper. However, it has to be stressed that, although classifying constructions may get an idiomatic reading, it is not their primary characteristic.

Since marking definiteness is the most salient use of long adjectival forms, it is traditionally assumed that this is the primary function of LA morphology (e.g., Stevanović 1964; see also Leko 1988, Zlatić 1997, and Progovac 1998). However, classifying constructions are definitely not definite noun phrases (or at least they do not have to be). Note as well that although vocative structures may be analyzed as definite, languages such as English or Italian do not use a definite article in this context (cf. Longobardi 1994):

(32) *I ragazzi, venite qui! (Italian)
the boys come here

(33) *The boy, come here.

Therefore we propose a more general hypothesis: that (LA) morphology in Serbian signals that a noun (or possibly some other category) has moved across the adjective to a higher nominal projection. Long inflectional form may be needed to govern/license the copy/trace of the noun (see, e.g., Kester 1993, 1996 and Lobeck 1993, 1995 on the analysis of null nouns; also Rizzi 1986, 1990). This is schematically illustrated as follows:

(34) $[_{DP}\ D^0\ [_{ClassP}\ N^0_i\ [_{NP}$ adjective $_{LA} \rightarrow t_i]]]$

The requirement of inflectionally governing the trace of a moved element might be viewed as a more general phenomenon; compare VP preposing in English (Rizzi 1990, Zagona 1988, Lobeck 1987):

(35) She promised she would read the book, and read the book I think she will [t]/would [t]/*'ll [t]/*'d [t].

Kester (1996:57) argues that "while certain morphemes are regular spell-outs of adjectival agreement, others must be regarded as special inflectional endings surfacing for reasons of formal licensing and/or identification".

Following Longobardi's (1994) analysis of N-to-D raising of proper names in varieties of Italian[3], we assume that in definite DPs in Serbian (an articleless language) in the absence of any other means of identifying

[3] Overt head-to-head movement of common nouns from N to D (or to a higher functional projection) has been proposed for Semitic (e.g., Ritter 1989, Fassi Fehri 1989, Ouhalla 1991), Scandinavian (Delsing 1988, Taraldsen 1990), Irish, and Welsh (Rouveret 1991). The same N-raising analysis for postposed articles has been proposed for Romanian by Grosu (1988) and Dobrovie-Sorin (1987) and for Bulgarian by Arnaudova (1996), but see Dimitrova-Vulchanova and Giusti (1998) for a different view.

D such as demonstratives or possessives, the noun is forced to move to D (covertly). However, the LA form is not obligatory when, for example, a demonstrative is present. Assuming the noun is not raised in the presence of a demonstrative, one can argue that the adjective is generated either lower than the demonstrative (36: no movement across the adjective, no long form), or higher than the demonstrative (37: the demonstrative moves to D across the adjective, long adjective form).[4]

(36) Taj pametan čovek ipak ne razume sintaksu. (S)
that $smart_{SA}$ man still not $understand_{3SG}$ syntax
'That man, who is smart, still does not get syntax.'

(37) Taj_i pametni $[t_i]$ čovek ipak ne razume sintaksu. (S)
that $smart_{LA}$ man still not $understand_{3SG}$ syntax
'That smart one still does not get syntax.'

The movement analysis of LA is possible also in the case of vocative expressions. Longobardi (1994) shows that nouns can precede modifiers in Italian vocatives and considers an N-to-D analysis but then discards it, because of the non-occurrence of articles with vocatives (see examples 32-33). However, it could be assumed that articles are impossible with vocatives independently, given that articles are marked for third-person features, which are incompatible with the second-person feature of the vocative.

(38) We/you linguists think highly of ourselves/ yourselves/*themselves.

(39) The linguists think highly of *ourselves/ *yourselves/themselves.

(40) Teacher, please excuse yourself/*myself/*himself.

Our proposal for vocative structures in Serbian is as follows: D position in vocatives is necessarily projected (whether or not vocatives are analysed as arguments), because the vocative noun is referential and has a second-person feature. Therefore, vocative nouns move to D to check these features (either overtly or covertly), resulting in obligatory LA form.

4 Conclusion

In this paper we have proposed a unified account of expressions containing classifying adjectives in Polish and Serbian. We have argued

[4] See, e.g., Brugé and Giusti 1996 and Rutkowski 2000 for the generation of demonstratives in a lower functional projection with their subsequent movement.

that in such structures the noun is raised to a functional projection labeled ClassP. This N-to-Class movement is overt in Polish and covert in Serbian, but in the latter the movement makes the classifying adjective take LA morphology. We assume that long adjectival forms are necessary because they govern/license the copy/trace of the raised noun. We have also extended this analysis of LA inflection in Serbian to other contexts, namely, definite and vocative expressions.

References

Arnaudova, Olga. 1996. The Bulgarian noun (adjective) movement to D. In *Papers from First Conference on Formal Approaches to South Slavic Languages, Plovdiv October 1995* (Working Papers in Linguistics 28), eds. Mila Dimitrova-Vulchanova and Lars Hellan, 1-28. Trondheim: NTNU Norwegian University of Science and Technology.

Bartning, Inge. 1980. *Remarks sur la syntaxe et la sémantique des pseudo-adjectifs dénominaux en français*. Stockholm: Almkvist & Wiksell International.

Bosque, Ignacio, and Carme Picallo. 1996. Postnominal adjectives in Spanish DPs. *Journal of Linguistics* 32: 349-385.

Brugé, Laura, and Giuliana Giusti. 1996. *On demonstratives*. Paper presented at 19th GLOW Colloquium, University of Athens, Athens, April 18.

Cinque, Guglielmo. 1994. On the evidence for partial N-movement in the Romance DP. In *Paths towards Universal Grammar: Studies in honor of Richard S. Kayne*, eds. Guglielmo Cinque, Jan Koster, Jean-Yves Pollock, Luigi Rizzi, and Raffaella Zanuttini, 85-110. Washington, D.C.: Georgetown University Press.

Crisma, Paola. 1990. Functional categories inside the NP: A study on the distribution of nominal modifiers. Ph.D. dissertation, Università di Venezia.

Delsing, Lars Olaf. 1988. The Scandinavian noun phrase. *Working Papers in Scandinavian Syntax* 42: 57-80.

Dimitrova-Vulchanova, Mila, and Giuliana Giusti. 1998. Fragments of Balkan Nominal Structure. In *Possessors, predicates and movement in the Determiner Phrase* (Linguistik Aktuell/Linguistics Today 22), ed. Artemis Alexiadou and Chris Wilder, 333-360. Amsterdam: John Benjamins.

Dobrovie-Sorin, Carmen. 1987. A propos de la structure du groupe nominal en roumain. *Rivista di Grammatica Generativa* 12: 123-152.

Fassi Fehri, Abdelkader. 1989. Generalized IP structure, case and VS order. In *Functional heads and clause structure* (MIT Working Papers in Linguistics 10), ed. Itziar Laka and Anoop Mahajan, 75-113. Cambridge, MA: Department of Linguistics and Philosophy, MIT.

Grosu, Alexander. 1988. On the distribution of genitive phrases in Rumanian. *Linguistics* 26: 931-949.

Kester, Ellen-Petra. 1993. The inflectional properties of Scandinavian adjectives. *Studia Linguistica* 47: 139-153.

Kester, Ellen-Petra. 1996. Adjectival inflection and the licensing of empty categories in DP. *Journal of Linguistics* 32: 57-78.

Laenzlinger, Christopher. 2000. French adjective ordering: Perspectives on DP-internal movement types. *GG@G: Generative Grammar in Geneva* 1: 55-104.

Leko, Nedžad. 1988. X'-theory and the internal structure of NP. *Lingua* 75: 135-169.

Lobeck, Anne. 1987. VP ellipsis in infinitives: INFL as a proper governor. In *Proceedings of the North-East Linguistic Society* 17: 425-442. GLSA, University of Massachusetts, Amherst.

Lobeck, Anne. 1993. Strong agreement and identification: Evidence from ellipsis in English. *Linguistics* 31: 777-811.

Lobeck, Anne. 1995. *Ellipsis: Functional heads, licensing, and identification.* Oxford/New York: Oxford University Press.

Longobardi, Giuseppe. 1994. Reference and proper names: A theory of N-movement in syntax and Logical Form. *Linguistic Inquiry* 25: 609-665.

Marchand, Hans. 1966. On attributive and predicative derived adjectives and some problems related to the distinction. *Anglia* 84: 131-149.

Ouhalla, Jamal. 1991. *Functional categories and parametric variation.* London: Routledge.

Progovac, Ljiljana. 1998. Determiner Phrase in a language without determiners. *Journal of Linguistics* 34: 165-179.

Ritter, Elizabeth. 1989. A head-movement approach to construct-state noun phrases. *Linguistics* 26: 909-929.

Rizzi, Luigi. 1986. Null objects in Italian and the theory of pro. *Linguistic Inquiry* 17: 501-557.

Rizzi, Luigi. 1990. *Relativized minimality.* Cambridge, MA: MIT Press.

Rouveret, Alain. 1991. Functional categories and agreement. *Linguistic Review* 8: 353-387.

Scott, Gary-John. 2002. Stacked adjectival modification and the structure of nominal phrases. In *Functional structure in DP and IP: The cartography of syntactic structures*, vol. I, ed. Guglielmo Cinque, 91-120. New York: Oxford University Press.

Stevanović, Mihailo. 1964. *Savremeni srpskohrvatski jezik: Uvod, fonetika, morfologija.* Belgrade: Naučno Delo.

Taraldsen, Tarald. 1990. D-projections and N-projections in Norwegian. In *Grammar in progress*, ed. Marina Nespor and Juan Mascaró, 419-431. Dordrecht: Foris.

Veselovská, Ludmila. 1995. Phrasal movement and X-0-morphology: Word order parallels in Czech and English nominal and verbal projections. Ph.D. dissertation, Univerzita Palackého v Olomouci.

Warren, Beatrice. 1984. *Classifying adjectives.* Göteborg: Acta Universitatis Gothoburgensis.

Zagona, Karen. 1988. Proper government of antecedentless VP in English and Spanish. *Natural Language and Linguistic Theory* 6: 95-128.

Zlatić, Larisa. 1997. The structure of the Serbian noun phrase. Ph.D. dissertation, University of Texas, Austin.

FASL 13, 300–311
Michigan Slavic Publications
2005

Slavic Vowel-Zero Alternations and Government Phonology: Two Approaches, One Solution*

Tobias Scheer
Université de Nice, CNRS 6039

1 Introduction

The classical generative analysis of Slavic vowel-zero alternations (Lightner 1965, Gussmann 1980, Rubach 1984, 1986, Kenstowicz and Rubach 1987, Spencer 1986) crucially relies on abstract vowels, the yers. Yers and the mechanism that controls their vocalization, Lower,[1] were introduced in order to reduce the disjunction, "in closed syllables and in open syllables if the following vowel alternates with zero", to a non-disjunctive phonological reality. I refer to this disjunction as the yer context.In this article, I show that the distribution and function of the yers is exactly identical with that of empty nuclei in Government Phonology (Kaye et al. 1990, Kaye 1990).

A prominent feature of Government Phonology (hereinafter GP) is the extensive use of empty nuclei. My goal is to show that generative phonologists used this concept long before GP came into being. They did so for entirely independent reasons but without giving it any theoretical status. GP in turn ignored the Slavic evidence and its analysis when proposing empty nuclei. If this turns out to be true, it will provide much support for the idea that empty nuclei play a non-negligible role in syllable struycture.

The classical generative analysis relates yersby a regressive relation whereby one yer directly influences its preceding peer (this is the essence of Lower). This influence of one vowel on its neighbor may be called lateral, as opposed to paradigmatic. Here again GP proposed the same device (Proper Government, henceforth PG) some years later without taking Slavic and Lower into account. Analysts of Slavic in turn did not make the lateral character of Lower explicit and thus, some years later

* I wish to thank the editors for comments resulting in a greatly improved text.

[1] The mechanism represented by Lower is further explained in section 3.2. Its name comes from the assumption that yers are high vowels which are lowered surfacing.

when GP brought the formal concept of lateral relations into the discussion, failed to equate Lower and PG.

Two central devices of GP—empty nuclei and lateral relations—were thus invented outside of GP and for entirely independent reasons. This therefore makes their reality more plausible: it is quite unlikely that the same highly specific mistake was made twice.

The present article represents the first piece of a demonstration that aims at integrating Slavic vowel-zero alternations, always regarded as a specifically Slavic matter, into a general theory of vowel-zero alternations. Most Slavic languages happen to illustrate the Lower pattern, "given a chain of alternating vowels, vocalize all but the last". The other that is found in natural languages is the Havlík pattern, "given a chain of alternating vowels, vocalize every other, counting from the right edge".[2] It occurs in languages such as German, French, Moroccan Arabic, Old Polish, and Old Czech (Scheer 2001, 2004).

The ultimate goal of my demonstration is to show that the yer context controls a variety of segmental alternations of which vowel-zero alternations are but one representative. These include Polish *o ~ ó*, as in *krowa ~ krów, krówka, krówek* 'cow' Nsg, Gpl, dimin. Nsg, dimin. Gpl; Cezch vowel-length alternations, as in *žába ~ žab, žabka, žabek* 'frog' Nsg, Gpl, dimin. Nsg, dimin. Gpl; and French *morc[ə]ler ~ morc[ɛ]l, morc[ɛ]l[ø]ment* 'cut into pieces' infinitive, 3rd sg, related noun. Therefore, the phonological mechanism that produces the Lower pattern cannot be the Lower rule, because even in its autosegmental version it does not extend beyond vowel-zero alternations.

Space restrictions do not allow me to develop the full project here. Fuller evidence and demonstration is available in Scheer (2001, 2004). The goal of the present article is only to show that two contemporary groups of researchers have promoted the same idea (abstract vowels/ empty nuclei and Lower/ PG), but did not equate their concepts with the devices developed next door.

---

[2] The Lower rule and Havlík's Law (see Havlík 1889) organize the vocalization of alternation sites in two different ways. I call the result a pattern because it extends beyond Slavic and thus is independent of particular language families. If as I believe it is true that the parametric space of vowel-zero alternations boils down to these two options, theory must be able to come up with a principle that governs all vowel-zero alternations and a parameter which expresses the Havlík–Lower variation (or an equivalent set of constraints). A unifying perspective of this kind has not been previously pursued. I show in Scheer (2004:§426) that in a framework operating with PG, a parameter on a lexical property of yers can do the job: in Havlík languages yers are good governors (and hence behave like any other vowel), while in Lower languages they are unable to govern.

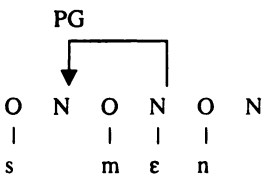
2 The Distribution and Function of Empty Nuclei in GP

Empty nuclei were sporadically used in the literature before Kaye et al. 1990 and Kaye 1990; see for instance Anderson 1982 and Spencer 1986. But only GP has given them a theoretical status with stable cross-linguistic properties. According to Kaye et al. (1990) and Kaye (1990), empty nuclei occur in two locations indicated under (1).

(1) a. after the last consonant of all consonant-final words (Kaye 1990).
b. where vowels alternate with zero (Kaye et al. 1990:219ff.).

For example, French *la semaine* 'the week' may be pronounced [lasmɛn] or [lasəmɛn], thus illustrating both types of empty nuclei.

(2)



French *la semaine* [lasmɛn]

In (2) we also see the reason why according to GP the alternating vowel may be absent from the surface: it is subject to the lateral force of Proper Government, which originates in the following vowel and is always regressive (right-to-left).

Parallel to the syntactic theory of the eighties, a phonological Empty Category Principle regulates the occurrence of empty nuclei. Its initial version (Kaye et al. 1990:219, Kaye 1990:313) restricts empty nuclei to the two locations that are identified in (1): an empty nucleus may remain phonetically unexpressed if and only if it is (a) word-final or (b) affected by PG.

Let us now look at the motivation for empty nuclei. In Government Phonology no syllabification algorithm creates constituent structure: it is present in the lexicon. Moreover, the syntactic principle of Structure Preservation applies: a segment originating in a certain constituent remains in that constituent no matter what phonological process it undergoes. This creates an absolute ban on resyllabification. Hence, C_2 of a $C_1V_1C_2vC_3$ root, where v alternates with zero, does not become the coda of V_1 when v is absent from the surface. Rather, C_2 continues to belong to the same onset as before only that its nucleus now happens to be phonetically unrealized.

It is important to bear in mind that GP arrived at this result without reference to the Slavic evidence, just as the classical generative analysis of Slavic vowel-zero alternations owes nothing to GP, which did not exist

when Lightner wrote.

3 Slavic Vowel-Zero Alternations and Their Analysis

3.1 Vocalization of alternation sites in open syllables

The idea that clusters which host an alternation site are separated by abstract vowels goes back to Lightner (1965). Through the seventies and into the late eighties it was practised in both linear *SPE*-type approaches and autosegmental generative frameworks.

The basic pattern of vowel-zero alternations that with some variation occurs in all Slavic languages is the following:[3]

(3)

	C__C-V	C__C-ø	C__C-CV	gloss
Czech	lokøt-e	loket	loket-ní	'elbow' Gsg, Nsg, adj.
Polish	wojøn-a	wojen	wojen-ny	'war' Nsg, Gpl, adj.

As these data show, the alternation can be captured in terms of open vs. closed syllables: a vowel appears in closed syllables (*loket, loket-ní*), while zero occurs in open syllables (*lokøt-e*). The vocalization of alternation sites thus seems to be a direct consequence of syllable structure. If a coda needs to be accommodated within a syllable, its nucleus must be vocalized. The presence or absence of a vowel that follows the alternation site stands in no causal relation with the effect observed. Word-final consonants are not followed by a vowel but trigger vocalization the same as word-internal consonants that are followed by a heterosyllabic consonant and a vowel.

However, this syllable-based view is built on incomplete data. Consider the fuller data in (4).

(4)

	open syllable		closed syllable	
	zero	vowel	vowel	vowel
	C__C-V	C__C-yer Cø	C__C-ø	C__C-CV
Czech	dom-øk-u	dom-eč-ek	dom-ek	dom-eč-øk-u
Slovak	kríd-øl-o	kríd-el-iec	kríd-el	kríd-el-øc-e
Polish	buł-øk-a	buł-ecz-ek	buł-ek	buł-ecz-øk-a
Serb.-Cr.	vrab-øc-a	vrab-ac-a	vrab-ac[4]	

[3] My examples are drawn from just a few languages. The general Slavic picture is discussed in Bethin (1998:205ff.) and Panzer (1991:303ff.).

[4] The spellings 'cz' and 'č' in Polish and Czech respectively stand for [č]; they represent a palatalized /k/. Glosses: Czech 'house' dim. Gsg, double dim. Nsg, dim. Nsg, double dim. Gsg; Slovak 'wing' Nsg, dim. Gpl, Gpl, dim. Nsg; Polish 'bread roll' Nsg, dim. Gpl, Gpl, dim. Gpl Serbo-Croatian 'sparrow' Gsg, Gpl, Nsg.

As may be seen, another recurrent pattern in Slavic languages is the vocalization of the alternation site in an open syllable (the grey-shaded column).[5] The paradigms shown are fully regular in the respective languages, and the relevant distributional regularity is as under (5) below.

(5) alternation sites are vocalized in open syllables if and only if the following vowel alternates with zero.

Indeed in all cases where an alternation site is vocalized in an open syllable (Pol *bułeczek*), the vowel of the following syllable itself alternates with zero (Pol *bułeczøka*). In other words, the existence of a vowel in *-ecz-* is a consequence of the fact that the vowel in *-ek* alternates with zero. Alternation sites are never vocalized in open syllables if the following vowel is stable.

The challenge raised by this distribution, then, is its disjunctivity: vocalization occurs in closed syllables and in open syllables if the following vowel is a yer. The question thus arises how closed syllables and yers constitute a natural class.

3.2 Lower

If we are to capture the distribution of vocalized and unvocalized alternation sites with a non-disjunctive statement, the formulation must not include any reference to closed vs. open syllables, for the closed-syllable analysis is contrary to fact. Hence, the only alternative is to explore the possibility of generalizing the yer context. A vowel appears in an alternation site if and only if it is followed by a yer: yer $\rightarrow$ V / _ C_0 yer. Accordingly, all members of a chain of yers but the last will appear on the surface.

This is the essence of Lightner's (1965) proposal, which is known as Lower because it was initially designed for an environment where two underlyingly high [-tense] vowels, the yers (hereinafter represented as ь and ъ, the front yer and back yer respectively), are lowered to some mid or low vowel according to the particular Slavic language in question.[6]

---

[5] The alternating identity of the final vowel in Serbo-Croatian Gpl *vrab-ac-a* cannot be established synchronically since morphology does not allow adding another suffix. However, Gpl *vrab-ac-a* contrasts with Gsg *vrab-øc-a*, and more generally with all other nominal forms. Eleven out of twelve vowel-initial case markers condition the allomorph zero *-øc-*. Only Gpl induces its vocalized version. It is certainly no accident that the diachronic identity of Gpl *-a* is a yer.

[6] Another important property of yers is their unpredictable distribution across the lexicons. Also, the phonetic value of yers may be shared with regular vowels that do not alternate with zero; compare for example Czech *pes* ~ *psa* 'dog' (Nsg ~ Gsg) with *les* ~ *lesa* 'forest' (Nsg ~ Gsg). Therefore yers must be present in the lexical representation,

3.3 Implications of Lower: The distribution of abstract vowels

The chief implication for Lower on underlying structure is evident from simple cases such as /pьs/ 'dog', which reaches the surface as Nsg [pɛs]. If it is true that yers are vocalized in case they are followed by another yer, the word-final consonant must be followed by a yer: only /pьsъ/ can be turned into [pɛs] via Lower. Therefore, all consonant-final words were assumed to end in yers underlyingly. These yers were given the morphological value of case markers (Nsg in /pьs-ь/ and Gpl in Pol *bułeczek* /buł-ъk-ьk-ъ/ 'bread roll'). In other words, Lower requires the existence of underlying (word-final) yers that never appear on the surface.

According to this analysis, yers are distributed as follows: they occur (1) where a vowel alternates with zero and (2) after word-final consonants. The former may appear on the surface under certain conditions, while the latter never enjoy a phonetic existence. Therefore the former are alternating yers, the latter, final yers, never alternate.

The attentive reader will have noticed that this distribution of abstract vowels exactly coincides with the distribution of empty nuclei in Standard Government Phonology (see (1) above). Moreover, the distinction and properties of two categories of yers/ empty nuclei are shared: like final yers, final empty nuclei never appear on the surface; like alternating yers, internal empty nuclei are identified by the presence of a vowel-zero alternation. The following section shows that this distinction has also a diachronic reality: internal yers may originate in a vowel or in nothing, while final yers always have a vocalic ancestor.

3.4 Havlík revisited: Not yers, but empty nuclei are vocalized

An alternating vowel in a modern Slavic language can have two Common Slavic sources: a yer or nothing.[7] In other words, some modern

---

and insertion strategies that epenthesize a vowel in some syllabic environment will not work. Treatments employing insertion have been proposed by, among others, Laskowski (1975) and Worth (1978). They are convincingly refuted by Gussmann (1980:26ff.), Rubach (1984:28f., 1993:134ff.), and Szpyra (1992:280ff).

Lower has known linear (Gussmann 1980, Rubach 1984) and non-linear incarnations. Rubach (1986) and Kenstowicz and Rubach (1987) discuss the advantages of the autosegmental version at length.

[7] A good deal of the philological literature holds that alternating vowels in modern Slavic languages always originate in yers. This view is rooted in an antipathy against non-etymological objects that is widespread among philologists. See Scheer (1996:92ff.) for discussion. Even though diachronic grammars such as Gebauer (1894-98 I:154ff.), Trávníček (1935:230), Trávníček (1948-49 I:41ff.), and Havránek and Jedlička (1988:31) make it clear that the fact that alternating vowels may originate either in a yer or in

alternating vowels were born through epenthesis. The yer origin does not call for any illustration, but let us review some typical cases of so-called non-etymological yers. The words in question are identified according to the traditional classification of stems that based on the Indo-European thematic vowel.

1) feminine *-i* stems in Nsg > Common Slavic case marker -ь. Cause of epenthesis: loss of a yer in the *following* syllable. Modern Czech (MCz) *píseň ~ písøn-ě*, *báseň ~ básøn-ě* 'song, poem' Nsg, Gsg < CS Nsg *pě-sn-ь*, *ba-sn-ь*.

2) neuter o-stems and feminine a-stems, both in Gpl > CS case marker -ъ. Cause: loss of a yer in the *following* syllable. MCz *čísøl-o ~ čísel n.*, *sestør-a ~ sester* f. 'number, sister' Nsg, Gpl < CS Gpl *čit-sl-ъ*, *sestr-ъ*.

3) masculine o-stems in Nsg > CS case marker -ъ. Cause: loss of a yer in the *following* syllable. MCz *mozek ~ mozøk-u* 'brain' Nsg, Gsg < CS Nsg *mozg-ъ*.

4) prepositions and prefixes:[8] MCz *vze-pnout se ~ vzø-pínat se* 'straighten up' pf, ipf, *roze-psat ~ rozø-pisovat* 'begin to write' pf, ipf, *beze-dný ~ bezø-bradý* 'bottomless, beardless', *ode-mknout ~ odø-mykat* 'open with a key' pf, ipf < CS **vъz-*, **orz-*, **bez-*, **od-*.

Thus we see that epenthesis occurred when a yer fell out in the following syllable. All cases quoted follow this pattern (including those with prepositions and prefixes, where, however, some analogical activity needs to be acknowledged; see Scheer 1996). This behavior of course hints at Havlík's Law: in the period of its activity (i.e., the evolution from CS to the particular Slavic language), vowels appear out of nowhere if a

---

epenthesis, the same authors sometimes properly invent yers or resort to analogical explanations in order to be able to avoid objects that are bare of any etymological source. For Gpl forms, instead of admitting epenthesis, Gebauer (1894-98 I:160), Gebauer (1894-98 II,139ff.), Trávníček (1935:230), Lamprecht (1987:138) and Komárek (1962:150), for example, invoke analogy with yer-containing forms. Isačenko (1970), acknowledging epenthesis, sees the same kind of analogical mirages in Eastern Slavic.

[8] The effects of the antipathy toward non-etymological objects appear most strikingly in the treatment of prefixes and prepositions. In answer to the question "which prepositions/ prefixes were terminated by a yer?", almost anything and its opposite can be found in the literature. The item *roz(e)* is identified as *orzъ in etymological dictionaries (Machek 1957:424, Holub and Lyer 1978:391), although no yer can be established on the basis of either comparison or Old Church Slavonic texts. The same holds true for *otъ > od(e) (Lamprecht et al. 1986:332ff.). Machek (1957:579) invents yers when a vowel-zero alternation without an etymological yer source has to be brought back to yer regularity. For example, he derives Old Czech *vzezvati* from CS **vъz-ъ-zъvati*, identifying the yer between the prefix and the stem as "added' (přidáváno ъ, dávající e).

yer in the following syllable was lost. Both in case of yer chains and when an epenthetic vowel emerges, the vocalization is identical, e.g., [ɛ] in Czech and Polish.

This means that the loss of a yer causes the vocalization of either a yer or of nothing in the preceding syllable. If the same causes produce the same effects, the "nothing" and the yer must share some property. What could that be? Can nothing be a yer? No. This is what some philologists have tried to do: inventing yers (see notes 7 and 8). Can a yer be nothing? Yes, of course. We know that yers in Late Common Slavic were fading away. That is, they were first centralized and then fell out. Hence, the objects that were vocalized are not yers, as is commonly believed. Rather, the items that undergo vocalization are "nothing", or zeros. Zeros with a vocalic nature, to be precise. In an autosegmental environment, a "vocalic zero" can be nothing other than an empty nucleus.[9]

Hence, it appears that there must have been empty nuclei "hidden" in the CS clusters of *pěsnь, sestrъ* and the like, as well as after consonant-final prefixes/ prepositions *bez-, od-,* etc. This is something that a more recent development of Government Phonology, so-called CVCV, predicts. Here, syllable structure boils down to a strict sequence of non-branching onsets and non-branching nuclei (Lowenstamm 1996, Scheer 1999, 2004). Although space restrictions do not allow further discussion of this option, it may be seen that with its assumption no special provision needs to be made in order to insert vowels: they simply fill in empty nuclei that have always existed. These empty nuclei were either always empty (epenthesis), or they contained a yer and were emptied as the yers faded away (yer vocalization). Empty nuclei of both origins then were vocalized if and only if the vowel in the following syllable fell out (because it was a yer). Hence, Havlík's Law does not only concern yer chains, it has actually larger scope: objects that are vocalized are former yers and former nothings.

This means that a slight modification of Havlík's Law is in order, at least for the Czech situation. Its classical formulation says, "Given a sequence of consecutive yers in Common Slavic, every other yer is vocalized, counting from the right edge". This now needs to be recast as follows: "Given a sequence of consecutive empty nuclei in Common

[9] Isačenko (1970) uses the diacritic {#} to refer to alternating vowels of both etymological and epenthetic origin. Empty Nuclei are a non-diacritic interpretation thereof which unifies the two origins while keeping alternating vowels distinct from their non-alternating counterparts.

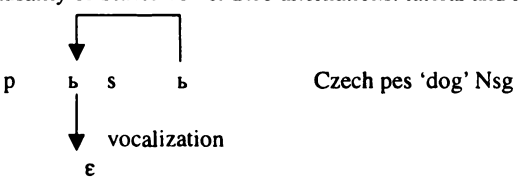
Slavic, every other empty nucleus is vocalized, counting from the right edge".[10]

4 Slavic Vowel-Zero Alternations Caused by a Lateral Relation

The first generalization made in section 3.1 holds syllable structure responsible for Slavic vowel-zero alternations: vowels occur in closed syllables but not in open syllables.

By contrast, Lower denies any causal relation between syllable structure and the vocalization of alternation sites: the only information that is needed in order to compute the phonetic value of alternation sites is lateral: either the following vowel is a yer or it is not. If it is, the alternation site is vocalized; if it is not, the site remains phonetically unexpressed. That is, vowel-zero alternations are not triggered by the presence or the absence of a consonant in a given syllable (the coda analysis). Rather, it is controlled by an intervocalic communication which involves two yers, whereby the rightmost yer determines the phonetic status in the preceding one. This is shown in (6).

(6) the causality of Slavic vowel-zero alternations: lateral and regressive



The arrow under (6) fleshes out the intervocalic causality that is the very essence of Lower but has unfortunately gone unmentioned in the literature on yers. As far as I can see, the enormous body of writings on the matter does not make explicit that we are in the presence of a communication between two neighboring vowels and that this lateral relation is regressive: the rightmost vowel performs an action on the preceding one. The formulation of Lower, whether linear or auto-segmental, never utilizes any arrow such as in (6).

Also, the irrelevance of syllable structure is only indirectly associated with Lower: the insertionists mentioned in note 6 typically use syllable structure as the epenthesis-triggering environment. Lower, then,

---

[10] The reformulation of Havlík's Law describes the Czech state of affairs, i.e., the language on which the Law was originally formulated. In other Slavic languages epenthesis has been less regular, and hence the reformulation may not apply. This is the case in Polish: Pol Nsg *siostra* ~ Gpl *sióstr* (cf. Cz *sestra* ~ *sestetr*), Pol *baśń* (cf Cz *báseň*), etc.

is opposed to this approach as a solution that relies on deletion rather than insertion. Therefore, the debate regarding syllabic vs. lateral conditioning is made a secondary issue that usually goes unnoticed. I believe on the contrary that it is central to the understanding of vowel-zero alternations.

Saussure's (1915:23) "le point de vue crée l'objet" may thus be an accurate description of the situation at hand: the lateral and regressive identity of the object Lower was not perceived by those linguists who created it because it had no function in their world-view of phonology. By contrast, it springs to the eye of somebody who looks at Lower through glasses that are biased by Government Phonology and a lateral world-view.

5 Conclusion: Two Traditions, Two Empirical Fields: One Solution

The synchronic analysis of Slavic vowel-zero alternations, developed prior to Government Phonology and for entirely independent reasons relies on the existence of abstract vowels, the yers. One goal of this article has been to show that yers have exactly the same distribution as empty nuclei in Standard Government Phonology. They occur (1) in locations where a vowel alternates with zero and (2) after word-final consonants.

Since "empty nucleus" is a rather good match for "abstract vowel" in an autosegmental environment, it may be hoped that empty nuclei will be less considered as exotic objects on the phonological scene.

Government Phonology gives regular syllabic status to abstract vowels. This lays the grounds for understanding the Slavic pattern not as a specific event of a particular language family but rather as one possible implementation of a more general principle that governs vowel-zero alternations in many genetically unrelated languages. That is, empty nuclei, but not yers, can exist in languages whose ancestor is not Common Slavic. Space restrictions preclude the discussion of non-Slavic vowel-zero alternations that follow the Havlík pattern and of other vocalic and consonantal alternations which are governed by the Lower pattern (some examples are briefly mentioned in section 1, further detail appears in Scheer 2001, 2004:§§497, 521).

The second genuine property of Government Phonology, regressive lateral relations such as Government, is also consubstantial with Lower, even though this fact has not been spotlighted in the literature: having no function in the classical generative analysis.

Two central devices of Government Phonology, empty nuclei and regressive intervocalic relations[11], have thus been used for over thirty years in order to analyze Slavic vowel-zero alterations. Government Phonology and its tools were developed completely without any Slavic evidence or influence. Although Slavic facts and the Lower analysis provide striking support, they are completely absent from the basic Government literature.

On the other hand, analysts of Slavic have been using abstract vowels and regressive intervocalic relations without being aware that these notions are practised in Government Phonology under a different name and enjoy a stable cross-linguistic status. Significantly, work in all fields mentioned—Slavic vowel-zero alternations, the French facts that could not be discussed here, and Government Phonology—was perfectly contemporary: Gussmann (1980), Rubach (1984), Anderson (1982), Spencer (1986), Kaye et al. (1985,1990), Kaye (1990). Can a result that has been achieved several times independently, on different empirical grounds by different people working on different languages with different theoretical assumptions and without awareness of the sister development be wrong?

References

(Those followed by WEB can be downloaded at www.unice.fr/dsl/tobias.htm.)

Anderson, Stephen. 1982. The analysis of French shwa: Or, how to get something for nothing. *Language* 58: 534-573.

Bethin, Christina. 1998. *Slavic Prosody: Language change and phonological theory*. Cambridge: Cambridge University Press.

Gebauer, Jan. 1894-1898. *Historická mluvnice jazyka českého*. 3 vols. Prague.

Gussmann, Edmund. 1980. *Studies in Abstract Phonology*. Cambridge MA: MIT Press.

Havlík, Antonín. 1889. K otázce jerové v staré češtině. *Listy Filologické* 16: 45-51, 106-116, 248-258, 342-353, 436-445.

Havránek, Bohuslav, and Alois Jedlička. 1988. *Česká mluvnice*. Prague: SPN.

Holub, Josef, and Stanislav Lyer. 1978. *Stručný etymologický slovník jazyka českého*. Praha: Státní Pedagogické Nakladatelství.

Isačenko, Alexander. 1970. East Slavic Morphophonemics and the treatment of the jers in Russian: A revision of Havlík's Law. *International Journal of Slavic Linguistics and Poetics* 13: 73-124.

Kaye, Jonathan. 1990. 'Coda' licensing. *Phonology* 7: 301-330. WEB.

Kaye, Jonathan, Jean Lowenstamm, and Jean-Roger Vergnaud. 1985. The internal structure of phonological representations: a theory of Charm and Government. *Phonology* 2: 305-328. WEB.

[11] Rowicka (1999) operates with progressive lateral relations.

Kaye, Jonathan, Jean Lowenstamm, and Jean-Roger Vergnaud. 1990. Constituent structure and government in phonology. *Phonology* 7: 193-231. WEB.

Kenstowicz, Michael, and Jerzy Rubach. 1987. The Phonology of Syllabic Nuclei in Slovak. *Language* 63: 463-497.

Komárek, Miroslav. 1962. *Historická mluvnice česká, vol. I: Hláskosloví*. Prague: SPN.

Lamprecht, Arnošt. 1968. *Vývoj fonologického systému českého jazyka*. Brno: Univerzita Purkyně.

Lamprecht, Arnošt. 1987. *Praslovanština*. Brno: Univerzita Purkyně.

Laskowski, Roman. 1975. *Studia nad morfonologią współczesnego języka polskiego*. Wrocław: Wydawnictwo PAN.

Lightner, Theodore. 1965. Segmental phonology of Contemporary Standard Russian. Ph.D. dissertation, MIT.

Lowenstamm, Jean. 1996. CV as the only syllable type. In *Current trends in Phonology: Models and Methods*, ed. Jacques Durand and Bernard Laks, 419-441. Salford, Manchester: ESRI. WEB.

Machek, Václav. 1957. *Etymologický slovník jazyka českého a slovenského*. Prague: ČAV.

Panzer, Baldur. 1991. *Die slavischen Sprachen in Gegenwart und Geschichte: Sprachstrukturen und Verwandtschaft*. Frankfurt am Main : Lang.

Rowicka, Grażyna. 1999. On Ghost vowels: A Strict CV Approach. Ph.D. dissertation, Leiden University.

Rubach, Jerzy. 1984. *Cyclic and Lexical Phonology: The Structure of Polish*. Dordrecht: Foris.

Rubach, Jerzy. 1986. Abstract vowels in three dimensional phonology: The yers. *The Linguistic Review* 5: 247-280.

Rubach, Jerzy. 1993. *The Lexical Phonology of Slovak*. Oxford: Clarendon.

Saussure, Ferdinand de 1915. *Cours de linguistique générale*. Paris: Payot, 1972.

Scheer, Tobias. 1996. Une théorie de l'interaction directe entre consonnes. Ph.D. dissertation, Université Paris 7. WEB.

Scheer, Tobias. 1999. A theory of consonantal interaction. *Folia Linguistica* 32: 201-237. WEB.

Scheer, Tobias. 2001. A propos de la vie des yers en slave et en français. *Travaux du Cercle de Linguistique de Nice* 20: 143-230. WEB (also English version).

Scheer, Tobias. 2004. *A Lateral Theory of Phonology, vol.1: What is CVCV, and why should it be?* Berlin: Mouton de Gruyter.

Spencer, Andrew. 1986. A non-linear analysis of vowel-zero alternations in Polish. *Journal of Linguistics* 22: 249-280.

Szpyra, Jolanta. 1992. Ghost segments in nonlinear phonology: Polish yers. *Language* 68: 277-312.

Trávníček, František. 1935. *Historická mluvnice československá*. Prague: Melantrich.

Trávníček, František. 1948-49. *Mluvnice spisovné češtiny*. Praha: Melantrich.

Worth, Dean. 1978. Jer loss and vowel/zero alternations in CSR. *Folia Slavica* 2: 360-365.

FASL 13, 312–323
Michigan Slavic Publications
2005

Cross-Linguistic Variation in Gender Use in Sentence Processing: Dutch versus Russian

Irina A. Sekerina
College of Staten Island and
The Graduate School and University Center
City University of New York

Yana Pugach
The Graduate School and University Center
City University of New York

1 Processing of grammatical gender in Dutch

Morphosyntactic features such as gender, case, and number play a key role in the construction and manipulation of syntactic structures in different theories of syntax. Theories of sentence processing also make extensive use of such features. Grammatical gender in particular has generated a substantial number of experimental studies because of important typological differences between gender systems in different languages (Comrie 1999) and recent interest in experimental cross-linguistic comparisons. These empirical studies encompass both language production and comprehension and represent different methodological approaches.

The central question here concerns the relative timing and strength of grammatical gender information in determining parsing preferences. Research on the role of grammatical gender in language comprehension has focused on two main topics: gender priming in word recognition (Friederici and Jacobsen 1999) and gender agreement (Akhutina, Kurgansky, Polinsky, and Bates, 1999; Brysbaert and Mitchell, 1996; van Berkum, Brown, and Hagoort, 1999). As for the latter, of interest is gender's role as a device that establishes global coherence in parsing. For a sentence to make sense, an earlier noun in a particular gender requires a later word, e.g., a relative pronoun, to agree with that noun in gender.

Such basic gender agreement presumably does not cause any processing difficulty in comprehension. So in order to investigate grammatical-gender agreement and its role in sentence processing, empirical studies in sentence processing rely on structurally ambiguous constructions in which gender information may be used by the parser to

guess which of the several possible analyses is the one intended. In a series of articles van Berkum and colleagues (Brown, van Berkum, and Hagoort 2000; van Berkum, Brown, and Hagoort 1999) have investigated the role of gender agreement in ambiguous Dutch sentences. Van Berkum et al. (1999) recorded the event-related brain potentials (ERPs) of the Dutch participants while they read sentences like (1):

(1) David vertelde de vrouw$_{COM}$ dat$_{COMP/NEUT}$ ...
David told the woman that
'David told the woman that ...'

In Dutch the form of the relative pronoun for a neuter-gender noun *dat* is also the form of the generic complementizer. This lexical ambiguity gives rise to the complement/relative-clause ambiguity in (2). Thus, this sentence fragment is structurally ambiguous: the following embedded clause could be interpreted either as a complement clause (e.g., 'David told the woman (about some things)') or conceivably as a relative clause modifying *de vrouw* although strictly speaking it violates the rules of grammatical gender agreement (which require a relative pronoun *die*, not *dat*). When presented with a preceding context where two females are mentioned, the participants' ERPs exhibited P600, or the syntactic positive shift, on the pronoun *dat* but not on the subsequent word *er* 'there'. This finding was interpreted as evidence that the parser momentarily considered the relative-clause interpretation despite the fact that the grammatical gender of the pronoun did not match the gender of the noun. However, this effect was very short-lived, about 500 milliseconds in duration, because the ungrammatical relative clause interpretation was abandoned with *er*. Van Berkum et al. (1999: 475–476) concluded from these results: "[G]rammatical gender, although not used to immediately block the ill-formed analysis, *was* used by the parser rapidly enough to dispose of it within only a few hundred milliseconds, at least for the syntactic structures under consideration."

The relatively rapid effects of grammatical gender found by van Berkum et al. (1999) were challenged by Brysbaert and Mitchell (1996, 2000). The latter researchers claimed that the syntactic parser in Dutch does not use the grammatical gender information during the initial stage of processing a sentence. They cited the results of their earlier experiments with eye movement recording and self-paced reading (Brysbaert and Mitchell 1996) and added findings from a new questionnaire study. The construction they studied was, however, quite different from the one used by van Berkum and colleagues—a complex NP like *de zoon van de actrice* 'the son of the actress' modified by a relative clause (RC) (2).

(2) a. Iemand schoot op de zoon van de actrice die op de bank zat.
Someone shot the son_{COM} of the $actress_{COM}$ $that_{COM}$ sat on the bench

b. Iemand schoot op het zoontje van de actrice dat op de bank zat.
Someone shot the little son_{NEU} of the $actress_{COM}$ $that_{NEU}$ sat on the bench

c. Iemand schoot op het zoontje van de actrice die op de bank zat.
Someone shot the little son_{NEU} of the $actress_{COM}$ $that_{COM}$ sat on the bench

A comprehension question followed: *Wie zat op de bank?* 'Who was sitting on the bench?' Examples (2b-c) are unambiguous. The use of the neuter relative pronoun *dat* in the former indicates that the RC should be attached to NP1 *het zoontje* 'the little son_{NEU}' while in the latter, *die* forces the attachment to NP2. In contrast, in the ambiguous example (2a), the RC headed by the pronoun *die* in the common gender can modify either NP1, resulting in high attachment (the son was on the bench) or NP2, with low attachment (the actress was on the bench).

One of the universal principles of the Garden-Path theory of sentence processing (Frazier and Fodor 1978), the Late Closure (LC) principle, predicts that low attachment should be preferred in the ambiguous example (2a). However, Brysbaert and Mitchell's (1996) eye-tracking and self-paced reading experiments demonstrated that contrary to the claims of universal preference for low attachment of relative clauses, Dutch participants preferred to attach the relative clause high (i.e., to modify NP1 *de zoon* 'the son' in the ambiguous (2a)). The same preference was found in (2b) as well, which was compatible with gender agreement between the NP1 *het zoontje* 'the little son_{NEU}' and the relative pronoun *dat* '$that_{NEU}$'. And even in the unambiguous example (2c), the same high-attachment preference prevailed: the participants slowed down on the relative pronoun *die* '$that_{COM}$', indicating that they tried to attach the RC high in violation of grammatical gender agreement between *het zoontje* 'the little son' and *die* 'that'. Brysbaert and Mitchell concluded that the syntactic parser in Dutch ignores the grammatical gender information during at least the initial stage of processing a sentence.

This controversial claim, however, could be taken as evidence that Dutch participants in the self-paced reading and eye-tracking experiments did not effectively use the disambiguating gender information only during the initial stage of processing. Gender could still be an important parsing constraint, but one that is used later, during the checking or reanalysis stage of processing a sentence. To test this hypothesis, Brysbaert and Mitchell (2000) conducted a simple off-line questionnaire in Dutch. They presented one hundred native Dutch speakers with a printed list of 24 unambiguous sentences like (2b-c),

followed by a comprehension question. If the participants employ the gender information during the checking stage of processing, they should choose NP1 'the little son' in (2b) as the correct answer for the comprehension question 'Who was sitting on the bench?' In (2c) the correct answer should be NP2 'the actress'. The participants gave syntactically correct answers only in 88% of the sentences with high attachment and, even worse, in 68% of the sentences with low attachment, a surprising result considering that the gender information on the relative pronoun clearly indicated the attachment site for the RC. The surprisingly large amount of errors in this experiment (21%) forced Brysbaert and Mitchell to conclude that gender information in the Dutch constructions with relative clause attachment ambiguity is not used even during the late checking stage of processing. The final conclusion that was drawn based on the results of all the experiments conducted by Brysbaert and Mitchell was: "There is little reason to suspect that this kind of information [i.e., gender] plays a full role in sentence interpretation at any point in the process" (p. 462).

In Section 2, we undertake to challenge this conclusion. We investigate Russian relative clause constructions in order to compare the effects of grammatical gender agreement in Dutch and Russian. We report the results of a Russian questionnaire study of the effects of gender disambiguation in ambiguous RC constructions. We show that in contrast to Dutch, grammatical gender in Russian is used quite effectively, at least during the late checking stage of processing. Finally, in Sections 3 and 4, we compare the Dutch and Russian results, propose some reasons for the difference between them, and present some suggestions for future studies.

2 Processing of Grammatical Gender in Russian

Russian has a three-gender system (feminine, masculine, and neuter), unlike Dutch. However, since it was difficult to design plausible ambiguous materials with neuter nouns that account only for approximately 15% of all nouns (Akhutina et al. 1999), only masculine and feminine nouns were used in the Russian experiment described below.

2.1 Participants

Thirty-six participants, undergraduate students at St. Petersburg University, 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 three dollars for their participation.

2.2 Design and Materials

The questionnaire booklets each contained 53 items: 2 practice, 35 filler, and 16 experimental. Each item in the questionnaire consisted of a complete sentence, followed by a comprehension question and a blank space for participants to write down their answer. All experimental sentences and half of the fillers contained a complex NP modified by a relative clause, like the examples in (3).

Experimental sentences were disambiguated by gender agreement between one of the nouns in the complex NP and the relative pronoun, forcing the RC to attach grammatically either high or low. The complex NP itself was always the direct object of a transitive verb in the accusative case (so we can omit the case specifications on the glosses in the examples). Seven of the complex NPs were inanimate and nine were animate, with NP1 and NP2 always different in gender.

The target materials manipulated two factors, both in a within-items design: Gender of NP1 (masculine versus feminine) and Attachment forced by gender agreement between the relative pronoun and one of the nouns (high versus low); a complete quadruple is provided in (3a-d). The length of the relative clauses was held constant, since it is a factor that is known to affect attachment preferences (for Bulgarian, see Sekerina, Fernández, and Petrova, in press). RCs consisted of the relative pronoun *kotoraja/kotoruju*$_{\text{FEM.NOM/ACC}}$ 'that' or *kotoryj/kotorogo*$_{\text{MASC.NOM/ACC}}$ 'that' and a four-to-six word predicate (a verb with a null subject and with an argument or adjunct), e.g., *kotoraja odevalas' pered vyxodom na ulicu* 'who was getting dressed before going out'. All the verbs in the relative clauses were in the past tense and thus were overtly marked for gender, e.g., *odevalas'*$_{\text{FEM}}$ versus *odevalsja* $_{\text{MASC}}$. All the sentences had the canonical SVO word order.

(3) a. Fotograf uvidel trenera gimnastki, kotoryj odevalsja
photographer saw coach$_{\text{MASC}}$ gymnast$_{\text{FEM}}$ who$_{\text{MASC}}$ got dressed$_{\text{MASC}}$
pered vyxodom na ulicu.
before going out
'The photographer saw the coach of the gymnast who was getting dressed before going out.'
[The male coach was getting dressed]

b. Fotograf uvidel trenera gimnastki, kotoraja odevalas'
Photographer saw coach$_{\text{MASC}}$ gymnast$_{\text{FEM}}$ who$_{\text{FEM}}$ got dressed $_{\text{FEM}}$
pered vyxodom na ulicu.
before going out
[The female gymnast was getting dressed]

c. Fotograf uvidel ženu gimnasta, kotoraja odevalas' pered
Photographer saw $wife_{FEM}$ $gymnast_{MASC}$ who_{FEM} got $dressed_{FEM}$ before
vyxodom na ulicu.
going out
[The wife was getting dressed]

d. Fotograf uvidel ženu gimnasta, kotoryj odevalsja pered
photographer saw $wife_{FEM}$ $gymnast_{MASC}$ who_{MASC} got $dressed_{MASC}$ before
vyxodom na ulicu.
going out
[The male gymnast was getting dressed]

e. Kto odevalsja?
'Who was getting dressed?' [blank space for answer]

To make clear how gender was distributed throughout the experimental quadruple, Table 1 illustrates a schematic representation of gender assignment for all lexical items in a sentence that were morphologically marked for gender.

Table 1. Schematic representation of gender distribution in the Russian questionnaire.

	NP1	NP2	RelPro	Verb	Attachment
a.	MASC	FEM	MASC	MASC	high
b.	MASC	FEM	FEM	FEM	low
c.	FEM	MASC	FEM	FEM	high
d.	FEM	MASC	MASC	MASC	low

The question used to probe attachment preference in targets is illustrated in (3e). Binary-choice questions also followed fillers, but unlike the targets they were disambiguated by means other than grammatical gender agreement.

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.

2.3 Procedure

Each of the four lists was presented to a different group of participants in a booklet form. Participants were instructed to read each sentence-and-question pair and to indicate their response by writing an answer for each item. Completion of the questionnaire typically took 20 minutes. The responses were screened to make sure that no questions were left unanswered. Four participants who left more than 25% of the

experimental items unanswered were rejected. The remaining 32 participants were accurate in responding to filler item questions (94%) with only 3% errors and 3% missing data that were excluded from the analysis.

Participant- and item-based means of percent of syntactically correct attachment were used in the analyses of variance, which included the variables of Gender of NP1/NP2 (masculine versus feminine) and Attachment by gender agreement (high versus low).

2.4 Results

Table 2 reports mean percent syntactically correct attachment for the RCs disambiguated by grammatical gender agreement between one of the NPs and the relative pronoun.

Table 2. Mean syntactically correct attachment (%) of the relative clause as a factor of grammatical gender agreement.

	Pronoun agrees in gender with NP1: High attachment	Pronoun agrees in gender with NP2: Low attachment
NP1-MASC	96.9	93.8
NP1-FEM	96.9	86.7

The data show a significant main effect of Attachment by agreement, with participants providing correct answers more frequently when the relative pronoun agreed in gender with NP1 (96.9%) than when it agreed with NP2 (90.2%), $F1(1,28) = 10.94$, $p<0.01$, $F2(1,12) = 7.71$, $p<0.05$. This replicates the overall NP1 advantage (88% vs. 68% correct) reported by Brysbaert and Mitchell (2000) for Dutch. This effect has been explained by the bias of the syntactic parser in Dutch and in Russian (Sekerina 2003) to attach relative clauses high in the globally ambiguous construction when both NPs are of the same gender.

The data also demonstrate a significant main effect (in the participant-based analysis only) of the Gender of NP1 manipulation, where participants were more correct when NP1 was masculine (95.3%) than feminine (91.2%), $F1(1,28) = 6.37$, $p<0.05$, $F2(1,12) = 1.13$, $p = 0.309$. Participants found it easier to track the gender agreement between the noun and the relative pronoun when the former was masculine. This effect most likely reflects the fact that masculine gender in Russian is the default grammatical gender used in contexts when gender specification is not required, e.g., in general comprehension questions of the type *Kto odevalsja?* 'Who was getting dressed$_{MASC}$' used in the present experiment. There was no interaction between the two main effects

($F1(1,28) = 2.11$, $p<0.158$, $F2(1,12) = 1.10$, $p = 0.314$) suggesting that they operate independently of each other.

Overall, the Russian speakers exhibited high accuracy in processing grammatical gender agreement, choosing the syntactically correct attachment on average 93.6% of the time. This finding is in stark contrast to the 79% correct performance of the Dutch participants reported by Brysbaert and Mitchell (2000).

3 General Discussion

We are left with the puzzle of why gender information appears to be a much stronger parsing constraint in Russian than in Dutch. Based on the eye-tracking and self-paced reading experiments, Brysbaert and Mitchell (1996, 2000) first rejected the strong hypothesis that gender exerts its influence at the initial stages of on-line processing in Dutch. The error rate in the traditional paper-and-pencil questionnaire forced them to reject a weaker hypothesis as well, concluding that gender information apparently is not used even at the later checking stage in processing of Dutch. They, however, did not offer an explanation why gender information is ignored in Dutch. Since we have not conducted a formal investigation of Dutch ourselves, we can only speculate here on what makes gender such an unimportant source of information.

We suggest that it has to do with the current status of gender agreement usage in modern Dutch. Marcel den Dikken (p. c.) claims that in modern colloquial Dutch gender is rarely used on relative pronouns in relative clauses. The forms of the relative pronoun that are used nowadays are *die* when the modified NP is animate and *wat* (the non-standard *wh*-form) when it is inanimate. So the target construction (2b) and (2c) would sound identical in colloquial spoken Dutch, as in (4):

(4)	Het	zoontje	van	de	actrice	die
	the	little son_{NEU}	of	the	$actress_{COM}$	$who_{COM/NEU}$

This is especially true for young speakers of Dutch, the participants in Brysbaert and Mitchell's experiments. Recall from the examples in (2) that they used the two standard forms of the relative pronouns *die* and *dat,* whose proper usage is taught in school as a rule of the Dutch prescriptive grammar. If this standard system of relative pronoun distribution in Dutch is unstable in the modern colloquial register of the language, then the high error rate for the syntactically correct attachment of relative clauses found by Brysbaert and Mitchell has nothing to do with the status of gender information in processing. It reflects instead a change in grammatical norms and thus undermines the validity of claims about the adequacy of the use of gender information in Dutch.

Our experiment in Russian suggests that gender is an effective means for disambiguating RC attachments as revealed by the overall high accuracy rates. Its effectiveness can be accounted for from the point of view of grammar, usage, language acquisition, and sentence processing. The Russian grammatical gender system in general and with respect to agreement between antecedent and relative pronoun is certainly very robust, particularly compared to the relatively impoverished system in Dutch. Modern Russian has lost the archaic form *čto* $_{\text{MASC/FEM/NEU}}$ 'that' as a possible alternative to the inflected relative pronoun *koto-ryj*$_{\text{MASC/FEM/NEU}}$ 'that/who'. An example like (5), parallel to (3a) but with *čto* as the relativizer, sounds very odd:

(5) Fotograf uvidel ženu gimnasta, čto odevalsja.
photographer saw wife$_{\text{FEM}}$ gymnast$_{\text{MASC}}$ that was getting dressed$_{\text{MASC}}$
'The photographer saw the wife of the gymnast that was getting dressed.'

This is in contrast to South Slavic languages like Croatian and Serbian, where the two forms of the relative pronoun, the inflected and uninflected, still coexist (Lovrić 2003, Stojanović 1999).

Another important aspect of Russian morphology strikingly different from Dutch is the fact that gender can only sometimes be predicted by the shape of the noun in the nominative case: Masculine nouns are marked by a zero morpheme and therefore end in a consonant. Most feminine nouns end in *-a* or *-ja*. However, there is a subset of feminine and masculine nouns that end in a palatalized consonant (e.g., *myš'* 'mouse$_{\text{FEM}}$' and *korabl'* 'ship$_{\text{MASC}}$'), in which the mapping of morphophonological form onto gender is ambiguous. Several cross-linguistic studies have demonstrated that if there is ambiguity in the mapping of nouns to gender classes it takes longer to learn and process noun gender. (Taraban and Kempe 1999). In addition, Russian nouns do not change their grammatical gender as a result of diminutivization. Thus, the noun *syn* 'son$_{\text{MASC}}$' will remain masculine even if the diminutive suffix *-iška* is added, thus *syniška* 'little son'. In contrast, Dutch nouns routinely change from common gender to neuter when they undergo the process of diminutivization, e.g., *die zoon* 'the son $_{\text{COM}}$' becomes *het zoontje* 'the little son $_{\text{NEU}}$'.

We also need to point out one important difference in how gender is encoded in the sentences in Brysbaert and Mitchell's Dutch and our Russian materials. In Dutch it is the definite article of the modified NP that carries the gender marker *het zoontje /die actrice* 'the little son$_{\text{NEU}}$ /the actress$_{\text{COM}}$', and then the relative pronoun assumes one of the two gender-marked forms, *dat* 'that $_{\text{NEU}}$' or *die* 'that $_{\text{COM}}$'. Note that there is lexical ambiguity between one of the two forms of the gender-marked articles and the relative pronouns. It is possible, then, that the Dutch

participants might just have overlooked short closed-class items like *de, het*, and *die, dat* in reading, a phenomenon well known in cognitive psychology (Brysbaert and Vitu 1998). In the Russian sentences, gender manipulation within the experimental quadruple was achieved either through derivational morphology or, when this was not possible, through changing the actual lexical items. Derivational morphology allows for creating pairs of words that designate humans of different gender, e.g., *gymnast* 'male gymnast' and *gimnastka* 'female gymnast'. Gender information then is encoded on the noun either as a morphological ending (syncretically together with case and number), e.g., *gymnast-a*$_{\text{MASC.ACC.SG}}$ 'gymnast', or as a combination of a morphological ending and a derivational suffix *-k-*, e.g., *gymnast-k-i* 'gymnast-suffix$_{\text{FEM.GEN.SG}}$'. Different lexical items were used when derivational morphology was of no help as in cases of biologically imposed gender, e.g., *dočka* 'daughter' vs. *otec* 'father' and with inanimate nouns, e.g., *kryška* 'lid$_{\text{FEM}}$' vs. *čajnik* 'tea kettle$_{\text{MASC}}$'. The morphological ending was the only means of encoding gender information on the relative pronoun, e.g., *kotoryj*$_{\text{MASC}}$ and *kotoraja* $_{\text{FEM}}$.

Finally, the potentially most important factor that could have resulted in the enhanced gender information influence in the Russian experiment is encoding of gender on the past tense of the verb in the relative clause, e.g., *odeval-a-s'* 'was getting dressed $_{\text{FEM}}$' vs. *odeval-sja* 'was getting dressed $_{\text{MASC}}$'. Thus it is to be expected that this prominent presence of gender agreement information in more than one place combined with overt and unambiguous morphological markers is treated by Russian participants as a strong and visible parsing cue.

4 Conclusions and future studies

The goal of the present Russian study was to examine the weaker version of Brysbaert and Mitchell's hypothesis that Dutch speakers often ignore the gender information of a relative pronoun, even during the late, checking stage of sentence analysis. Our Russian results demonstrate that it cannot be extended to Russian sentence processing, because in our off-line task the Russian readers successfully employed gender information on the relative pronoun in disambiguating RC attachment.

These results, however, are just a beginning; they pose several new research questions about the role and time course of effects of grammatical gender agreement in Russian sentence processing. The first question concerns the contribution of different gender-related factors in a sentence as to which ones potentially alter the intrinsic bias for high RC attachment in Russian. These factors include a contrast between nouns with lexically specified and derivational gender, animate and inanimate nouns, and the absence/presence of gender on the verb. Once such

factors are established in future off-line questionnaire studies, it will become possible to move on to the second research question: Is grammatical gender utilized during the initial stage of Russian processing? That is, are Russian speakers able to take advantage of gender information as soon as it becomes available? In order to answer this question, we will need to conduct on-line experiments that utilize such experimental methods such as self-paced reading or eye-tracking. This is an agenda for our future studies.

References

Akhutina, Tatiana, Andrei Kurgansky, Maria Polinsky, and Elizabeth Bates. 1999. Processing of gender in a three-gender system: Experimental evidence from Russian. *Journal of Psycholinguistic Research* 28(6): 695-713.

Brown, Colin M., Jos J. A. van Berkum, and Peter Hagoort. 2000. An event-related brain potential study on the interplay of semantic and syntactic information during spoken language comprehension. *Journal of Psycholinguistic Research* 29(1): 53-68.

Brysbaert, Marc, and Don C. Mitchell. 1996. Modifier attachment in sentence parsing: Evidence from Dutch. *Quarterly Journal of Experimental Psychology* 49A(3): 664-695.

Brysbaert, Marc, and Don C. Mitchell. 2000. The failure to use gender information in parsing: A comment on van Berkum, Brown, and Hagoort (1999). *Journal of Psycholinguistic Research* 29(5): 453-466.

Brysbaert, Marc, and FrançoiseVitu. 1998. Word skipping: Implications for theories of eye movement control in reading. In *Eye guidance in reading and scene perception, ed.* Geoffrey Underwood, 125-147. Oxford: Elsevier Science Ltd.

Comrie, Bernard. 1999. Grammatical gender systems: A linguist's assessment. *Journal of Psycholinguistic Research.* Special Issue: Processing of Grammatical Gender, part I, 28(5): 457-466.

Frazier, Lyn, and Janet D. Fodor. 1978. The sausage machine: A new two-stage parsing model. *Cognition* 6: 291-325

Friederici, Angela D., and Thomas. Jacobsen. 1999. Processing grammatical gender during language comprehension. *Journal of Psycholinguistic Research.* Special Issue: Processing of Grammatical Gender, part I, 28(5): 467-484.

Lovrić, Nenad. 2003. Implicit prosody in silent reading: Relative clause attachment in Croatian. Ph.D. dissertation, CUNY.

Mitchell, Don C., Marc Brysbaert, and Stefan Grondelaers. 2000. Modifier attachment in Dutch: Testing aspects of construal theory. In *Reading as a Perceptual Process, ed.* Alan Kennedy and Ralph Radach, 493-516. Amsterdam: North-Holland/Elsevier Science Publishers.

Sekerina, Irina A. 2003. The Late Closure Principle vs. the Balance Principle: Evidence from on-line processing of ambiguous Russian sentences. In *Current Approaches to Formal Slavic Linguistics: Contributions of the 2nd European Conference on*

Formal Description of Slavic Languages FDSL II. Potsdam Meeting 1997, ed. Peter Costa and Jens Frasek. 205-217. Germany: Peter Lang.

Sekerina, Irina A., Eva Fernández, and Krassimira A Petrova. 2005. Relative clause attachment in Bulgarian. In *Proceedings of the 12th Annual Workshop on Formal Approaches to Slavic Linguistics. The Ottawa Meeting 2003*, ed. Olga Arnaudova and Danijela Stojanović. Ann Arbor: Michigan Slavic Publishers.

Stojanović, Danijela. 1999. Parsing and acquisition: Evidence from Serbo-Croatian. Ph.D. dissertation, University of Ottawa.

Taraban, Roman, and Vera, Kempe. 1999. Gender processing in native and non-native Russian speakers. *Applied Psycholinguistics* 20: 119-148.

van Berkum, Jos J.A., Colin M. Brown and Peter Hagoort. 1999. When does gender constrain parsing? Evidence from ERPs. *Journal of Psycholinguistic Research* 28(5): 555-571.

sekerina@postbox.csi.cuny.edu
ypugach@gc.cuny.edu

FASL 13, 324–341
Michigan Slavic Publications
2005

Perfective Prefixes: What They Are, What Flavors They Come in, and How They Are Acquired

Roumyana Slabakova
University of Iowa

In this paper I will address the following questions: Do perfective prefixes express lexical or grammatical aspect? Are they a homogeneous group, and if not what are their types? How can they be analyzed in terms of phrase structure? I will also very briefly review recent work on how are they represented in the mental lexicon of the speaker, how they are acquired by children learning their first language and adults learning a second language, and what they mark in attrited grammars.

1 Lexical vs. Grammatical Aspect

The term ASPECT refers to the internal temporal structure of events as described by verbs, verbal phrases (VP), and sentences (Comrie 1976, Smith 1991). It is the property that makes it possible for a sentence to denote a complete (terminal) or an incomplete (ongoing) event. Two types of aspectual marking have been identified in natural language. The first type, lexical aspect, also known as situation aspect (Smith 1991), VP aspect or AKTIONSART refers to a semantic property of predicates which depends on the meaning of the verb and properties of its internal argument and adjuncts. That is, an event can have an inherent limit or endpoint, or it has the potential of continuing indefinitely. By definition, an event with an inherent endpoint is called telic (from Greek *telos* 'limit, end, goal'), and an event without an inherent endpoint is called atelic. Together with other semantic features, telicity is the basis for dividing all predicates into Vendler's (1967) four classes: accomplishments (*run a mile, run the marathon, drink up*), achievements (*die, realize, find*), activities (*run, run laps*), and states (*know, believe*). Lexical aspect can be expressed by a variety of means: it can be lexicalized in the verb, and it can also be encoded by derivational morphology or by inflectional markers on the direct object:

(1) telic predicates: eat a piece of cake, drink two beers, find a wallet, realize, sex up a dossier (on WMD in Iraq)
atelic predicates: eat cake, drink beer, think about you, know, believe

Grammatical aspect (also called IP aspect, sentential aspect, or viewpoint aspect) is indicated by perfective and imperfective morphemes. These morphemes reflect "different ways of viewing the internal temporal constituency of a situation" (Comrie 1976:3). The perfective looks at the situation from outside and disregards its internal structure. The imperfective, on the other hand, looks at the situation from inside and is concerned with its internal structure without specifying beginning or end. Thus, by definition the imperfective viewpoint subsumes the habitual and the ongoing viewpoints since both these meanings are unbounded. Grammatical aspect is best exemplified by the aorist, perfect, and imperfect aspectual tenses, as in Romance languages, English, and Bulgarian. It applies to clauses and is most often expressed by inflectional morphology which combines tense and aspectual information. Note that both events in (2) are telic, but they differ in grammatical aspect.

(2) perfective: I ate a piece of cake last night.
imperfective: I was eating a piece of cake when she called.

Lexical and grammatical aspect are orthogonal aspectual categories, but they interact in interesting ways. Dowty's (1979) Imperfective Paradox refers to the effect of the progressive on telic events: the progressive form seemingly "takes away" the built-in endpoint in accomplishment sentences in (2). Such sentences clearly demonstrate the need for two aspectual distinctions, one based on potential endpoints (telicity), the other based on actual endpoints labeled boundedness by Depraetere (1995), following Declerck (1989). A situation is bounded in time if it has reached a temporal boundary, irrespective of whether the situation has an inherent endpoint or not.

2 Slavic Perfective Prefixes (Preverbs)

Slavic verbs exist in simple and derived forms, where the simple form most often denotes an atelic event or state (e.g., *est' tort* 'eat cake', *ljubit'* 'love'), while the perfective form normally denotes telic events (e.g., *s'est' tort* 'eat the cake', *poljubit'* 'fall in love') (Brecht 1984, Paducheva 1990). There are 19 to 21 perfective prefixes in Russian (19 in Bulgarian), each combining idiosyncratic lexical meaning(s) with the basic telicity meaning (exemplified in (3b)). Each verb selects for a number of prefixes, with subsequent changes in lexical meaning (cf. 3c, d, e).

(3) a. pisat' 'write'
b. na-pisat' 'write up'

c. pod-pisat' 'sign'
d. do-pisat' 'write to the end (something that was started)'
e. pere-pisat' 're-write'
f. po-pisat' 'write for a while'

In the above examples, the form in (3a) is the simplex, imperfective form. The addition of the prefix *na-* adds an inherent endpoint to the event of writing and makes the verb perfective. In this example, we can classify *na-* as a purely telic marker, without any additional idiosyncratic meaning, because all it adds to the verbal meaning is a potential endpoint. In (3c, d, e), however, we have prefixes *pod-*, *do-*, and *pere-*, which add lexical meanings of their own to the verbal root meaning, over and above signaling telicity. *Pod-* changes the verbal meaning from 'write' to 'sign', while *do-* adds the meaning of finishing off something that had been begun but interrupted. *Pere-* is akin in function to the English prefix *re-*, as in *re-do, re-read.* In this sense, we can view perfective prefixes as derivational, not inflectional morphemes. As derivational affixes, all carry some grammatical (categorial) meaning, but not all carry additional lexical meaning.[1]

3 Approaches to Perfective Prefixes

The literature on Slavic aspect is divided on the issue of whether Slavic perfective prefixes fall in the domain of grammatical (viewpoint) or lexical (situation) aspect. Most researchers (Comrie 1976, among others) agree that Slavic aspectual prefixes mark specific ways of presenting the situation as a process, a telic event, or a state. But it is also true that the vast majority of research on Slavic aspect does not necessarily refer to the two levels of aspect marking. Thus we can only conjecture on how most researchers would solve the issue of viewpoint versus situation aspect. Among the clear positions that researchers have taken on this issue, we will distinguish the following.

---

[1] An important caveat is in order. Since all Slavic prefixes are polysemantic, we can only speak of particular senses of each prefix. For example, *na-* has a sense in which it is purely telic (i) and at least three more senses in which it is has a telic meaning plus a lexical meaning (ii, iii, iv).

(i) na-pisat' 'write up'
(ii) na-gotovit' 'cook something in big quantitites'
(iii) na-boltat'sja 'chat with someone to one's heart's content'
(iv) na-brosit' 'throw on top of something'

Thus, throughout this paper when I write "purely telic prefix" I actually mean "the purely telic sense of a prefix."

3.1 *Perfective prefixes reflect grammatical aspect distinctions.*
This position can be found in the work of Smith (1991, ch. 10 written with G. Rappaport) and Borik (2002). One argument these resea-rchers advance is that perfective prefixes make visible the initial and/or final endpoints of the event (Smith 1991: 231). Another argument is that not all imperfective verbs are interpreted as atelic (cf. (4) from Borik 2002):

(4) Ja ne pojdu v kafe, ja (uže) ela.
I not $_{PERF}$-go$_{PRES}$ in café, I (already) $_{IMP}$-eat$_{PAST}$
'I am not going to the café, I have already eaten.'

Neither is it the case that all perfective verbs are telic. For example, the perfective prefixes *po-* and *pro-* delimit the interval during which the event was in progress but do not mark a culmination in the event. We see this in another example from Borik 2002:

(5) Petja po-iskal knigu.
Petja $_{PERF}$-search$_{PAST}$ book
'Petja looked for a/the book.'

3.2 *Perfective prefixes are neither grammatical not lexical aspect markers.*
This is the approach adopted in traditional grammars of Slavic and more recently by Filip (2001, 2003), a basically lexical-semantics approach as the following statement suggests: "A prefixed verb in Slavic languages is best seen as a new verb that stands in a derivational relation to its base, rather than being an aspectually different form of the same lexeme." For Filip prefixes are not inflectional morphemes, as markers of both lexical and grammatical aspect are across languages of the world. They can recur on the same stem, as we can see in the Bulgarian *pisa*, *na-pisa*, *po-na-pisa* 'wrote, wrote up, wrote up a significant part of X'. According to Filip,the presence of a prefix in a verb is neither a sufficient nor a necessary formal indicator of the perfective status of a verb. Finally, she submits that there is no single prefix dedicated to the expression of perfective meaning (telicity) which has no other idiosyncratic lexical sense.

All of the arguments for the above two positions are based on undeniable facts. But they strike me as arguments of the following type: "There are some exceptions, hence the rule does not exist." This to my mind is throwing the baby out with the bath water. That is why, following Brecht 1984, Piñon 1995, Filip 1999, and Verkuyl 1999, I would like to argue as follows.

3.3 Perfective prefixes reflect lexical aspect distinctions.
My argument for this position is based on typology. Bulgarian uses both perfective prefixes and aspectual tenses to signal aspect. Telicity is signaled by perfective prefixes; the aorist encodes boundedness while the imperfect encodes unboundedness (this is true also of Proto-Slavic; see Bertinetto (2001)).

(6) (PREFIX + AORIST = *telic, bounded*)
Ivan pro-čete Vâlšebnata planina ot Tomas Man.
Ivan $_{PERF}$-read$_{AOR/3SG.}$ the magic mountain by Thomas Mann
'Ivan read *The Magic Mountain* by Thomas Mann.'

(7) (NO PREFIX + AORIST = *atelic, bounded*)
Ivan čete Vâlšebnata planina ot Tomas Man.
Ivan read$_{AOR/3SG}$ the magic mountain by Thomas Mann
'Ivan read from *The Magic Mountain* by Thomas Mann.'

(8) (PREFIX + IMPERFECT = *telic, unbounded*)
Ivan pro-čita-še Vâlšebnata planina vsjaka godina.
Ivan $_{PFV}$read$_{IMP.3SG}$ the magic mountain every year
'Ivan read *The Magic Mountain* completely every year.'

(9) (NO PREFIX + IMPERFECT = *atelic, unbounded*)
Ivan čete-še Vâlšebnata planina kogato go vidjax.
Ivan read$_{IMP3SG}$ the magic mountain when him (I) saw
'Ivan was reading *The Magic Mountain* when I saw him.'

If Slavic prefixes were markers of grammatical and not lexical aspect, then Bulgarian would have two separate grammatical aspect markers. To have the same (or similar) features of two different overt sets of morphemes checked in the same functional category, say, GrAspP, would be a highly marked choice across languages of the world. It is much more logical to treat prefixes as lexical aspect and aspectual tenses as (im)perfective aspect; then Bulgarian would pattern with Romance and English as regards aspect marking. Furthermore, the Bulgarian telicity and boundedness markers cannot conceivably be checked in the same functional category, as there is a complex interaction between the two. In (8), the presence of the telicity morpheme constrains the interpretation of the unboundedness morpheme to habitual/iterative action only, but the ongoing interpretation as in (9) is crucially lacking. The higher morpheme cannot undo the entailment of the lower morpheme, which suggests hierarchical structure. But at the same time Bulgarian prefixes are historically related to prefixes in the other Slavic languages. To sum up this argument, it is unlikely that prefixes are

lexical aspect markers in some Slavic languages but grammatical aspect markers in others.

3.4 Russian perfective prefixes as a syncretism of both lexical and grammatical aspect.
Finally, before going on to describe the types of prefixes, I must mention a fourth point of view, that of Bertinetto (2001: 206). This author argues that due to the extreme poverty of their inflectional systems, the Slavic languages had to invest lexical oppositions, which lacked overt grammatical aspect, grammatical aspect meanings, giving rise to a syncretic system where lexical and grammatical aspect are intertwined. Unfortunately, Bertinetto does not develop his proposal in much more detail, and it is unclear how to evaluate it compared to other, better articulated approaches.

4 There is System to this Madness: Types of perfective prefixes

As we saw above, perfectivity cannot be strictly equated with telicity. There are prefixless roots that happen to be telic. There are also prefixes that are not real telicity markers. However, as I argue above, to maintain that therefore perfective prefixes are not telicity markers would be to miss an important generalization. Careful examination of prefixes reveals that they are not a homogeneous group (see Babko-Malaya 1999, Di Sciullo and Slabakova 2005, Filip 2001) but can be divided into at least two types, INTERNAL and EXTERNAL. Internal prefixes may change the telicity of the verbal projection they are part of, whereas external prefixes do not have this effect. The external/internal prefix hypothesis accounts for the linear order of prefixes, see (10). This configurational asymmetry makes a number of predictions for Slavic, which we will examine with Bulgarian examples. The arguments should hold, mutatis mutandis, for the rest of the Slavic languages.

(10) [$_V$ External prefixes [$_V$ Internal prefixes V]]

In Bulgarian, the prefixes *pre-* 'repeated action' and *po-* 'briefly' have adverbial properties in (11b) and (12b) in that they provide adverbial-like modification to the eventuality denoted by the root. On the other hand, the prefix *na-* 'on' has prepositional properties.

(11) a. bojadisam 'paint' b. pre-bojadisam 're-paint'

(12) a. četa 'read' b. po-četa 'read for a while'

(13) a. piša 'write' b. na-piša 'write out in full'

I analyze *pre-* and *po-* as external prefixes and *na-* as an internal one. Crucially, I will show that whenever the prefix has an effect on the verb's argument structure and/or lexical semantics, it must be an internal prefix. The configurational difference between prefixes accounts for the linear order of prefixes in Bulgarian. First, as illustrated below, external prefixes must precede internal prefixes:

(14) a. pro-četa 'read in full'
b. pre-pro-četa 'read in full once again'
c. *pro-pre-četa

Second, in denominal and deadjectival verbs an internal prefix must come closer to the root than an external one:

(15) a.	červja	'make red'	ATELIC
b.	na-červja	'redden'	TELIC
c.	*pre-červja		TELIC
d.	pre-na-červja	'redden again'	TELIC
e.	*na-pre-červja		TELIC

Third, external prefixes may be iterated and co-occur, while internal prefixes, since they are in the argument-structure domain of a verbal projection, cannot be iterated and cannot co-occur:

(16) a. pre-pre-iz-bra 're-re-elect'
b. *iz-iz-bra
c. pre-pre-čerta 're-re-draw'
d. *na-na-čerta

Fourth, when more than one prefix occurs in a given stem, it is only one of them that supplies the event endpoint; the others offer additional meanings similar to adverbial manner modification. Take the examples in (17). The prefix *s-* in (17c) supplies the end point, the prefix *po-* in (17b, d) offers an attenuative meaning of doing something for a little while or to a small degree, and the prefix *iz-* encodes distributivity of the event over participants. Both *karax se* and *po-karax se* in (17a, b) are grammatical with a durational adverbial like *for an hour*, while the telic verbs in (17c–e) are not. Note also that the adverbial-like prefix *po-* means 'for a while' when attached to the atelic root, but it changes its meaning to 'a little' when added onto a telic stem.

(17) a.	karax se	'I quarreled'	ATELIC
b.	po-karax se	'I quarreled for a while'	ATELIC
c.	s-karax se	'I quarreled'	TELIC
d.	po-s-karax se	'I quarreled a little'	TELIC

e. iz-po-s-karax se 'I quarreled with everyone' TELIC

Next, internal prefixes are part of the argument-structure domain of a verbal projection and thus may affect the argument structure of the projection they are adjoined to. Some internal prefixes can add a causer to the argument structure of intransitive verbs (18, 19), as well as change the aspectual class of the verbal projection (20). The external iterative prefix does not alter the aspectual class of the verb (21). In (20) the presence of the internal prefix brings out a telic interpretation, even though the direct object is a bare plural noun. In (21) both a telic and an atelic interpretation are available, as the time adverbial tests show. The actual interpretation of the sentence will be based on discourse context or temporal adverbials positioned higher in the structure.

(18) decata se smjaxa na klouna
the children REFL $\text{laugh}_{\text{AOR.3SG}}$ at the clown
'The children laughed at the clown.'

(19) klouna raz-smja decata
the clown $\text{PERF-laugh}_{\text{AOR.3SG}}$ the children
'The clown made the children laugh.'

(20) xudožnikât na-risuva kartini za pet časa / *pet časa
the painter $\text{PERF-paint}_{\text{AOR.3SG}}$ pictures in 5 hours/ *for 5 hours
'The painter painted some pictures in 5 hours/*for 5 hours.'

(21) xudožnikât pre-risuva kartini ?za pet časa / pet časa
the painter $\text{PERF-paint}_{\text{AOR.3SG}}$ pictures in 5 hours/ for 5 hours
'The painter re-painted (some) pictures in 5 hours/for 5 hours.'

Finally, as internal prefixes may change the telicity of the verbal projection they are a part of, they cannot be adjoined to telic predicates, whereas external prefixes are not subject to this restriction, as they do not affect the telicity of the event.

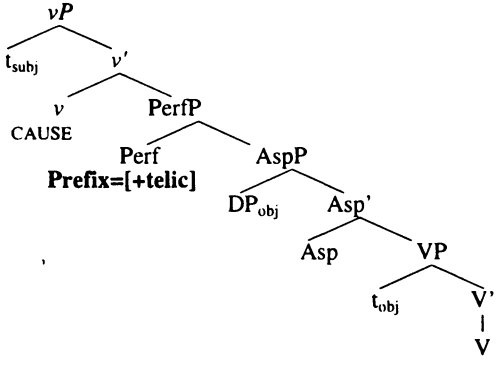
(23) pre-kupja 're-buy'
#na-kupja 'finish buying'

Thus, internal prefixes have an effect both on the lexical aspectual class and on the argument structure of the verbal root they attach to. To summarize this section, we have seen that the majority of verbal prefixes in Bulgarian may affect the internal aspectual properties and in particular the telicity of the verb they are adjoined to. There are a limited number of external prefixes that pattern with adverbial modifiers. I suggest they are the exception rather than the rule of aspect marking in Slavic.

5 Phrase-Structure Representations

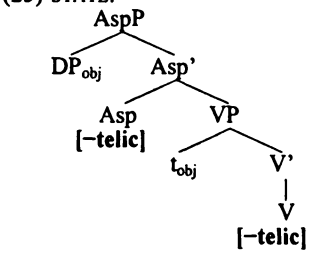
All of the representation in (24) is in l-syntax (lexical syntax) (Hale and Keyser 1993; see also Slabakova 2001a). The double VP (lower VP and upper *vP*) structure reflects the semantic fact that events may be viewed as having at least two subevents (Dowty 1979), a causative subevent and a resultant state. The upper *vP* denotes the causative subevent and the lower VP denotes the resultant state subevent of the eventive classes. This decomposition is captured by postulating a null CAUSE morpheme in the head of *vP*. Event participants (arguments) take part in the aspectual composition through case checking in AspP (accusative case) and TP (nominative case). AspP is an important functional category for aspect construal. The object moves to the Spec of AspP to check accusative case and the verb moves to the head Asp (Borer 1994, van Hout 1998, Schmitt 1996, Travis 1992). It is at this point, in a spec-head relationship with the verb, that the verb imparts its temporal properties to the object DP in English. Depending on a verbal feature (or type of predicate) and on a nominal feature (quantized or not), the aspect of the whole VP is calculated (Verkuyl 1993). Whenever the object is of specified cardinality, the interpretation is that of a telic event. Thus the independently needed mechanism of accusative case checking is also used for aspectual feature checking at the syntax-semantics interface. In Slavic, the telic morpheme is as a rule overt, it is a lexical morpheme, usually a prefix, on the verb. It occupies the head of the functional projection Perfectivity Phrase (PerfP). If a prefix is in the $Perf^0$, a position from which it c-commands the object, the interpretation is telic. If there is no prefix in $Perf^0$, then the interpretation is atelic. Consequently, the cardinality of the object in Slavic does not matter for aspectual interpretation, it is only the presence or absence of a prefix that signals aspectual class.

(24)

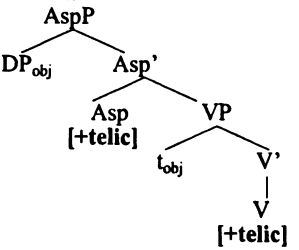


Below are the templates for the four aspectual classes. I believe states and achievement verbs are marked as [−telic] or [+telic] respectively in the lexicon. In this sense, they are atelic and telic roots. When a stative verb takes a prefix, it can only encode inception of the state (e.g., *običam* 'love', *za-običam* 'fall in love', **na-običam* 'finish loving'). Achievements, on the other hand, being telic roots cannot be further telicized. Hence, the addition of perfective prefixes to achievement roots can only change the lexical meaning of the whole with no changes in telicity (e.g., *dam* 'give', *pro-dam* 'sell', *izdam* 'betray', **na-dam* 'finish giving').

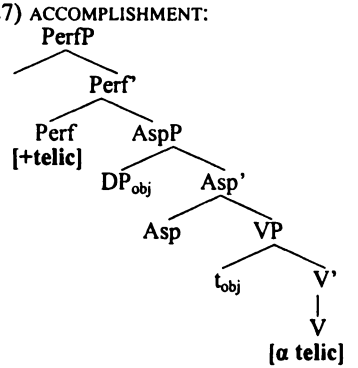
(25) STATE:



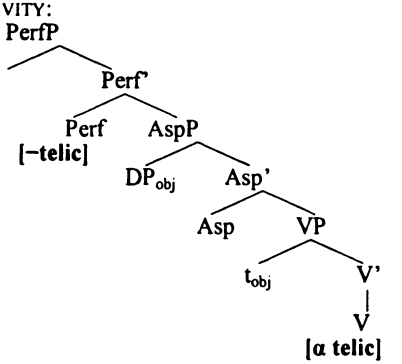
(26) ACHIEVEMENT:



(27) ACCOMPLISHMENT:



(28) ACTIVITY:



The bulk of Slavic roots in the lexicon are neutral with respect to telicity, that is, they are [α telic] roots. Whenever a telicizing derivational morpheme is merged in the template (an internal prefix), the lexical aspect value is calculated as perfective. Whenever there is no telicizing derivational morpheme merged in the template, the lexical aspect value is calculated as imperfective. The external prefixes are adjoined on top of PerfP to obtain the configuration in (10). In the cases where perfective prefixes are stacked, adjunction also seems a plausible analysis. Only the one closest to the root is the telic morpheme, the others provide lexical meanings.

6 The Psycholinguistics of Perfectivity

Slabakova (2001b) addresses the question of whether constraints on aspectual semantics play a role in the lexical processing of Bulgarian speakers. Two universal cognitive constraints were identified: States cannot be delimited and Telic predicates cannot be further telicized. That study investigated how these are obeyed in the productive process of perfective prefix and stem combination in Bulgarian. First, an off-line task ascertained that Bulgarian native speakers have a default semantic interpretation for the prefixes *na-*, *pre-*, and *za-*. These were combined with a nonce root *camarja* as in (29).

(29) Včera Ivan na-camari staja-ta
yesterday Ivan PERF-$\text{VERB}_{3SGPAST}$ room_{DET}
a, Ivan finished verb-ing the room. <== CORRECT
b, Ivan continued verb-ing the room.
c, Ivan began verb-ing the room.
d, Ivan verb-ed the room again.

The prefix interpretation could not have come from the meaning of the root or in combination with the root meaning, since in this case the root had no known meaning for the subjects. Answer (c) was chosen in 80.4% of the times for *za-*; answer (a), or pure telicity, was chosen 86.4% for *na-*; and answer (d) was chosen 70% for *pre-*. The results of this experiment unequivocally confirmedthat default meanings are part of the lexical representation for prefixes.

The second task in the study was a visual lexical decision task. One experimental condition tested whether achievements with purely telic prefixes are an illegal combination while achievements with lexical prefixes are a possible combination. Meanings of prefixes were based on the results of Experiment 1. The first category (n=10) combined existing achievement stems with purely telic *na-*, e.g., *na-umrja* 'NA-die'. In this case the purely telic prefix is trying to telicize an already telic stem, which should be an illegal combination. In the second category achievement stems were combined with *pre-* 'do something again', e.g., *pre-umrja* 'PRE-die'. Since it is possible to repeat an already completed event, these combinations were semantically plausible but unattested. Results show clear legality effects in non-words composed of existing prefixes and stems, thereby supporting decompositional approaches to the mental lexicon. I argued that after the process of morpheme search there must be a process of checking for combinatory felicity of the morphemes activated in the lexical access.

7 Child Language Acquisition

The dominant theory for the acquisition of aspect by children is the Aspect First Hypothesis, which claims that children initially use verbal morphology to mark aspect and not tense (Antinucci and Miller 1976, Bronckart and Sinclair 1973). These claims were primarily based on Germanic and Romance language acquisition. In the area of Slavic studies, Weist and colleagues (Weist et al. 1984, 1991) showed that children acquiring Polish produce appropriate tense morphology quite early (age 1;7) and that past tense appears on atelic lexical classes as well as on telic ones. They argued that what they called the Defective Tense Hypothesis cannot explain Slavic acquisition facts. Other studies that support this are Brun, Avrutin and Babyonyshev 1999, Gagarina 2000, Vinnitskaya and Wexler 2001.

A recent study, Bar-Shalom 2002, confirmed the Weist et al. findings. It was based on the naturalistic production of four monolingual children acquiring Russian, ages 1;6–2;11. The children produced the full range of aspectual lexical classes in all the tenses at the earliest age. In addition, they were found to produce aspectual pairs of perfective and imperfective verbs quite appropriately. Bar-Shalom argues against the Aspect First Hypothesis. I would like here to concentrate on another finding of hers: the lack of production errors. She found almost no errors in the derivational morphology of aspect, but the few that occurred, given in a footnote, are very interesting. Varja at age 2;4 produces *za-lomal* instead of *s-lomal* for 'he broke' and *iz-dali* instead of *ot-dali* for 'they gave back'. Another subject, Andrej, telicizes the verb *umet'* 'be capable of' as *na-umeli* 'they learned how to do something'. If we think back to the psycholinguistic experiment, the children are using legitimate telicizing prefixes in legitimate combinations with roots. In other words, these are not telicity-marking errors but errors in the choice of the appropriate derivational prefix for the particular root.

A mostly different picture emerges when we look at comprehension of aspect (Weist et al. 1991, Vinnitskaya and Wexler 2001, Stoll 1998, Kazanina and Phillips 2003, van Hout 2005). Most of these studies, using different methodologies, show that three-year-old Russian learners know the aspectual semantics of morphologically perfective transitive verbs. However, they have problems comprehending imperfective aspect. The imperfective has an ongoing and an incomplete interpretation, as well as a habitual one. Children consistently associate perfective aspect with completion (Stoll 1998, Vinnitskaya and Wexler 2001, Weist et al. 1991). They relate imperfective aspect to ongoing situations (Weist et al., Vinnitskaya and Wexler) as well as completed ones (Kazanina and Philips 2003 in comprehension, Vinnitskaya and Wexler 2001 in production). This follows adult behavior. However, children never seem

to associate imperfective with incomplete situations whereas adults do. The conclusion that emerges at this point is that children have acquired the aspectual semantics of the perfective-imperfective, but do not employ it appropriately; "they have not (fully) acquired their aspectual discourse knowledge" (van Hout 2005). We will look at the van Hout study in a bit more detail. The children were shown a series of three pictures. In the first Mickey is playing in the sand, the second shows a closed curtain, and the third is blank. The child has to supply it out of three choices: a completed, and ongoing, and an incomplete castle-building situation.

(30) Experimental protocol (from van Hout 2005):

Researcher: One day Mickey Mouse was on the beach. He was playing in the sand. He decided to build a sand castle and got to work. See? But the doors closed, so we couldn't see any further what happened. Let's ask Blue Bird to look behind the doors. Bird, what did you see there?

Bird: *Mickey was building a sand castle.*

two: Is the right picture there?

Given a perfective sentence, all subjects from the 2-year-olds on behaved like adults. In contrast, given an imperfective sentence, children, very much unlike adults accepted all three kinds of situations: in all three conditions, they selected the completed, incomplete, or ongoing situations without a clear preference for one over the other. Van Hout argues that some knowledge of aspect is established at a very early age. although children's behavior is not fully adult-like. Target knowledge of perfective aspect is in place, but some property of imperfective aspect is still missing. Van Hout's analysis is that children have acquired the aspectual semantics but are not yet able to properly anchor the test sentence in the discourse. These findings are in agreement with many other studies in the literature on child language acquisition.

8 Second Language Acquisition

Here I will report on two studies of how Slavic languages are learned by Anglophones. One study (Kozlowska-Macgregor 2002, 2005) tests near-native speakers of Polish, while the other (Slabakova 2005) investigates the interlanguage grammar of intermediate and advanced learners of Russian. Kozlowska-Macgregor studied the acquisition of the *po-* perfective and the completive meanings of prefixes.[2] Using a semantic

[2] Following Siewierska (1991), Kozlowska-Macgregor (2002, 2005) distinguishes between a "pofective" use of the prefix *po-* versus a completive use:

(i) Po-czyta-łam gazetę. (pofective)
pofective-read-past newspaper
'I read a newspaper for a while.'

compatibility task, an end-state compatibility task, and a grammaticality judgment task, she tested adult native speakers (n=27), advanced adult L2 speakers (n=15), and adult near-native speakers of Polish (n=14) with English as a native language. Here is an example of the semantic compatibility task. Each test item (n=20) consisted of 2 pairs of sentences. The first pair (1 and 2) contained one sentence with a *po*-marked verb and one with the same verb but marked with a perfective prefix. The second pair (a and b) contained natural/logical continuations of the sentences in the first pair. The subjects' task was to pair up sentences 1 and 2 with sentences a or b based on semantic compatibility.

(31) Example test item from the semantic compatibility task

1.	Za-bolał	mnie	ząb.	2.	Po- bolał	mnie	ząb.
	perf(inchoat)-hurt	me	tooth		pofec-hurt	me	tooth
	I got a toothache				I had a toothache for a while		

a. Poszłam więc do dentysty.
So, I went to the dentist's

b. W końcu poszłam do dentysty.
In the end I went to the dentist's

The scores given in Table 1 are based on accurate matching, in this case of 1 with a, and 2 with b.

Table 1. Accuracy scores on semantic compatibility task from Kozlowska-Macgregor, 2005

tested contrast	advanced	near-native	control
A. pofective vs. perfective	60.5%	74.7%	92.2%
B. completive vs. perfective	69.1%	83.2%	91.7%
C. perfective vs. perfective	80.7%	96.4%	98.9%

Kozlowska-Macgreggor shows in this study that progression from one level of complexity to another is possible. The near-native grammar is in most respects like the native grammar in terms of prefix interpretation. Semantic properties like boundedness and affecting a set of objects are already a part of the interpretive system. However, based on all the tasks in the study, she argues that even in the near-native grammar the representation of the highly complex, multifunctional prefix *po-* is incomplete.

Slabakova (2005) tests a much more basic interpretive knowledge: that of the perfective prefix entailments on the interpretation of the

(ii) Po-zamyk-ał okna. (completive)
compl-close-freq-past windows
'He finished closing all the windows.'

sentence. The main task consisted of a test sentence like *Maša (pri-) vezla detej domoj* 'Masha drove the children home' and a choice of three paraphrases: a) but the children are not home yet; b) and the children are home already; c) both answers are possible. The test sentences were either perfective (*pri-vezla*) or imperfective (*vezla*). Three different conditions were created by the form of the objects: either mass or bare plural nouns, singular count nouns (e.g., *buterbrod* 'sandwich'), or nouns modified by an overt quantifier or demonstrative (e.g., *ètot fil'm* 'this movie'). Results of the interpretation test on the perfective/imperfective contrast in Russian administered to 66 learners and 45 native speakers showed that the acquisition of the grammatical mechanism of telicity marking is not only possible but actually accomplished by the great majority of learners. Even the low proficiency learners as a group had successfully acquired the telicity marking mechanism in L2.

9 Attrition of Aspect

Finally, we will look at some experimental work on how aspect fares in the context of language attrition. The data come from attrited Russian speakers, such as American Russian speakers (Polinsky 1997, Pereltsvaig 2005). Pereltsvaig assumes that perfective prefixes in standard Russian are grammatical aspect morphemes and not lexical aspect markers. Based on the production errors of her subjects, she claims that their grammar diverges from that of standard Russian speakers. She argues that the attrited speakers use grammatical aspect morphemes, i.e., prefixes, to encode lexical aspect, and more specifically a lexical semantic feature [±Bounded Path] that is encoded by the verb only. Thus simplified, the grammar of attrited Russian speakers can encode fewer aspectual distinctions but is still a highly coherent grammatical system.

10 What Next?

If lexical and grammatical aspectual meanings differ (e.g., telicity vs. boundedness, potential vs. actual endpoint reached, complete vs. finished), then internal prefixes in Russian, Polish, Czech, etc. should be examined in detail to see which type of aspect they really encode, whether both or neither. In this sense proposals detailing the syntactic behavior of specific multi-functional prefixes like *po-* as in Kozlowska-Macgregor's research will be important for the elaboration of a theory of Slavic aspectual composition. A virtually untouched area of research is the interaction of aspect and discourse, within both semantic and syntactic approaches. Within L1A, explaining the discrepancy between the very high accuracy of production data and the experimental comprehension data, which suggests that not all meanings of the imperfective

have been acquired, might bring us unexpected revelations. Within L2A, teasing apart the semantic entailment knowledge of perfective prefixes, as against the lexical knowledge of the prefixes as mental lexicon entries, is the next big step. Within the general field of aspectology and within Slavic aspectual studies in particular, it seems that the more we know, the deeper we need to dig.

References

Antinucci, F., and R. Miller. 1976. How children talk about what happened. *Journal of Child Language* 3: 167-189.

Babko-Malaya, Olga. 1999. Zero Morphology: A Study of Aspect, Argument Structure, and Case, Ph.D. dissertation, Rutgers.

Bar-Shalom, Eva. 2002. Tense and aspect in early child Russian. *Language Acquisition* 10: 321-337.

Bertinetto, Pier Marco. 2001. On a frequent misunderstanding in the temporal-aspectual domain: The "perfective-telic" confusion. In *Semantic Interfaces: Reference, Anaphora and Aspect,* eds. C. Cecchetto, G. Chierchia, and M.T. Guasti, 177-210. Stanford, CA: CSLI Publications.

Borer, Hagit. 1994. The projection of arguments. In *Functional projections,* eds., E. Benedicto and J. Runner, 19-47. UMass Occasional Papers in Linguistics 17, Amherst, MA: GLSA.

Borik, Olga. 2002. *Aspect and Reference Time.* PhD dissertation, Utrecht University.

Brecht, Richard. 1984. The form and function of aspect in Russian. In *Issues in Slavic Morphosyntax*, eds. Michael Flier and R. Brecht, 9-33. Columbus, OH: Slavica Publishers.

Bronckart, J.-P., and H. Sinclair. 1973. Time, tense, and aspect. *Cognition* 2: 107-130.

Brun, Dina, Sergey Avrutin, and Masha Babyonyshev. 1999. Aspect and its temporal interpretation during the optional infinitive stage in Russian. *BUCLD Proceedings* 23: 120-131. Somerville: Cascadilla Press.

Comrie, Bernard. 1976. *Aspect.* Cambridge University Press.

Declerck, Renat. 1989. Boundedness and the Structure of Situations, *Leuvense Bildragen* 78: 285-318.

Depraetere, Ilse. 1995. On the necessity of distinguishing between (un)boundedness and (A)telicity. *Linguistics and Philosophy* 18: 1-19.

Di Sciullo, Anne Marie, and Roumyana Slabakova. In Press. Quantification and Aspect. In *Perspectives on Aspect*, eds. H. Verkuyl, H. de Swart, and A. van Hout. Dordrecht: Kluwer.

Dowty, David. 1979. *Word Meaning and Montague Grammar.* Dordrecht: Reidel.

Filip, Hana. 1999, *Aspect, Eventuality Types and Noun Phrase Semantics.* New York: Garland.

Filip, Hana. 2001. Nominal and verbal semantic structure: Analogies and interactions. *Language Sciences* 23: 453-501.

Filip, Hana. 2003. Prefixes and the delimitation of events. *Journal of Slavic Linguistics*, 11:55-101.

Gagarina, Natalia. 2000. The acquisition of aspectuality by Russian children: The early stages. *ZAS Papers in Linguistics* 21: 232-246.

Hale, Ken., and Jay Keyser. 1993. On argument structure and the lexical expression of syntactic relations. In *The View from Building 20*, ed. K. Hale and J. Keyser, 53-109. Cambridge, MA: MIT Press.

Kazanina, Nina, and Colin Phillips. 2003. Russian children's knowledge of aspectual distinctions. *BUCLD Proceedings* 27:390-401. Somerville: Cascadilla Press.

Kozlowska-Macgregor, Martyna. 2005. L2 acquisition of aspectual distinctions in Polish. In *Aspectual Inquiries*, ed. P. Kempchinsky and R. Slabakova, 345-68. Dordrecht: Kluwer.

Kozlowska-Macgregor, Martyna. 2002. *The state of near-native grammar: A study of aspect in L2 Polish*. Ph.D. dissertation. *McGill Working Papers in Linguistics*.

Paducheva, E.V. 1990. Vid i leksičeskoe značenie glagola: Ot leksicheskogo znachenija glagola k ego aspektual'noj xarakteristike. *Russian Linguistics* 14: 1-18.

Pereltsvaig, Asya. (2005). Aspect lost, aspect regained: Restructuring of aspectual marking in American Russian. In *Aspectual Inquiries*, ed. P. Kempchinsky and R. Slabakova, 369-96. Dordrecht: Kluwer.

Piñon, Christopher. 1995. *An Ontology of Event Semantics*. Ph.D. dissertation, Stanford .

Polinsky, Maria. 1997. American Russian: Language loss meets language acquisition. In *Annual Workshop on Formal Approaches to Slavic Linguistics*, eds. W. Browne, E. Dornisch, N. Kondrashova, and D. Zec, 370-406. Ann Arbor, MI: Michigan Slavic Publishers.

Schmitt, Cristina. 1996. Aspect and the syntax of noun phrases. PhD dissertation, University of Maryland at College Park.

Siewierska, Anna. 1991. *Functional Grammar*. London: Routledge.

Slabakova, Roumyana. 2001a. *Telicity in the Second Language*. Amsterdam: John Benjamins.

Slabakova, Roumyana. 2001b. Aspectual constraints in the mental lexicon. *Journal of Psycholinguistic Research* 30: 197-217.

Slabakova, Roumyana. 2005. What is so difficult about telicity marking in L2 Russian? *Bilingualism: Language and Cognition* 8 (1).

Smith, Carlota. 1991. *The Parameter of Aspect*, Dordrecht: Kluwer.

Stoll, Sabine. 1998. Acquisition of Russian aspect. *First Language* 18: 351-377.

Travis, Lisa. 1992. Inner aspect and the structure of VP. *Cahiers Linguistiques de l'UQAM* 1: 130-146.

van Hout, Angeliek. 1998. *Event semantics of verb phrase alternations: A case study of Dutch and its acquisition*. New York: Garland.

van Hout, Angeliek. 2005. Imperfect Imperfectives. In *Aspectual Inquiries*, eds. P. Kempchinsky and R. Slabakova, 317-44. Dordrech: Kluwer.

Vendler, Zeno. 1967. *Linguistics and Philosophy*. Ithaca, NY: Cornell University Press.

Verkuyl, Henk. 1993. *A Theory of Aspectuality: The Interaction between Temporal and Atemporal Structure*. Cambridge: Cambridge University Press.

Verkuyl, Henk. 1999. Tense, aspect, and aspectual composition. In *Topics in South Slavic Syntax and Semantics*, eds. M. Dimitrova-Vulchanova and L. Hellan, 125-162. Amsterdam: John Benjamins

Vinnitskaya, Inna, and Ken Wexler. 2001. The role of pragmatics in the development of Russian aspect. *First Language* 21:143-186.

Weist, R. M., H. Wysocka, K. Witkowska-Stadnik., E. Buczowska., and E. Konieczna. 1984. The defective tense hypothesis: On the emergence of tense and aspect in child Polish. *Journal of Child Language* 11: 347-374.

Weist, R., H. Wysocka, and P. Lyytinen. 1991. A cross-linguistic perspective on the development of temporal systems. *Journal of Child Language* 18: 67-92.

FASL 13, 342–354
Michigan Slavic Publications
2005

Semantic Motivation for Neuter in Slavic?

Donald Steinmetz
Augsburg College

1 A Problem Posed by Neuter Nouns in Russian

A well-known problem of Slavic historical phonology is illustrated in (1), namely the disparate development of the stem vowel of Proto-Indo-European *-o* stems. Here we see reflexes of *-om*, the accusative singular ending for masculine and also of neuter nouns. Note that the identity of form reconstructed for PIE is found in daughter languages such as Latin but not in Slavic languages such as Russian.

(1) Some accusative singular nouns in Russian, Latin, PIE

PIE	Russian	Latin	
*dhûmom m	dym m	fûmum m	'smoke'
*yugom n	igo n	jugum n	'yoke'

These facts resist explanation (see Bräuer 1969:68). Although it seems clear that the ending *-o* functions as an exponent of neuter gender in the case of nouns like *igo*, the question arises as to why this ending was not retained in the case of all originally neuter nouns; see (2).

(2) Attested neuters in Sanskrit, Latin, and Greek but masculine in Slavic

PIE	Sanskrit	Latin	Greek	Russian	
*donom	danam	donum	doron	dar	'gift'
*medhu	madhu	--------	methu	mëd	'honey'

This paper proposes that such discrepancies result when languages, in this case Russian representing Slavic, have undergone a gender shift from neuter default to masculine default.

2 Default Fenders and Default Hierarchies

2.1 Gender by default

In Steinmetz 1985, 2001 I argue that with respect to gender the Germanic languages (excluding the special case of English) fall into two groups characterized by different default genders and different default

hierarchies. The two default hierarchies, i.e. neuter > masculine > feminine and masculine > feminine > neuter, provide a basis for accounting for the different genders of hundreds, perhaps thousands of cognate nouns of different genders in Icelandic and German,[11] e.g., inanimate nouns like those meaning 'sound' or 'lettuce', which are neuter in Icelandic (and Faroese) but non-neuter elsewhere in Germanic, i.e., masculine in German and other languages and common in languages like Danish where masculine and feminine have coalesced in the case of inanimate nouns. Such nouns can be considered to exhibit the default gender, which is neuter in Icelandic and masculine in languages like German. As we see in (3), which illustrates the approach to gender presented in Steinmetz (1985), the assignment of gender to a given noun can be summarized in a minimalistic fashion by means of a gender table where the citation form of the noun plus its meaning (represented here as its English translation) are listed together with applicable rules which provide a gender score showing the number of times each gender is assigned. The default hierarchy then governs the interpretation of the gender score to assign gender to the noun in question.

(3) Gender by default in Germanic

Icelandic (default hierarchy: n > m > f

hljódh	'sound'	[no rules apply]	0n 0m 0f = n
salat	'lettuce'	[no rules apply]	0n 0m 0f = n

[1] The distinction of the different default hierarchies is based on comparisons of German, Icelandic, and Danish nouns such as the following (for a larger sample see Steinmetz 1985, 2001):

German (m > f > n) vs. Icelandic (n > m > f)

masc. in German	*neut. in Icel.*	*masc. in Ger.*	*neut. in Icel.*
lauf 'run, course'	hlaup	anker 'anchor'	akkeri
altar 'altar'	altari	augenblick 'moment'	augnablik
name 'name'	nafn	ball 'ball (dance)'	ball
berg 'mountain'	bjarg 'rocks'	kauf 'purchase'	kaup
kohl 'cabbage'	kál	brief 'letter'	bréf

Old Norse (n > m > f) vs. Danish (common > neuter)

neuter in Old Norse	*common in Danish*
lím 'glue'	lim
strik 'stroke, line'	streg
deig 'dough'	dej
sumar 'summer'	sommer
hunang 'honey'	honning

German (default hierarchy: m > f > n)

Laut	'sound'	[no rules apply]	0m 0f 0n = n
Salat	'lettuce'	[no rules apply]	0m 0f 0n = n

As we see in (3), no gender rules apply in the case of either of the two nouns, so that the gender score is 0 for each gender. In such cases where two or more genders have the same value, gender is decided by the default hierarchy, which is neuter > masculine >feminine for Icelandic, masculine > feminine > neuter for German. As pointed out in Steinmetz (2001), gender tables as used here and proposed in Steinmetz (1985) are equivalent to optimality tableaux.

Looking beyond Germanic, in Steinmetz (1985: 26) I posited masculine > feminine > neuter as the default hierarchy for Slavic as represented by Russian. Corbett (1999:68) also proposes masculine as the default gender in Russian, but with no default hierarchy. Accordingly, the gender of inanimate masculine nouns in Russian can be accounted for in the same underspecified fashion as we have seen above in the gender tables for German; see (4).

(4) Gender by default in Slavic as represented by Russian

Russian (default hierarchy: m > f > n)

zvuk	'sound'	[no rules apply]	0m 0f 0n = n
salat	'lettuce'	[no rules apply]	0m 0f 0n = n

2.2 Gender by default vs. gender assigned by rule(s)

The identification of which default hierarchy obtains in a given language also has important implications for the type of gender rules required in that language. In neuter default languages like Icelandic, the default hierarchy *neuter > masculine > feminine* means basically that inanimate nouns will be neuter unless there is a reason, i.e., a gender rule, for assigning masculine or feminine gender. Similarly, in masculine or common default languages, the task of gender rules will be primarily to assign feminine or neuter gender. In this regard, consider the nouns meaning 'day' and 'grain'. The former are typically masculine in the Indo-European languages while the latter are usually neuter. What is important here, however, is that the gender tables for these nouns will differ depending on the default hierarchy obtaining in each language.

In a neuter-default language like Icelandic, a rule is required to assign masculine gender as we see in (5).

(5) **Neuter default: masc. (and fem.) assigned by gender rules**

Icelandic (n > m > f)

dagur 'day'	[-(V)r = m f]	0n 1m 1f = m
korn 'grain'	[no rules apply]	0n 0m 0f = n

In (5) we see that the relevant rule operates when the citation form of a noun exhibits the segmentable ending *-(u)r*, a reflex of Proto-Germanic *-(V)z* and PIE *-(V)s*, which may appear on masculine and feminine nouns. Thus, the rule reads *-(u)r = m f*. Here the gender score is *0n 1m 1f*,so masculine and feminine have the same value; therefore the default hierarchy mediates and assigns masculine gender to this noun. The noun *korn* 'grain' lacks this ending and therefore falls outside the scope of this rule, so that *korn* is assigned neuter gender by default.

For German and other languages, where the neuter is not the default gender, the situation is rather the opposite. In (6), the nouns meaning 'day' are masculine by default, while neuter gender must be assigned by a rule, in this case, the rule superordinate noun =neuter proposed by Zubin and Koepcke (1986).

(6) Masculine default: fem. and neut. assigned by gender rules
German (m > f > n)

tag 'day'	[no rules apply]	0m 0f 0f = m
korn 'grain'	[superordinate noun = n]	0m 0f 1n = n

In Russian, as elsewhere in Slavic, the presence of the segmentable endings *-o*, *-e* = n provides a basis for assigning neuter gender, as we see in (7).

(7) Comparable Russian nouns with gender tables
Russian (m > f > n)

den' 'day'	[no rules apply]	0m 0f 0n = m
zerno 'grain'	[-o, e = n]	0m 0f 0n = n

The preceding discussion is intended to show the importance of approaching gender in terms of default hierarchies. Once the default hierarchy is determined for a given language, there is remarkable cross-linguistic uniformity in the assignment of gender, whereby variation is restricted to the specific nature of the rules for assigning the non-default genders. Rules based on morphological or phonetic shape, M-rules, are adduced to assign masculine gender in Icelandic (neuter default) and neuter gender in Russian (masculine default), while in the German examples (masculine default) neuter gender is assigned to the noun meaning 'grain' by a rule relating to the semantics of this word, i.e., by an S-rule.

The following section will be devoted to examining the role and interaction of a broader range of M-rules and S-rules in Russian, prior to focusing on the part S-rules may have played in the original retention of *-o* and *-e* as exponents of neuter gender.

2.3 The interaction of M-rules and S-rules in Russian

As is well known, the gender of most Russian nouns is evinced by their shape. For inanimate nouns, segmentable *-a* is an exponent of feminine gender and segmentable *-o* and *-e* are exponents of neuter gender. Gender is, however, problematical in five cases: (a) animate nouns with segmentable *-a*, which may be masculine as well as feminine; (b) feminine nouns ending in soft sign (’); (c) nouns in *-išk*o, which may be masculine or neuter; (d) indeclinable nouns which may be of all three genders; and (e) a number of neuter nouns denoting animates, e.g., *nasekomoe* ‘insect’. In the following we present a framework for assigning gender to all Russian nouns, although space limitations in the present paper preclude discussion of the problematical cases (b)–(e) just mentioned.

Because Russian, like the rest of Slavic, is masculine default, gender rules are required for the assignment of feminine and neuter gender. In (8) we find familiar rules which assign gender to Russian nouns on the basis of morphological shape (M-rules). In the case of animate nouns, the contribution of meaning in the assignment of gender can be captured by adducing semantic rules (S-rules). Notice that the gender competition in the case of nouns like *mužčina* ‘man’ is resolved by the default hierarchy in favor of masculine, even though the shape is ordinarily associated with feminine nouns.

(8) Sample rules and gender tables: Russian (m > f > n)

a. *some Russian gender rules*

M-rules: -a = f, -o, e = n

S-rules: animate = m f, male = m, female = f

b. *Examples of Russian nouns with gender tables*

Russian (m > f > n)

den’ ‘day’	[no rules apply]	0m 0f 0n = m
with identical gender tables: *stol* ‘table’, *put’* ‘way, path’, etc.		
kniga ‘book’	[-a = f]	0m 1f 0n = f
with identical gender tables: *šeja* ‘throat’, *doroga* ‘road’, etc.		
slovo ‘word’	[-o, -e = n]	0m 0f 1n = n
with identical gender tables: *okno* ‘window’, *pole* ‘field’, etc.		
čelovek ‘human being’	[animate = m f]	1m 1f 0n = m
muž ‘husband’	[animate = m f, male = m]	2m 1f 0n = m
žena ‘wife’	[-a = f, animate = m f, female = f]	1m 3f 0n = f
mužčina ‘man’	[-a = f, animate = m f, male = m]	2m 2f 0n = m
ryba ‘fish’	[-a = f, animate = m f]	1m 2f 0n = f
karp ‘carp’	[animate = m f]	1m 1f 0n = m
sobaka ‘dog’	[-a = f, animate = m f]	1m 2f 0n = f

3 Gender Shifts and the Fate of Neuter

As remarked above, masculine-default languages like German and Russian have arisen through a restructuring of an earlier neuter default system, whereby this shift appears associated (but not in all cases) with the loss of reflexes of the Indo-European nominative ending *-(V)s* which characterized many masculine (and some feminine) nouns (Steinmetz 1985, 1986, 2001).

In the case of Germanic, the gender shift from neuter-default to masculine-default is relatively easy to observe since the two types exist side by side: Icelandic and Faroese (and Gothic) retain the earlier neuter default system, while in the remaining Germanic languages (with the exception of the special case of English) the default gender is masculine and neuter is marginalized in ways which will be discussed shortly. Furthermore, the effects of the shift remain apparent in a number of ways. For example, in West Germanic languages like German, the change from neuter to masculine took place for most nouns before the onset of written records, but as we see in (9), its effects can still be seen in historically attested changes.

(9) Some German nouns now masculine but previously neuter
Honig 'honey', *Wein* 'wine', *Stahl* 'steel', *Mord* 'murder', *Tau* 'dew', *Wert* 'worth', *Sand* 'sand', *Zunder* 'tinder'

In Slavic, by contrast, the existence of the shift is not nearly so obvious, since all extant Slavic languages are uniformly masculine default. That the masculine-default system of Slavic did in fact have its origin in an earlier neuter default system can be inferred when we look beyond Slavic to other Indo-European languages, as in (10), where nouns which are masculine in Russian (and elsewhere in Slavic) have neuter cognates.

(10) Cross-linguistic data relating to gender shift in Slavic
Russian (m > f > n)
mëd 'honey' [no rules apply] 0m 0f 0n = <u>m</u>
and with identical gender tables: *dar* 'gift', *stan* 'camp', *dvor* 'courtyard', etc.

Sanskrit and Greek (n > m > f)
Skt. madhu 'honey' [no rules apply] 0n 0m 0f = <u>n</u>
and with identical gender tables: Gr. *dôron* 'gift', Skt. *sthanam* 'location', *dvaram* 'opening, door, gate.'

The main result of the gender shift is the same in both continental Germanic and Slavic: most originally neuter inanimate nouns are now

masculine by default or else they remain neuter, either (a) because they exhibit some characteristic, of form or meaning or both, so that they fall within the scope of a rule assigning neuter gender, or (b) as exceptions.

3.1 Cross-linguistic variation in the gender system

One symptom of the new, post-shift status of neuter is that different masculine-default languages may vary with regard to rules that assign neuter gender. In (11) we have a small sample of the many nouns where German and Standard Yiddish differ with respect to which nouns are neuter.

(11) Nouns in German and Yiddish: neuter vs. non-neuter

neuter in German	*masculine or feminine in Yiddish*	
ziel	der tsil	'goal'
sieb	di zip	'sieve'
knie	der kni	'knee'
masculine in German	*neuter in Yiddish*	
mist	mist	'manure'
schmutz	shmuts	'dirt, filth'
raub	royb	'robbery, theft'

4 Cross-Linguistic Variation Relative to a Given Semantic Rule

4.1 The S-rule: improper superordinate = neuter in Germanic

In (12) and (13) we see that related languages can differ markedly with respect to which nouns are assigned neuter gender. Consider the rule improper superordinate = n. An improper superordinate noun, as discussed in Steinmetz (1997, 2001), differs from a proper superordinate noun in that it represents a purely mental classification. The criteria underlying superordinate noun = n, by which apples, oranges, etc. qualify as fruits, are quite objective and exist independently of the observer. However, the factors that make a particular behavior qualify as a vice, or lead to a trip being classified as an adventure, reflect human judgments, and the term improper superordinate is used here to refer to such mental rather than objective classifications.

As we see in (12), improper superordinate nouns are consistently neuter in German.

(12) German (m > f > n) nouns in the domain of the rule:
improper superordinate = n
laster 'vice' [improper sup. = n] 0m 0f 1n = <u>n</u>
and many other neuter nouns with gender tables like *laster*: *pfand* 'pledge, security', *rätsel* 'puzzle', *ziel* 'goal', *abenteuer* 'adventure', *wunder* 'wonder, miracle', *air* '(a certain) air', *äquivalent* 'equivalent', *chaos* 'chaos', *deebakel* 'debacle'; also *desaster, flair, fiasko, hobby, labyrinth, mirakel, missing link, paradies,* etc.

In (13) we see that Yiddish differs from German in that it lacks the rule *improper superordinate noun = n.* Accordingly, all Yiddish nouns in this semantic category receive their gender exclusively on the basis of their morphological or phonetic shape.

(13) **Comparable Yiddish improper superordinate nouns**

paslones 'vice'	[-(e)s = n]	0m 0f 1n = n
manie 'obstacle'	[=e = f]	0m 1f 0n = f
avanture 'adventure'	[=e = f]	0m 1f 0n = f
farderb 'vice'	[no rules apply]	0m 0f 0n = m

and many other masculine nouns with gender tables like *farderb*: *fand* 'pledge, security', *tsil* 'goal', *shter* 'obstacle', *sod* 'secret', *antidot* 'antidote', *ekvivalent* 'equivalent', *khaos* 'chaos', *detal* 'detail', *khush* 'flair', *labirint* 'labyrinth', *nes* 'miracle', *vunder* 'miracle', etc.

4.2 Improper superordinate nouns in Russian

In (14) we see that Russian, like the other Slavic languages, lacks a special rule for improper superordinate nouns such that the genders of these nouns are due exclusively to M-rules. In this respect, Yiddish and Russian are similar.

(14) Comparable Russian improper superordinate nouns

Some familiar Russian (m > f > n) gender rules:

M-rules: -a = f, -ost' = f, -o, -(i)e = n, -'ë = n

porok 'vice'	[no rules apply]	0m 0f 0n = m

other masculine nouns with gender tables like *porok*: *zalog* 'pledge, security', *sekret* 'secret', *`ekvivalent* 'equivalent', *xaos* 'chaos', *labirint* 'labyrinth', *njux* 'flair'

tajna 'secret'	[-a = f]	0m 1f 0n = f
podrobnost' 'detail'	[-ost' = f]	0m 1f 0n = f
sposobnost' 'flair'	[-ost' = f]	0m 1f 0n = f
prepjatsvie 'obstacle'	[-e = n]	0m 0f 1n = n
priključenie 'adventure'	[-e = n]	0m 0f 1n = n
protivojadie 'antidote'	[-ie = n]	0m 0f 1n = n
čut'ë 'flair'	[-ë = n]	0m 0f 1n = n
čudo 'miracle'	[-o = n]	0m 0f 1n = n
cel' 'goal'	[no rules apply]	0m 0f 0n = *m/ exceptional = f

In this section we have seen that the presence or absence of a single gender rule, in this case the S-rule improper superordinate = neuter, can result in considerable differences in the stock of neuter nouns in different languages. Given the variation we have observed in section 3 and section 4, it is quite remarkable and worthy of special attention when cross-linguistic comparisons identify certain sets of nouns as consistently neuter, and it is to one such group that we turn in section 5.

5 Nouns which are Consistently Neuter in Germanic and Slavic

Given the enormous variation in the stock of neuter nouns found in masculine default languages, it is surprising when certain nouns uniformly display neuter gender across the Germanic and Slavic languages. One such set is illustrated in (15), and I propose that this fact indicates that these nouns comprise a coherent semantic cluster, namely, that they conform to the notion of a FUNCTIONAL HOLLOW, which may be defined as: a disk or an enclosure (either complete or partial), whereby the hollow portions thereof are functional in that they are criterial for defining the object in question. A wheel, for example, is a wheel and not merely a disk, precisely because it has a hollow component, the hub, by which it fits on an axle and can thus function as a wheel. The hollow of an egg is functional in that it contains the white and the yolk which make it an egg.[2]

Although such notions as functional hollow are disquietingly subtle, it must also be pointed out that the only alternative to positing a semantic rule assigning neuter gender based on this or on some similar notion is to assume that this set of nouns is unique in the Germanic and Slavic languages in consistently retaining neuter gender purely as an exception.

(15) Some persistently neuter nouns

a. Icelandic (n > m > f)

hjól 'wheel'	[no rules apply]	0n 0m 0f = n

and with identical gender tables: *ok* 'yoke', *andlit* 'face', *eyra* 'ear', *egg* 'egg'

b. German (m > f > n)

gesicht 'face'	[ge- = n, func. holl, = n]	0m 0f 2n = n
rad 'wheel'	[func. hollow = n]	0m 0f 1n = n

and with identical gender tables: *Joch* 'yoke', *Ohr* 'ear', *Ei* 'egg'

c. Norwegian (m > f > n)

hjul 'wheel'	[func. hollow = n]	0m 0f 1n = n

and with identical gender tables: *åg* 'yoke', *ansikt* 'face', *øre* 'ear', *egg* 'egg'

The persistence of neuter gender in nouns in this category is astonishingly robust especially in view of the widespread divergences

[2] As pointed out in the text of this paper, rules like functional hollow = n are proposed purely as an alternative to assuming that the consistent neuter gender observed in particular groups of nouns is due to chance. Clearly, such rules must be regarded as tentative. It is to be hoped that continuing research will result in semantic gender rules having a more solid footing in more general principles of cognitive psychology.

with respect to neuter discussed earlier. With this in mind, we can now return to the Russian examples (1)above.

All reflexes of PIE *-(V)s* disappeared in pre-Slavic times. Furthermore, while *-om* was the PIE nominative ending for o-stem neuters, it was also the *o*-stem ending for both masculine and neuter nouns in the accusative singular. In (16) we observe that this ending did not survive in the case of masculine nouns such as Russian *dym* 'smoke' but that it is present in neuter nouns such as *igo* 'yoke'.

How do we account for the difference in endings between masculine *dym* and neuter *igo* when both represent PIE *-om*? One could argue that in the case of *igo*, *-o* survived because it was felt to be an exponent of neuter gender. But why then was this not also in the case with *dar* 'gift' from PIE *dôrom* ? Clearly, there were cases when *-o* survived and other cases when it did not. What then was the crucial factor in the survival of final *-o*?

A plausible answer emerges if we assume that *-o* survived as a gender marker only in those cases where neuter gender was also assigned by an additional rule. In the case of *igo* we could propose the rule functional hollows = n. which of course is familiar from the above discussion of Germanic. The gender shift in Slavic resulted in a situation in which masculine is the least marked category. As a consequence, we see migration of nouns from neuter to masculine, which is consistent in many cases—such as *dar*—to the loss of the final *-o*. Final *-o* was retained only when it expressed neuter gender that was assigned for some specific semantic reason, as with *igo*.

The connection between the persistence of a final *-o* and a semantic reason for neuter gender can be brought out by looking at gender assignment with the help of optimality theory tableaux, drawing on the approach to gender assignment in Rice 2005. We include two tableaux below to illustrate this point. For more a detailed discussion of this approach, see Rice (this volume). Oversimplifying somewhat, the tableaux include two constraints relevant for gender assignment, along with three markedness constraints representing the default hierarchy m > f > n. These five constraints can be defined as follows.

(16) **Constraints**

Functional Hollow ⇒ neuter:

A noun which designates a functional hollow is neuter.

Neuter ⇔-o:

A neuter noun ends in *-o*, and a noun ending in *-o* is neuter.

*Neuter: A noun is not neuter.

*Feminine: A noun is not feminine.

*Masculine: A noun is not masculine.

The tableaux have candidates which are possible outputs. We restrict ourselves to considering candidates which are neuter and masculine, and which either have a final *-o* or not. According to the following tableaux, a noun denoting a functional hollow will be neuter and have a final *-o*, while a noun which does not denote a functional hollow will be masculine and lack a final *-o*. Consider tableau (17).

(17)

ig-	F.HOLL⇒N	NEUT. ⇔ -o/-e	*NEUT	*FEM	*MASC
a. ig m.	*!				*
b. ig n.		*!	*		
c. igo m.	*!				*
☞ d. igo n.			*		

The noun denotes a functional hollow, so that the masculine candidates (a) and (c) violate the highly ranked requirement that functional hollows be neuter. The neuter candidate (b) satisfies this requirement but violates the requirement that neuter nouns end in *-o*. Thus without even considering the constraints representing the default hierarchy, we determine that the best form for this word is candidate (d).

Turning now to (18), we consider the noun *dym* 'smoke', which does not denote a functional hollow, so that all candidates vacuously satisfy the most highly ranked constraint. The bidirectional implication between neuter and a final *-o* is violated by candidate (b), which is neuter but lacks a final *-o*, and by candidate (c), which is masculine but has a final *-o*. Candidates (a) and (d) are distinguished by the default hierarchy. The most marked category is neuter, such that a violation of *Neuter is worse than a violation of *Masculine. In this way, candidate (a) is selected as optimal.

(18)

dym-	F.HOLL⇒N	NEUT. ⇔ -o/-e	*NEUT.	*FEM	*MASC
☞ a. dym m.					*
b. dym n.		*!	*		
c. dymo m.		*!			*
d. dymo n.			*!		

The above tableaux were intended to show that the retention of final *-o* appears as an exponent of neuter gender in the case of nouns which fall in the domain of S-rules that assign neuter gender, e.g., the

previously discussed S-rule functional hollow = neuter.

In (19) we see a number of other Russian nouns that denote functional hollows and notice that they, like their Germanic counterparts discussed above, are neuter, presumably for the same reason.

(19) Other Russian nouns in the domain of *func. hollow = n*
koleso 'wheel', *igo* 'yoke', *lico* 'face', *uxo* 'ear', *jajco* 'egg'

In present-day Russian, most neuter nouns are derived nouns like *čelovečestvo* 'humanity', whose neuter gender is linked to the fact that the relevant derivational ending ends in *-o*. But what about non-derived neuter nouns as in (21)? For the nouns in (20), there persists at least an echo of a connection between the presence of a marker of neuter gender and a semantic reason for these nouns being neuter. But this is no longer the case for most non-derived neuter nouns in Russian. With regard to (20), it would appear that such nouns as *more* 'sea' and *zerno* 'grain', which conceivably were once members of a larger set and were assigned neuter gender for the same semantic reasons as their German counterparts, are now largely isolated because the other members of the set for one reason or the other have first become marginalized like *oko* and then vanished entirely, such that these nouns remain neuter only by virtue of their morphology.

(20) Possible original semantic motivation in selected pairs of neuter nouns in **German** and Russian, both masc. > fem. > neuter

German			
Meer 'sea'	[sup. ord. = n]		0m 0f 1n = n
Russian			
formerly:	more 'sea'	[=e = n, sup. ord. = n]	0m 0f 2n = n
presently:	more 'sea'	[=e = n]	0m 0f 2n = n
German			
Korn 'grain'	[superordinate noun = n]		0m 0f 1n = n
Russian			
formerly:	zerno 'grain'	[-o = n, sup. noun = n]	0m 0f 2n = n
presently:	zerno 'grain'	[-o]	0m 0f 2n = n

6 Conclusions: The Fate of Neuter in Germanic and Slavic

The recognition that masculine is the default gender in the gender system of Russian (Corbett 2000, Steinmetz 1985, 2001), as it is also in Continental Germanic, has been examined in the preceding sections in two respects: (a) Evidence has been presented that neuter gender is

marginalized in masculine-default languages, and (b) arguments have been presented relating the assignment of neuter gender in masculine-default languages to semantic principles.

References

Bräuer, Herbert. 1969. *Slavische Sprachwissenschaft: II Formenlehre, 1. Teil.* Berlin: Walter de Gruyter & Co.

Corbett, Greville, and Norman Fraser. 1999. Default genders. In *Gender in Grammar and Cognition*, ed. Barbara Unterbeck and Matti Rissanen. Berlin: Mouton de Gruyter.

Rice, Curt. 2005. Optimizing gender. *Lingua*. To appear.

Steinmetz, Donald. 1985. Gender in German and Icelandic: Inanimate nouns. In: *Germanic Linguistics: Papers from a symposium at the University of Chicago*, eds. Faarlund, Jan Terje, 10-28. Bloomington. Indiana University Linguistics Club

Steinmetz, Donald. 1986. Two principles and some rules for gender in German: Inanimate nouns. *Word* 37.3: 189-217.

Steinmetz, Donald. 2001. The Great Gender Shift and the attrition of neuter nouns in West Germanic: The example of German. In *Recent Insights into Germanic Linguistics* , ed. Irmengard Rauch. New York: Peter Lang.

Unterbeck, Barabara and Matti Rissanen, eds. 1999. *Gender in Grammar and Cognition*. Berlin: Mouton de Gruyter.

Zubin, David, and Klaus-Michael Köpcke. 1986. Gender and folk taxonomy: The indexical relation between grammatical and lexical categorization. In *Noun Classes and Categorization: Proceedings of a Symposium on Categorization and Noun Classification, Eugene, Oregon, October 1983* (Typological Studies in Language 7), ed. C. G. Craig, 139-80. Amsterdam: Benjamins.

steinmet@augsburg.edu

FASL 13, 355–364
Michigan Slavic Publications
2005

Sluicing-Based Indefinites in Russian*

Yakov Testelets
Russian State University for Humanities, Moscow

Elizaveta Bylinina
Moscow State University

1 Sluicing and New Indefinites

Indefinite pronouns can have various diachronic sources, see Haspelmath (1997:129-92). Russian free-choice pronouns of the ***xočeš'*** series (*kogda xočeš'* 'when(ever) you like', *kto xočeš'* 'who(ever) you like'...) and the ***ugodno*** series (*čto ugodno* 'what(ever) you please', *kak ugodno* 'how(ever) you please',...) derive from relative clauses, while the source of the ***by to ni bylo*** series (*čto by to ni bylo* 'whatever it is' etc.) is a parametric concessive conditional clause (König 1992).

The type that will be our concern here is an indefinite pronoun series based on sluicing constructions—Sluicing-Based indefinites, (SBIs). They are Haspelmath's (1997:130–3) *dunno*-type and Lakoff's (1974) syntactic amalgams.— Examples are:

(1) a. Ivan ušel, no **neizvestno** **kogda** (~~Ivan ušel~~).
Ivan left but not.known when (~~I. left~~)
'Ivan went away, but **it's unknown when**'

b. Ivan ušel **neizvestno** **kogda**.
I. left not.known when
lit. 'Ivan went away **it-isn't-known-when**'

All matrix verbs with [+wh] selection seem to allow Sluicing, but not all of them derive SBIs:

(2) a. Oni pošli. **interesno,** **kuda**.
they went interesting where
'They went. **It's interesting where** (they went)'

* The authors express their special gratitude to Barbara H. Partee for her invaluable help in the research and for moral and material support that has made it possible for us to present the paper at FASL 13. All drawbacks and mistakes are our sole responsibility.

b. *Oni pošli **interesno** **kuda** posle zanjatij.
they went interesting where after classes
'**It's interesting where** they went after the classes'

The reason obviously lies in the restrictions on the semantic type of the verb: it must be a verb of knowing or understanding. The class of such predicates is potentially open, but one can list the matrix parts most frequently used in SBIs: *(ne)izvestno* 'it's (un)known', *(ne) znaj-u, -eš', -em, -ete* 'I (you, we) (don't) know', *Bog znaet* 'God knows' (often depreciative), *čert znaet* 'devil knows' (depreciative), *šut znaet* 'buffoon knows' (depreciative), *nikto ne znaet* 'nobody knows', *nevedomo* 'it's unknown', *(ne) pomn-ju, -iš', -im, -ite* 'I (you, we) (don't) remember', *nikto ne pomnit* 'nobody remembers', *(ne) ponima-ju, -eš', -em, -ete* 'I (you, we) (don't) understand', *nikto ne ponimaet* 'nobody understands', *(ne)ponjatno* 'it can('t) be understood', *ne skažu* 'I can't say', *ne mogu skazat'* 'I can't say'.

The last two SBIs, with *skazat'* 'say', don't really have the semantics of saying. 'I can't say' here is equivalent to 'I don't know (and that's why I can't say)'.

Moreover, not only indefinites can be formed in this way; there are also deictic and interrogative sluicing-based pronouns, according to the semantics of their matrix parts:

Deictics:

(3) Ja zadam **vot** **kakoj** vopros.
I as_{1SG} here what question
'**Here is what question** I'm going to ask.'

Interrogatives: *znaeš' kto* 'do you know who','guess who'; *pomniš' kto* 'do you remember who'; *ne skažeš' kto* 'won't you say who'; *ugadaj kto* 'guess who', etc. Sluicing-based interrogatives produce direct *wh*-questions:

(4) U menja **otgadaj** **kto** teper' ostanovilsja?
at me guess.IMP who now stayed
'**Guess who** has stayed with me now?'
(Puškin, in a letter to N. Puškina, June 3, 1834)

Below in sections 2 and 3 we address the paradoxical syntactic properties of SBIs, and in section 4 we outline their semantics and try to correlate them with the other Russian indefinite pronouns.

2 Distribution

The internal structure of SBIs is that of an IP headed by a matrix predicate and containing an embedded *wh*-interrogative clause. However, the distribution of SBIs is fully determined by the category of the *wh*-word. With *kto* 'who' or *čto* 'what' it is an NP (5), with *kakoj* 'what (Adj)' it is an AP (6), and with *kak* 'how', *začem* 'what for', or *kogda* 'when' it is an AdvP (cf. 1-2):

(5) Knigi Maši i ešče **ne pomnju** **kogo** ležali na stole.
books Masha.$_{GEN}$ and also not remember.$_{1SG}$ who.$_{GEN}$ lay on table
lit. 'Books of Maša and also of **I-don't-remember-who** were on the table.'

(6) Nas ždut neizvestno kakie novosti.
us expect.$_{3PL}$ not.known what news
'**It's unknown what kind of** news is in store for us.'

SBIs cannot be analyzed through movement, as pointed out by J. R. Ross and G. Lakoff (see the discussion in Lakoff 1974, Tsubomoto and Whitman 2000, and Guimarães 2003) because the number of SBIs in a clause is not grammatically limited in English or in Russian.

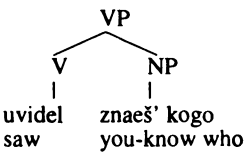
(7) Anja priglasila **Bog znaet skol'ko ljudej** na **izvestno kakuju vstreču**.
Anya invited God knows how.many people to it's.known what meeting
lit. 'Anya invited **God knows how many** people to **it's-known-what** meeting.'

3 Branching and Grammaticalization

Finding an analysis that best captures the properties of Russian SBIs is almost equivalent to determining their current stage of grammaticalization. We know the properties of the source construction as well as the properties of the grammaticalization target, indefinite pronouns. We can try different points on this scale and see whether they fit the data.

Let us consider the full grammaticalization analysis first: SBIs are diachronically complex sentences ultimately reanalyzed into phrasal categories that belong to the class of their anchor interrogatives, the matrix part being a series marker:

(8)



Two facts speak in favor of treating SBIs as mere NP-proforms (AP-proforms, etc.). First, no intervening material (besides a preposition, as in (9d)) is possible between the matrix predicate and the interrogative:

(9) a. *Prines **neizvestno** **nikomu** **čto.**
brought not.known nobody$_{DAT}$ what
'He brought **nobody knows what**'; lit. 'He brought **it's-unknown-to-anybody what.**'

b. *Prines **neizvestno** **v** **točnosti** **čto.**
brought not.known in exactness what
lit. 'He brought **it's-not-exactly-known what.**'

c. *Prines **neizvestno** **bylo** **čto.**
brought not.known was what
'**It was not known what** he brought'; lit. 'He brought **it-was-not-known what**'

d. Obmenjal **neizvestno** **na** **čto.**
exchanged not.known for what
lit. 'He exchanged it **for it's-unknown-what.**'

With the *ni-* and *koe-* series of pronouns, functional (*pervo-obraznye*) prepositions also separate the two parts of the pronoun (Yadroff and Franks 2001, Es'kova 1989, 1996): *ni na čto* 'on nothing', *koe o čem* 'about something'.

But even functional prepositions can be preposed, at least with the most frequent SBIs:

(10) **Bog znaet** **s** **kakimi** ljud'mi // **s** **Bog znaet** **kakimi** ljud'mi
God knows with what.kind.of people // with God knows what.kind.of people
(Ušakov 1935:159)

(11) Kto-to tratit den'gi ne na sebja, a **na** **neponjatno** **čto.**
someone spends money not for himself but for not.understood what
'Someone spends money not for himself but **for some unknown purpose.**'

The second argument for the full grammaticalization hypothesis is that preposed modifiers and nominal arguments of the matrix predicates of SBIs are strongly restricted:

(12) a. Prišla **sama** **(tolkom)** **ne** **znaet** **začem.**
came herself (well) not knows what.for
'She came for some reason that she **doesn't (really) understand herself.**'

b. *Prišla **ee podruga ne znaet začem.**
came her friend not knows what.for

(13) a. Popal **odin Bog znaet kuda.**
got alone God knows where
'He found himself **God alone knows** where.'

b. *Popal **odin vseveduščij Bog znaet kuda.**
got alone omniscient God knows where

(14) a. Kniga ležit **nikto ne znaet gde.**
book lies nobody not knows where
'The book is **nobody knows where.**'

b. *Kniga ležit **bibliotekar' ne znaet gde.**
book lies librarian not knows where

(15) ??On priglasil **ploxo pomnju kogo.**
he invited badly remember_{1SG} who
lit. 'He invited **I-badly-remember-who.**'

Arguments against full grammaticalization also can be found. For example, SBI NPs can be separated by prepositions, not only with functional prepositions as other classes of pronouns can, but also by lexical (*nepervoobraznye*) prepositions:

(16) Ego poslali **ty znaeš' vmesto kogo.**
him sent you know instead who
'They sent him **instead of you-know-who**'; lit. 'They sent him **you-know-instead-of-who**' (cf. ***ni vmesto kogo*** 'instead of nobody')

(17) On vyžil **ponjatno blagodarja čemu.**
he survived understood thanks what
'He survived **it's-clear-why**' lit. 'He survived **it's-understood-thanks-to-what.**'

Although pronouns can sometimes take modifiers, the option, however restricted, of arguments (negative pronouns, some contextually equivalent notional words like *Bog* 'God', and locutor personal pronouns) and modifiers of arguments does not seem paralleled by other pronominal elements and suggests a phrasal structure that strongly resembles an IP.

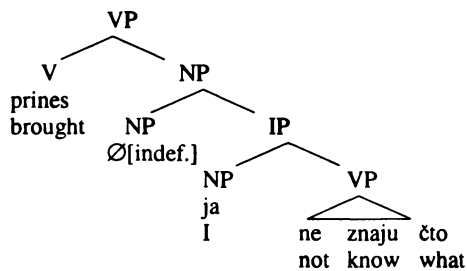
SBIs also show some crucial properties of clauses, e.g., subject–predicate agreement in person, number, and gender and nominative case of subjects with finite predicates. With nonfinite predicates, only floating

quantifiers" like *ves'* 'all' and *sam* 'self' can occur in the nominative (Babby 1998):

(18) **Prišla** [$_{VP}$ **sama** (*nikto) **ne znaja** **začem**].
came.$_{F.SG}$ herself.$_{NOM}$ (nobody.$_{NOM}$) not know.$_{CONV}$ for.what
lit. 'She came **herself** (*nobody) **not knowing what for**'

The other possible option is something like an empty indefinite pronoun plus parenthetical analysis (tentatively suggested, along with some alternative analyses, by B.H. Partee, p.c.): the second conjunct of the sentence with sluicing functions as a parenthetical forming an NP together with a null indefinite pronoun.

(19)



At least five arguments can be found against the empty indefinite pronoun analysis. First, the analysis provides no account for the branching restrictions in SBIs: once we have an IP constituent for an SBI there is no direct way to explain the restrictions not common to IPs in general. Second, we don't know any other cases where the empty indefinite pronoun reveals itself. Third, sentences with SBIs do not possess the comma (parenthetical) intonation typical of appositives containing non-deniable conventional implicatures (Potts to appear). Moreover, the ability of prepositions to precede matrix parts is incompatible with maitaining a Sluicing analysis. Finally, some SBIs cannot be used in Sluicing any more at all.

(20) *Ane včera kto-to zvonil, no **Bog znaet** **kto**.
Anya$_{DAT}$ yesterday someone called but God knows who
'Somebody called Anya yesterday, but **God knows who**'

We argue instead that most SBIs in modern Russian oscillate between reanalysed NP, AP, or AdvP proforms and IP. This may be analyzed as a competition between two classes of heads, matrix predicates and *wh*-interrogatives. Matrix predicates that form a Sluicing

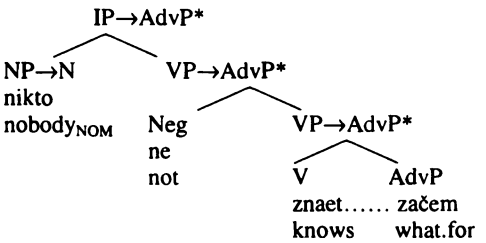
construction, being attached to interrogatives, form IP sluices—fragments mostly with the meaning of indefinite pronouns. Later in the derivation, the IP sluice, if it does not include too much material (obviously due to performance restrictions), undergoes lexicalization, i.e., all the phrasal categories beginning with IP above, except the interrogative phrasal proform, become terminal. The resulting adjoined structure belongs to the phrasal category of the interrogative. If the IP sluice contains too much material that cannot be "digested" by lexicalization, sluicing-based pronouns cannot occur. Unlike the "fusion" discussed in Yadroff and Franks (2001), lexicalization resulting in a proform is a syntactic and not a phonological process. This can be seen from the fact that with prepositions preceding the matrix part branching is more strongly restricted than with prepositions following it, i.e., the SBI NP has to be lexicalized prior to being attached to a P:

(21) a. (nikomu) **neizvestno** **s** **kem**
(nobody$_{DAT}$) not.known with who$_{INSTR}$
lit. **'it's unknown** (to anybody) **with whom'**

b. s neizvestno kem
with not.known who$_{INSTR}$
lit. **'with it's-unknown whom'**

c. *s **nikomu** neizvestno kem
with nobody$_{DAT}$ not.known who$_{INSTR}$
'with **nobody** knows whom'

(22)



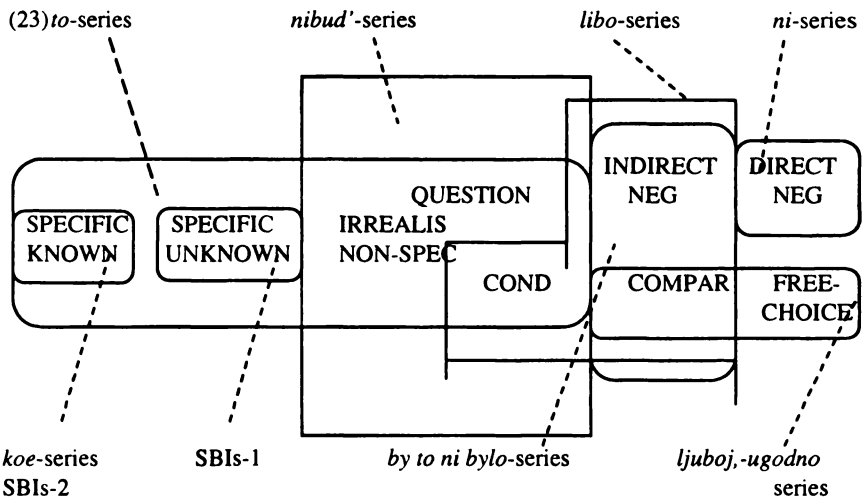
The dotted line denotes the interaction of the matrix predicate and the interrogative that triggers the lexicalization.

4 Semantics

A semantic map for Russian indefinite pronouns is found in Haspelmath (1997:65–6; 272–3). Tatevosov (2002:141–2) shows the distribution of

the main indefinite pronoun series over semantic/syntactic types of contexts. When we add SBIs, it turns out that they fall into two groups with respect to their place on the semantic map.

The most numerous and strongly grammaticalized group of SBIs, or SBIs-1, belongs to the Specific Unknown (cf. English *God knows what, who knows how many, I don't know when...*); a small group that is less grammaticalized (which we call SBIs-2) belongs to the Specific Known (cf. English *you know what*):.



With Specific Known indefinites, the speaker knows the referent, whereas the addressee may know it (24) or not (25).

(24) Maša segodnja razgovarivala **sam ponimaeš' s kem**, i on byl nedovolen.
Maša today talked self you.see with whom and he was not.glad
'Today Masha talked **to you-know-whom**, and he was unhappy.'

(25) a. Anja segodnja **ponjatno komu** zvonila, no prosila menja ego ne nazyvat'.
Anya today known who$_{DAT}$ called but asked me him not name
lit. 'Today Anya called **it's-clear-who**, but asked me not to name him.'

b. *Anja segodnja Bog znaet komu zvonila, no prosila menja ego ne nazyvat'.
Anya today God knows who$_{DAT}$ called but asked me him not name
lit. 'Today Anya called **God knows who**, but asked me not to name him.'

Specific Unknown SBIs-1 denote referents that are unknown to the speaker:

(26) Ona dolgo maxala rukoj **Bog znaet komu //neizvestno komu**
she a.long.time waved hand God knows who.$_{DAT}$ //not.known who.$_{DAT}$
//#ponjatno komu iz provožajuščix.
// clear who.$_{DAT}$ from seeing.off$_{GEN}$
'She was waving her hand a long time at **God knows who / it's-unknown- who / it's clear who** of those who came to see her off.'

SBIs cannot occur in Non-Specific contexts ("The reason is that in all the non-specific functions it would be nonsensical for the speaker to state that he or she does not know the referent because if the referent is non-specific, nobody could possibly know it", Haspelmath 1997:133).

(27) ??On xočet ženit'sja na **Bog znaet kakoj** inostranke
he wants marry.$_{INF}$ on God knows what foreigner
'He wants to marry **God knows what** foreigner.'

(28) *Navernoe, **Bog znaet kto** zdes' uže pobyval.
perhaps God knows who here already has.been
'Perhaps **God knows who** has been here'

SBIs cannot have a distributive reading:

(29) Anja, Petja i Maša govorili **neizvestno s kem.**
Anja Petja and Maša talked not.known with who.$_{INSTR}$
lit.'Anya, Petja, and Masha have talked to **it's-unknown-who**' — one referent only.

If a distributive reading is forced by a distributive-key quantifier, the sentence becomes anomalous (B.H. Partee, p.c.); (30) can be interpreted (if at all) only under the "kind" and depreciative interpretation of the SBI.

(30) #?Každyj delaet **neizvestno čto.**
everyone does not.known what
lit. '**Everyone** does **it's-unknown-what**', 'Everyone behaves wildly', cf. #?**Each** boy was reading **God knows what.**

SBIs avoid any split of their referent, be it in the scope of an intensional predicate, a distributive operator, or with a plural subject inducing the distributive reading. They get their values of variables

('nobody knows x' etc.) from the context rather than undergo any kind of binding (B.H. Partee, p.c.).

References

Babby, Leonard. 1998. Subject control as direct predication: Evidence from Russian. In *Annual Workshop on Formal Approaches to Slavic Linguistics: The Connecticut Meeting*, eds. Ž. Boškovič, S. Franks and W. Snyder, 17-37. Michigan Slavic materials 43. Ann Arbor: Michigan Slavic Publications.

Chung, Sandra, William Ladusaw, and James McCloskey. 1995. Sluicing and logical form. *Natural Language Semantics* 3: 239-282.

Es'kova, N. A. 1989. Formal'nye osobennosti nekotoryx predložnyx sočetanij s mestoimennymi slovami. In *Russkie mestoimenija: Semantika i grammatika*, ed. Pen'kovskij, A.B. Vladimir: VGPI.

Es'kova, N. A. 1996. Pervoobraznye i nepervoobraznye predlogi: formal'nyj aspekt. In *Rusistika. Slavistika. Indoevropeistika.: K 60-letiju Andreja Anatol'eviča Zaliznjaka*, ed. T.M. Nikolaeva, 458-464.. Moscow: Indrik..

Guimarães, Maximiliano. 2003. Towards a descriptively adequate theory of syntactic amalgams. *UConn/UMass/MIT/UMD Syntax Workshop*. University of Connecticut, Storrs.

Haspelmath, Martin. 1997. *Indefinite Pronouns*. Oxford: Clarendon Press.

König, Ekkehard. 1992. From discourse to syntax: the case of concessive conditionals. In *Who Climbs the Grammar-Tree*, ed. R. Tracy, 423-33. (Linguistische Arbeiten, 281). Tübingen: Niemeyer.

Lakoff, George. 1974. Syntactic amalgams. *Chicago Linguistic Society* 10: 321–44.

Merchant, Jason. 2001. *The Syntax of Silence: Sluicing, Islands, and the Theory of Ellipsis*. Oxford: Oxford University Press.

Potts, Christopher. To appear. Conventional implicatures, a distinguished class of meanings. In *The Oxford Handbook of Linguistic Interfaces*, eds. G. Ramchand, and C. Reiss.

Ross, John R. 1969. Guess who? *Cicago Linguistic Society* 5: 252-286.,eds. R. Binnick, A. Davison, G. Green, J. Morgan.

Tatevosov, Sergej G. 2002. *Semantika sostavljajuščix imennoj gruppy: Kvantornye slova*. Moskva: IMLI RAN.

Tsubomoto, Atsuro, and John Whitman. 2000. A type of head-in-situ construction in English. *Linguistic Inquiry* 31: 176-183.

Ušakov, D.N., ed. 1935. *Tolkovyj slovar' russkogo jazyka*, vol. 1. Moscow: Sovetskaja Ènciklopedija.

Yadroff, Michael, and Steven Franks. 2001. The origin of prepositions. In *Current Issues in Formal Slavic Linguistics*, eds. G. Zybatow, U. Junghanns., G. Mehlhorn, L. Szucsich, 69-79. Frankfurt/Main: Peter Lang (Linguistik International. Bd. 5).

FASL 13, 365–375
Michigan Slavic Publications
2005

The Syntax of Negative Imperatives in Balkan Slavic

Olga Mišeska Tomić
University of Leiden

The paper makes a distinction between MoodP, where the modal clitics are merged, and ModP, where the subjunctive marker is merged. It argues that in Balkan Slavic imperative morphology is checked in MoodP—not only in positive but also in negative imperative clauses where a NegP occurs between MoodP and VP.

1 MoodP is Distinct from both CP and ModP

For some linguists the subjunctive complementizers pattern with indicative complementizers; thus Dobrovie Sorin (1994) and Agouraki (1991) derive (merge) them in C. The subjunctive complementizers are, however, distinct from the indicative complementizers, not only in form (Macedonian/Bulgarian *da* versus Macedonian *deka/oti*; Bulgarian *če*),[1] but also in behavior. First, while the indicative complementizers occur to the left of the modal clitics (1a), the subjunctive compementizers occur to their right (1b).[2]

(1) a. *Ќe* *da* *dojde.* Mac
will$_{\text{MOD.CL}}$ that$_{\text{SUBJ.COMP}}$ come$_{\text{3SG.PAST}}$
'(S)he seems to have come.'

b. *Reče* *deka* *ќe* *dojde.* Mac
say$_{\text{3SG.PAST}}$ that$_{\text{IND.COMP}}$ will$_{\text{MOD.CL}}$ come$_{\text{1SG.PERF.PRES}}$
'(S)he said that (s)he would come.'

Second, while the subjunctive complementizer can be preceded by a *wh-*

[1] In Serbo-Croatian the subjunctive complementizer is formally indistinct from the indicative complementizer. Many authors speak of two different uses of *da* (see Bibović 1971, Browne 1981/1986, and Vrzić 1996). Ivić (1970) argues that *da* is homophonous between the indicative complementizer and a (modal-like) particle for subjunctive complements.

[2] The names of the languages are abbreviated as follows: Bul = Bulgarian; Mac = Macedonian; N-WMac = North-Western Macedonian; S-Cr = Serbo-Croatian; S-ESerb = South-Eastern Serbian; Serb = Serbian.

word without any restrictions, the indicative complementizer can be preceded by it only in echo questions:

(2) a. *Ne znam koj ќe dojde.* Mac
not know$_{1SG}$ who will$_{MOD.CL}$ come$_{3SG.PERF.PRES}$
'I do not know who will come.'

b. *Koj ќe dojde?* Mac
who will$_{MOD.CL}$ come$_{3SG.PERF.PRES}$
'Who will come?'

c. **Ne znam koj deka dojde.* Mac
not know$_{1SG}$ who that$_{IND.COMP}$ come$_{3SG.PERF.PRES}$
purported reading: 'I do not know who has come.'

d. *KOJ deka dojde?* Mac
who that$_{IND.COMP}$ come$_{3SG.PERF.PRES}$
'(You said that)WHO came?'

For Rivero (1994) the subjunctive marker is derived (merged) as a head of MoodP, along with invariant future-marking modal clitics such as the Macedonian *ќе* or the Bulgarian *ще*. As illustrated in (1a) and (3), however, the Balkan Slavic modal clitics can co-occur with the subjunctive mood complementizer.

(3) *Do jutre na pladne mi će da* S-ESerb
till tomorrowon noon we will$_{MOD.CL}$ that$_{SUBJ.COMP}$
završimo projekat.
finish$_{1PL.PERF.PRES}$ project
'By tomorrow noon we will have finished the project.'

Accordingly, Mood is distinct from Mod and is ordered to the right of it (see Tomić 2004):

(4) [$_{MODP}$ [$_{MOODP}$

2 NegP in Relation to ModP and MoodP

The Balkan Slavic negation operator occurs to the left of the subjunctive complementizer (and the modal clitic), as in the indicative clause (5), or to the right of the subjunctive complementizer and to the left of the verb, as in the bare subjunctive constructions (6).

(5) *Do jutre na pladne neće da* S-ESerb
till tomorrowon noon not-will$_{MOD.CL}$ that$_{SUBJ.COMP}$
završimo projekat.
finish$_{1PL.PERF.PRES}$ project
'By tomorrow at noon we will not have finished the project.'

(6) a. *Da* *ne* *dolazi!* S-Cr
b. *Da* *ne* *idva!* Bul
c. *Da* *ne* *doaġa!* Mac
that$_{SUBJ.COMP}$ not come$_{3SG.IMPERF.PRES}$
'(S)he shouldn't come!'

Thus we have two distinct Neg positions: one to the left of Mod, where the negation marker in negative future tense and other constructions with modals is merged, and another to the right of Mood, where the negation marker in negative subjunctives is merged.[3]

(7) [$_{NEGP}$ [$_{MODP}$ [$_{MOODP}$ [$_{NEGP}$

I argue that in imperative clauses (with imperative morphology) imperative morphology is checked in the MoodP in which the subjunctive marker is merged, while the negation operator is merged in the NegP to the right of MoodP, as in subjunctives (see also Tomić in print b).[4] Evidence for this argument is offered by the following facts. First, imperatives with imperative morphology and subjunctives share interpretative properties: both point to "non-veridical" events (see Giannakidou 1998) and can be used with imperative force (compare (6) and (8)). Second, imperatives with imperative morphology and subjunctives have the same selectional properties: both select verbs with imperfective aspect (compare (9) and (10)).[5]

(8) a. *Ne* *dolazi!* S-Cr

b. *Ne* *idvaj!* Bul

c. *Ne* *doaġaj!* Mac
not come$_{2SG.IMPERF}$
'Don't come!'

---

[3] There even exist clauses such as (i), in which Neg occurs twice:
(i) *Ne* *ḱe* *da* *ne* *dojde.* Mac
not will$_{MOD.CL}$ that$_{SUBJ.COMP}$ not come$_{3SG.PAST}$
'It is not likely that (s)he has not come.'

[4] There are no modals and, accordingly, no ModPs in imperative clauses with imperative morphology.

[5] When not negated, the verbs with imperative morphology, as well as the verbs in subjunctive constructions, can be either perfective or imperfective. In negated imperative clauses, however, verbs in Macedonian and Bulgarian have to be imperfective, whereas in Serbo-Croatian they have to be imperfective unless the sentence is heavy, as in (i-ii).

(9) a. *Da ne dolazi/*dođe!* S-Cr

b. *Da ne idva/*dojde!* Bul

c. *Da ne doaġa/*dojde!* Mac
that$_{\text{SUBJ.COMP}}$ not come$_{\text{3SG.IMPERF/PERF.PRES}}$
'(S)he shouldn't come!'

(10) a. *Ne dolazi/??dođi!* S-Cr

b. *Ne idvaj/*dojdi!* Bul

c. *Ne doaġaj/*dojdi!* Mac
not come$_{\text{2 SG.IMPERF/PERF.PRES}}$
'Don't come!'

3 Previous Analyses of Negated Imperatives

The relationship of negation to imperatives has often been discussed in the literature (Zanuttini 1991, 1997; Laka 1994; Kallulli 1995; Rivero and Terzi 1995; Han 1998; Tomić in print b; Isac and Jakab 2004). Most authors have dealt with the structural differences between the languages in which verbs with imperative morphology can be negated and those in which that is not the case.

For Zanuttini (1991, 1997) the impossibility of negating imperatives in a number of Romance languages/dialects follows from a subcategorization requirement. The negation operator, which subcategorizes for Tense, does not occur to the left of verbs with imperative morphology. Accordingly, in those languages/dialects in which the negation operator is preverbal, verbs with imperative morphology cannot be negated.

Laka (1994), discussing sentential negation in Spanish, claims that the incompatibility of negation and imperatives in this language is due to the fact that they are elements of the same syntactic category, which she labels Σ. Since in the presence of negation imperatives cannot be projected, sentences in which the negation operator immediately precedes verbs with imperative morphology are not acceptable.

Kallulli (1995) also presupposes a joint mood and negation node, which following Laka she labels Σ. Kallulli accounts for the fact that Albanian imperatives are often marked by the occurrence of the verb to the left of the clitics by assuming that the verb moves overtly to Σ. Compare the imperative sentence (11a) to its indicative counterpart (11b):

(11) a. *Hapnie derën!* Alb
open$_{\text{2PL.-3SG.ACC.CL}}$ door-the
'You (all) open the door!'

b. *E* *hapni* *derën.* Alb
it$_{3SG.ACC.CL}$ open$_{2PL}$ door-the
'You (all) are opening the door.'

In negative contexts, however, Σ dominates a modal negation marker *mos*, which is distinct from the indicative negation marker *nuc*, and there is no verb movement to Σ.

Rivero and Terzi (1995) account for differences in the relationship of negation and imperative morphology through different sites for the mood features. They argue that in Spanish and Modern Greek negative imperatives are unavailable, since Neg blocks the raising of the verb to C, where the mood feature in these languages has to be checked. In Serbo-Croatian and Ancient Greek, however, the strong mood feature is located in I, which is below Neg, and the verb can raise to it without crossing Neg.

Han (1998) posits C as the only locus of the imperative operator and argues that negative imperatives are unavailable in some languages because they have syntactic configurations in which negation takes syntactic scope over the imperative operator in C, which would lead to semantic incoherence. In languages such as Bulgarian and Serbo-Croatian, where negation is compatible with imperative morphology, the imperative verb is not in C at surface level, but lower in the clause. Having raised overtly to T to check its T-feature, the verb attaches to Neg, the two forming a single complex head which subsequently raises to AgrS for φ-feature checking. The weak imperative feature of the verb is then checked in C at LF.

Isac and Jakab (2004), like myself, propose that imperative force is hosted in MoodP, to the left of NegP, though they do not make any claims as to whether MoodP is in the IP field or in the CP field. Theyargue that cross-linguistic variation in the acceptability of negated imperative morphology follows from the particular properties that clitics and negation markers have across languages. When the negative marker is a syntactic head, it has blocking properties, while when it is a clitic it can cliticize onto the verb and allow for further movement of the verb past Neg to MoodP. In those cases where pronominal clitics occur between the negation operator and the imperative verb, as in Bulgarian and the Eastern and North-Western Macedonian dialects (see (12)),[6] the Mood feature is checked by the non-clitic Neg, which raises to Mood.

[6] Since it is the local dialect of the capital of Macedonia, Skopje, the North-Western Macedonian dialect has attracted the attention of many scholars. Some scholars (e.g., Franks 1998, Isak and Jakab 2004) have been treating the occurrence of the clitics between the negation operator and the imperative verb as a feature of standard Macedonian.

(12) a. *Ne* *MU* *ja* *čeTI!* Bul
not $him_{3SG.M.DAT.CL}$ $her_{3SG.F.ACC.CL}$ $read_{2SG.IMPERF}$

b. *NE* *mu* *ja* *ČItaj!* N-WMac
not $him_{3SG.M.DAT.CL}$ $her_{3SG.F.ACC.CL}$ $read_{2SG.IMPERF}$
'Don't read it to him!'

Zanuttini's, Laka's, and Kallulli's analyses were designed for Italian, Spanish, and Albanian, respectively, and cannot adequately be applied to Balkan Slavic. Rivero and Terzi's analysis did take into consideration Serbo-Croatian, a Balkan language where imperative morphology can be negated. Nevertheless, neither the relative position of imperatives with respect to clitics, nor their behavior with respect to negation provides conclusive evidence that the illocutionary force of the sentence can be checked at two different places. Moreover, the raising of the Serbo-Croatian negated imperative from I, where it checks its imperative feature, to C is in need of motivation.

As for Han, she herself admits having problems with the obligatory encliticization in Serbo-Croatian negative clauses and attributes it to some independent constraint of the language. But her account has a problem with encliticization in Macedonian imperative clauses in general, whether positive or negative. A weak imperative feature predicts that imperative verbs behave like indicative verbs with respect to negation and clitic placement. In Macedonian, however, indicative tensed verbs follow the clitics, whereas imperative verbs precede them (in Standard Macedonian always, in Northwestern Macedonian only when not negated).

Isac and Jakab cover a wide variety of Balkan languages, including Serbo-Croatian, Bulgarian, and Macedonian, and offer a unified analysis of verbs with imperative morphology and bare subjunctive constructions. Their analysis raises numerous questions, however. If, as commonly assumed in analyses of South Slavic, VP occurs to the right of agreement nodes projected by pronominal clitics, how does the pronominal clitic end up between the non-clitic negation marker and the imperative verb, and how does Neg in this case check the imperative force of the verb without the verb raising to it or to Mood along with it? Also: In languages such as Serbo-Croatian and (standard) Macedonian, in which Neg cliticizes to the verb, how do the clitics end up to the right of the verb (see (13))?

(13) a. *NE* *čitaj* *mu* *je!* S-Cr
not $read_{2SG.IMPERF}$ $him_{3SG.M.DAT.CL}$ $her_{3SG.F.DAT.CL}$
'Don't read it to him!'

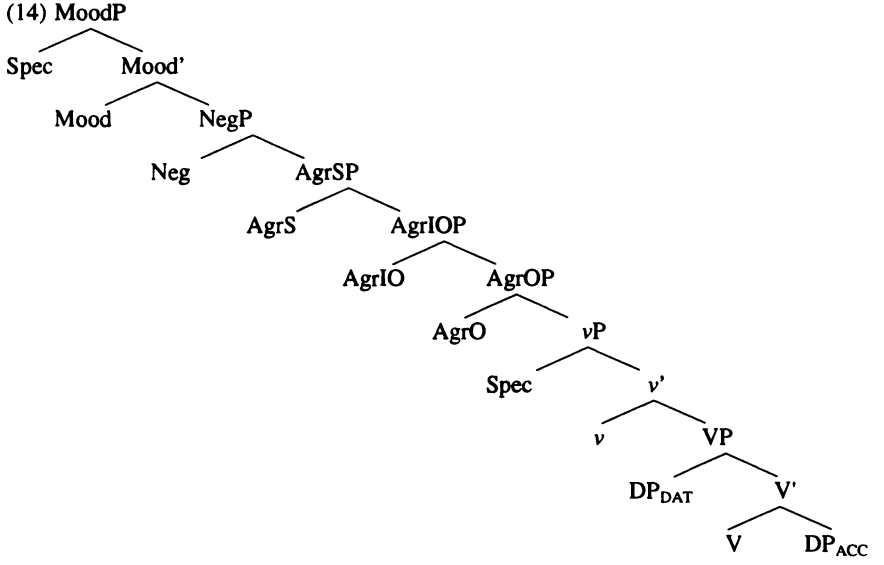
b. *Ne čiTAJ mu ja!* StMac
not $read_{2SG.IMPERF}$ $him_{3SG.M.DAT.CL}$ $her_{3SG.F.DAT.CL}$
'Don't read it to him!'

Most importantly, the clitic status of the languages discussed by Isac and Jakab does not follow from independent principles but is determined on the basis of their behaviour in negated imperatives. In what follows, I offer an alternative to the existing analyses.

4 A Proposal

As argued in Tomić (2000, in print), the Macedonian and Bulgarian pronominal clitics are derived (or merged) in head positions of agreement nodes to the right of AgrS/TP, whereas the Serbo-Croatian pronominal clitics are merged as arguments in VP and possibly "pass" through the agreement nodes on the way to their "second position". Since imperatives are tenseless and never co-occur with modals, there are no TPs or ModPs in the underlying structure of the Balkan Slavic negative imperatives. MoodP is to the left of NegP, while AgrSP, AgrIOP, AgrOP, vP and VP, in this order, are to its right.

(14)



In Serbo-Croatian the imperative verb raises to AgrSP to check its φ-features and merges with the week negation operator, which in PF makes up a phonological word with the verb. The pronominal clitics are left

behind. Since the behavior of negated imperative verbs is analogous to that of negated and tensed indicative verbs, we may assume that Mood is weak and the negative imperative verb resulting from the merge of the negation operator and the verb checks its imperative feature covertly.

In Bulgarian the behavior of negated imperative verbs is also analogous to the behavior of negated and tensed indicative verbs. Just as in indicatives the verb raises to AgrS/T to check its φ- and tense features, in imperatives it raises to AgrS to check its φ-features, in both cases picking up the pronominal clitics from AgrOP and AgrIOP.[7] The clitics-verb complex in AgrS merges with Neg, while imperative morphology is checked covertly.

Since the Bulgarian negation operator can occur clause-initially, it may be assumed that it is not clitic. Nevertheless, in clauses without pronominal clitics in which the negation operator immediately precedes the imperative verb, the stress falls on the same syllable of the verb that it falls on in non-negated imperatives (compare (15a) and (15b)). This argues for the proclitic status of the negation operator.

(15) a. *Ne riSUvaj seGA!* Bul
not $\text{draw}_{\text{2SG.IMPERF}}$ now
'Don't draw now!'

b. *RiSUvaj vniMAtelno!* Bul
$\text{draw}_{\text{2SG.IMPERF}}$ carefully
'Draw carefully!'

In Bulgarian negative imperative clauses with clitics such as (12a), the subcategorizations of the inherently proclitic negation operator and the inherently enclitic pronominal clitics actually "cancel" each other (see Inkelas 1989), and we get a phonological word in which the stress rules place the stress on the second syllable from the left.

---

[7] As observed, I am deriving the pronominal clitics as heads of object agreement nodes, though this involves right- rather than left-adjunction to the verb. Bošković (2001) argues that the Macedonian and Bulgarian clitics are XP/X^0 elements in specifier positions of AgrIOP and AgrOP nodes with empty heads. His analysis is in line with Kayne's (1994) leftward adjunction system, since each clitic "jumps" and left-adjoins to the verb or verb-clitic complex as soon as it moves to the head on its left. But if the specifiers of agreement nodes are occupied, there are serious problems with clitic doubling, a very important feature of the Balkan languages and of Macedonian in particular. Moreover, the Macedonian and Bulgarian clitic clusters, which in all current analyses are formed in syntax and include auxiliary clitics and subjunctive and negation markers in addition to pronominal clitics, would include items derived in specifiers as well as items derived in heads.

In North-Western Macedonian negated imperatives, the clitics are between the negation operator and the verb, as in Bulgarian (cf. 12b), though their cliticization strategy is different: while in Bulgarian the clitics form a phonological word with the negation operator, in North-Western Macedonian they encliticize to it. This indicates that in North-Western Macedonian we have a strong Neg in specifier position to which the clitics-verb complex moves. The imperative features of the verb are again checked covertly (see Tomić 2001).

In standard Macedonian the negation operator is always to the left of the imperative verb and together with the verb and the clitics to its right forms an antepenultimately stressed single phonological word (see (13b)). In this case the verb+clitics complex raises as far as AgrSP and the verb excorporates and raises to the strong Mood, along with Neg, with which it merges "on its way".[8]

Note that in the negated imperatives of the non-Slavic Balkan languages the clitics are located between the negation operator and the verb and encliticize to the negation operator, as they do in North-Western Macedonian.

5 Conclusion

Imperative morphology in Balkan Slavic negative imperatives is checked by Mood, overtly or covertly. The negation operator to the right of Mood may be clitic, in which case it merges with the pronominal clitics, or non-clitic, in which case it hosts the pronominal clitics. But the clitic status of Neg does not have a direct influence on the site where imperative morphology is checked.

[8] Note that Bošković (2001) argues for a different, PF movement of the Macedonian imperative verb. Adopting the copy theory of movement and assuming that a lower copy of a non-trivial chain can be pronounced instead of the head of the chain iff this is necessary to satisfy a PF requirement, he argues that the occurrence of the clitics to the right of the Macedonian imperative verb is due to the existence of an underlying PF affix to the left of the verb with which the verb has to merge. In underlying structure both indicatives and imperatives have clitic-V order, with a lower copy of the pronominal clitic following the verb. In indicatives the higher copy of the clitic can be, hence must be pronounced. In imperatives on the other hand, pronunciation of the higher copy of the clitic leads to a Stranded Affix Filter violation, so the lower copy of the clitic to the right of the verb is pronounced. Bošković's analysis, however, does not make provision for a unified treatment of subjunctives and imperatives and, if extended to cover all the manifestations of negative imperatives, would require the introduction of additional PF affixes.

References

Agouraki, Georgia. 1991. A Modern Greek complementizer and its significance for universal grammar. *UCL Working Papers in Linguistics* 3: 1-24.

Bibović, Ljiljana. 1971. Some remarks on the factive and non-factive complements in English and Serbo-Croatian. In *The Yugoslav Serbo-Croatian–English Contrastive Project, Studies* 3, ed. Rudolf Filipović, 37-48. Zagreb: Institute of Linguistics.

Bošković, Željko. 2001. *On the nature of the syntax-phonology interface: Cliticization and related phenomena.* Amsterdam: Elsevier Science.

Browne, Wayles. 1986. *Relative clauses in Serbo-Croatian: The Yugoslav Serbo-Croatian–English contrastive project, New Studies 4*, ed. Rudolf Filipović. Zagreb: Institute of Linguistics.

Dobrovie-Sorin, Carmen. 1994. *The syntax of Romanian: Comparative studies in Romanian.* Berlin: Mouton de Gruyer.

Franks, Steven. 1998. Clitics in Slavic. Paper presented at the *Comparative Slavic Morphosyntax Workshop*. Spencer, Indiana, June 1998.

Giannakidou, Anastasia. 1998. *Polarity sensititivity as (non)veridical dependency* (Linguistik Aktuell/Linguistics Today). Amsterdam: John Benjamins.

Han, Chung-Hye. 1998. Cross-linguistic variation in the compatibility of negation and imperatives. *Proceedings of the Seventeenth West Coast Conference on Formal Linguistics*, eds. K. Shahin, S. Blake, and E.-S. Kim, 1-17. Stanford, Calif.: CSLI .

Kallulli, Dalina. 1995. Optional verb movement: Albanian imperatives. Ms., University of Darham.

Inkelas, Sharon. 1989. *Prosodic constituency in the lexicon*. Ph.D. dissertation, Stanford .

Isac, Daniela and Edit Jakab. 2004. Mood and force features in the languages of the Balkans. In *Balkan Syntax and Semantics* (Linguistik Aktuell/Linguistics Today), ed. Olga Mišeska Tomić, 315-338. Amsterdam: John Benjamins.

Ivić, Milka. 1972. Problematika srpskohrvatskog infinitiva. *Zbornik Matice Srpske* 15(2): 115-138.

Laka, Itziar. 1994. *On the syntax of negation* (Outstanding Dissertations in Linguistics). New York: Garland.

Rivero, María-Luisa. 1994. Clause structure and V-movement in the languages of the Balkans. *Natural Language and Linguistic Theory* 12: 63-120.

Rivero, María-Luisa, and Arhonto Terzi. 1995. Imperatives, V-movement and logical mood. *Journal of Linguistics* 31: 301-332.

Tomić, Olga Mišeska. 2000. On clitic sites. In *Clitic Phenomena in European Languages*, eds. F. Beukema and M. den Dikken, 293-317. Amsterdam: Benjamins.

Tomić, Olga Mišeska. 2001. The Macedonian negation operator and cliticization. *Natural Language and Linguistic Theory* 19: 647-682.

Tomić, Olga Mišeska. 2004. The Balkan Slavic future tenses. *Lingua* 114: 517-542.

Tomić, Olga Mišeska. In print a. The South Slavic pronominal clitics. *Journal of Slavic Linguistics* (special issue *Pronominal Clitics in Slavic)*, eds. P. Law and U. Junghans).

Tomić, Olga Mišeska. In print b. Pronominal clitics and imperatives in South Slavic. In

Imperative Clauses in Generative Grammar (Linguistik Aktuell), ed. Wim van der Wurff. Amsterdam: John Benjamins.

Vrzić, Zvjezdana. 1996. Categorial status of the Serbo-Croatian 'modal' *da*. In *Formal Approaches to Slavic Linguistics: The College Park Meeting 1994*, ed. J. Toman,, 291-312. Ann Arbor: Michigan Slavic Publications.

Zanuttini, Rafaela. 1991. Syntactic properties of sentential negation. A comparative study of Romance languages. Ph.D. dissertation, University of Pennsylvania.

Zanuttini, Rafaela. 1997. *Negation and clausal structure: A comparative study of Romance languages* (Oxford Studies in Comparative Syntax), New York: Oxford University Press.

FASL 13, 376–386
Michigan Slavic Publications
2005

Russian Palatalization and Opacity in Optimality Theory*

Julia Yarmolinskaya
Johns Hopkins University

There are two phenomena of Russian phonology that affect velars to the exclusion of other consonants: First Velar Mutation, which changes a palatalized velar followed by a high front vowel to a palatalized palato-alveolar (kʲi ⇒ čʲi), and Post-velar Fronting, which fronts a high central vowel preceded by a velar to a high front vowel (kɨ ⇒ kʲi). In an important study, Padgett (2003) attempts to capture the relationship between these two phenomena, arguing that while both affect velars they stand in a chain-shift/counterfeeding relationship. While Padgett's account is successful, it introduces several extensions to the OT machinery. I will provide a different analysis, based on, the Targeted Constraints of Wilson (2000), which, provides fewer and better-motivated extensions of the OT framework.

1 Basic Generalizations

Most Russian consonants contrast in palatalization, as shown in (1)

(1)	*suda*	'court of law (gen.sg.)		*sʲuda*	'here'
	polka	'shelf'		*polʲka*	'polka'

Velar consonants by and large do not contrast in palatalization but vary allophonically, surfacing with palatalization before front vowels [i, e] (2a) but without palatalization elsewhere (2b).

(2)	a.	*gʲerp*	'coat of arms'		* *gerp*
		xʲitrʲec	'a sly person'		* *xitrʲec*
	b.	*koška*	'cat'		* *kʲoškʲa*
		gurt	'herd'		* *gʲurt*

* Comments were graciously provided by Luigi Burzio, Paul Smolensky, Jaye Padgett, and one anonymous referee. All remaining errors are my own.

However, while the claim that velars do not contrast before front vowels is uncontroversial, the further claim that they also do not contrast elsewhere is not, a point to which I will return later.

Turning now to vowels, the Russian vowel inventory consists of five vowels: /i, e, a, o, u/. However, input /i/ or /ɨ/ surfaces as [ɨ] after a non-palatalized consonant and as [i] elsewhere.

(3) *bɨt* 'way of life' *bʲit* 'beaten'
tɨkatʲ 'to poke' *tʲikatʲ* 'to tick'

After velars, which themselves vary allophonically as noted earlier, only the allophone [i] is found, resulting in a palatalized velar. This general effect whereby an input /kɨ/ surfaces as [kʲi] is referred to as 'Post-velar Fronting' (PVF) and will be a main focus of this paper.

2 Basic OT Analysis

Despite its complexity, PVF can be analyzed straightforwardly with standard OT, as shown in (4), requiring no particular extensions so far. Both (4a) and (4b) are instantiations of the standard allophonic variation schema of OT, while (4c) is the combination of (4a) and (4b). The relevant constraints are defined in (5)–(9) below. The ranking in (4b) rests on the provisional assumption that velar palatalization is always allophonic.

(4) a. Allophonic variation I: Velars
AGREE-CV >> *Cʲ >> IDENT (back, k)
b. Allophonic variation II: [i] / [ɨ]
AGREE-CV >> *ɨ >> IDENT-V
c. Post-velar Fronting
AGREE-CV >> *ɨ >> IDENT-V, *Cʲ >> IDENT (back, k)

(5) AGREE-CV: A consonant and the following vowel must agree in backness

(6) *Cʲ: A consonant must not have a secondary articulation of palatalization

(7) IDENT (back, k): Corresponding input and output velar consonants ("k") must have identical values for palatalization

(8) *ɨ: Not [ɨ]

(9) IDENT–V: Corresponding input and output vowels must have identical values for color (i.e., backness and rounding)

I concur with Padgett (2003) in interpreting the constraint *ɨ in terms of Dispersion Theory (Flemming 1995), the perceptual distance between [i] and [ɨ] on the one hand and [ɨ] and [u] on the other being only moderate.

Tableau 1 illustrates how the ranking in (4c) accounts for PVF. It is in particular the ranking of *ɨ above IDENT (back, k) that will induce PVF, with agreement being satisfied via palatalization of the velar.

Tableau 1. Post-velar Fronting (if k/k^j is always allophonic)[1]

	kɨ	AGREE-CV	*ɨ	IDENT-V	*C^j	IDENT (back, k)
a.	kɨ		*!			
A.	k^{j}ɨ	*!	*		*	*
b.	ki	*!		*		
B.	☞ k^{j}i			*	*	*

Tableau 1 shows that because IDENT (back, k) is ranked low, it cannot force marked [ɨ] to surface. That means that a non-palatalized sequence [kɨ] will not surface either, as the backness agreement is enforced by the higher-ranked AGREE-CV. Thus candidate (B) with a palatalized velar and a front vowel will inevitably win. This is the phenomenon of PVF.

As was mentioned earlier, while it is uncontroversial that velars are always palatalized before front vowels, as we will see in connection with Padgett's (2003) analysis in the next section there are different opinions on whether velars contrast elsewhere. It will be of relevance to later discussion to note, however, that for the present analysis it is not crucial to take one view or the other, since a single change in ranking will account for contrastive, rather than allophonic, variation of velars without jeopardizing the present account of PVF.

The contrastive analysis of velars would be as in (10a), yielding the revised schema for PVF in (10b).

(10) Post-velar Fronting (alternative)

a. Limited Allophonic variation I: Velars
AGREE-CV >> IDENT (back, k) >> *C^j

c. Post-velar Fronting:
AGREE-CV >> *ɨ >> IDENT-V >> IDENT (back, k) >> *C^j

[1] From here on I will use capital letters for the candidates containing palatalized consonants and the same letter in lower case for the corresponding candidate with a non-palatalized consonant.

As can be seen from the optimization in Tableau 2, this single permutation does not affect the outcome of the optimization, and candidate (B) still remains the winner regardless of the nature of the input.

Tableau 2. Post-velar fronting (if k/k^{j} is contrastive before [a, o, u])

	k^{j}i	AGREE-CV	*i	IDENT-V	IDENT (back, k)	*C^{j}
a.	ki		*!			
A.	k^{j}i	*!	*		*	*
b.	ki	*!		*		
B.	☞ k^{j}i			*	*	*

This ranking schema does not produce fronting of /i/ to [i] after non-velar consonants, as can be seen in Tableau 3, as FAITHFULNESS distinguishes between velars and non-velars and IDENT (back, p) is ranked higher than FAITHFULNESS for velars.

Tableau 3. No fronting after non-velars

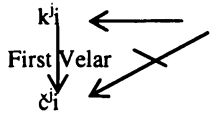
	pi	IDENT (back, p)	AGREE-CV	*i	IDENT-V	*C^{j}	IDENT (back, k)
a.	☞ pi			*			
A.	p^{j}i	*!	*	*		*	
b.	pi		*!		*		
B.	p^{j}i	*!			*	*	

(11) IDENT (back, p): Corresponding input and output non-velar consonants ("p") must have identical values for palatalization

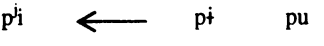
3 Comparison with Padgett (2003)

Padgett relates Post-velar Fronting to another process that affected velars—First Velar Mutation (First Velar), which turned velars into palato-alveolars before front vowels: *k^{j}i* ⇒ *č ^{j}i*, here and elsewhere illustrated as in (12).

(12) a. PVF



b. *



*violates *MERGE

In (a), PVF occurs to enhance the contrast kɨ/ku—essentially the same account given above, which follows Padgett's. The reason the same process does not occur in (b) is that this would merge the underlying contrast /pʲi/, /pɨ/. This is also similar to the above account, which preserves the contrast p/pʲ via a high-ranked IDENT (back, p) constraint. In (a), on the other hand, there is no violation of *MERGE because the underlying sequences /kʲi/ have turned to /čʲi/ by way of the First Velar. This is a process that occurred productively in Proto-Slavic and caused palatalized velars followed by a front vowel or [j] to front to palatalized palatoalveolars with k→čʃ, g→ž, and x→š.

While successful, Padgett's (2003) analysis requires extending OT in a number of different directions. The first one consists of introducing the "comparative" notion of MARKEDNESS provided by Dispersion Theory (DT) (Flemming 1995): PVF (kɨ ⇒ kʲi) occurs to enhance perceptual distance because [ɨ] is too close to both [i] and [u] in 'color' (backness and rounding). The present analysis shares this particular extension.

The second extension of OT used by Padgett consists of the derivations of Lexical Phonology and Morphology OT of Kiparsky (2000). The counterfeeding relationship of First Velar and PVF is accounted for by treating First Velar as lexical and PVF as post-lexical—a derivational relation. Instead, the present analysis uses the Targeted Constraints (TCs) of Wilson (2000) to account for the opaque relationship.

Padgett's analysis also requires the addition of *MERGE constraints to prevent vowel fronting with non-velars, as shown in Tableau 4.

(13) *MERGE: No word of the output has multiple correspondents in the input

Tableau 4.

	pi_1 $pɨ_2$ pu_3	*MERGE	SPACE
a.	☞ pi_1 $pɨ_2$ pu_3		*
b.	$pi_{1,2}$ pu_3	*	

The sequence /pɨ$_2$/ of the input cannot front to [pi$_2$] because it will be indistinguishable from the already existing [pi$_1$], thus causing [pi] of the output to have two input correspondents, /pi$_1$/ and /pɨ$_2$/.

The introduction of *MERGE is rather problematic because of its redundancy with standard OT resources, MARKEDNESS and FAITHFULNESS. This redundancy can be illustrated by a simple example contrasting vowel nasalization in English, where vowel nasalization is allophonic before nasal consonants, and in French, where it is contrastive.

Tableau 5. Allophonic vowel nasalization in English

	kæn	AGREE-VC	*Vnasal	IDENT (nasal)
a.	☞ kæ̃n		*	*
b.	kæn	*!		

*Vnasal: Nasal vowels are banned.

IDENT (Nasal): Corresponding input and output vowels should have identical values for nasalization.

In Tableau 5, the relationship *Vnasal >> IDENT (nasal) expresses the fact that in English vowels do not contrast in nasalization. In contrast to English, however, French does not allow this kind of nasalization. This can be accounted for as in Tableau 6.

Tableau 6. Contrastive vowel nasalization in French

	/kan/ 'city of Cannes'	IDENT (nasal)	AGREE-VC	*Vnasal
a.	☞ kan		*	
b.	kãn	*!		*

In Tableau 6, the relationship IDENT (nasal) >> *V(nasal) expresses the fact that unlike in English vowel nasalization is contrastive in French: [bɔ] (*beau*) 'beautiful' / [bɔ̃] (*bon*) 'good'. Note that, descriptively, the difference between English and French reveals a *MERGE effect, nasalization blocking in French where it would merge the contrast between nasal and oral vowels. Yet no *MERGE constraint is needed, the difference in the ranking of IDENT (nasal) being sufficient as well as necessary to express the contrast in the first place. Such redundancy of *MERGE and regular FAITHFULNESS is systematic, the only exception being sequences like Padgett's [pi, pɨ, pu] of Tableau 4. To extend the use of FAITHFULNESS to such cases would require creating new classes of FAITHFULNESS constraints that refer to sequences. This in fact brings me to the next point.

In addition to relying on Dispersion Theory, Padgett's analysis also requires that the latter be applied to CV sequences as in Tableau 4. This is a rather controversial use of DT. For one thing, one would in general expect inventories to be definable over sequences, as well as segments unlike in standard descriptions which define inventories of segments. Secondly, this would predict unattested repairs in the class of phenomena that are characterized as inventory reductions (Steriade 1994, 1997). For instance, compromised perceptibility of vowels in unstressed position should be repairable by limiting the number of consonants that can

combine with the vowels rather than the number of vowels themselves. However, the latter is the only attested repair. The present analysis avoids such consequences by strictly limiting the application of DT to segments.

Finally, as was shown in Tableaux 1 and 2 above, the present analysis works regardless of whether velar palatalization is always allophonic or is contrastive before non-front vowels. Padgett's analysis indirectly relies on the latter assumption, because if velar palatalization is allophonic IDENT (back, k) is lower-ranked than IDENT (back, p) and that will be sufficient to also account for PVF just with velars, making *MERGE unnecessary. However, while there are a small number of words in which a non-front vowel is preceded by a palatalized velar, most of them are borrowed and do not form minimal pairs with other words.

4 Targeted Constraints Analysis

4.1 Opacity and targeted constraints

As we have seen in Sections 3 and 4, PVF and First Velar stand in a counterfeeding relationship to each other. The standard resources of OT provide no means of characterizing counterfeeding or counterbleeding relationships, jointly referred to as opacity. While Padgett (2003) utilizes the derivational framework of Lexical Phonology adapted to OT to account for the counterfeeding effect, I argue that an account based on Targeted Constraints (Wilson 2000) is superior.

Targeted constraints are based on the idea that some elements are perceptually weak because they lack sufficient cues (Steriade 1994, 1997) and that such perceptually weak elements are both penalized and directed to specific repairs. Each targeted constraint can be understood as a conjunction of two components, as described in (14).

(14) a. an untargeted MARKEDNESS constraint that penalizes certain types of structures in the output and

b. a repair conditioned by a perceptual similarity relation (see also Steriade 2000): certain elements which lack sufficient perceptual cues according to some criterion are minimally different from a designated alternative.

Thus, TCs both penalize and impose a specific repair for perceptually weak contrasts—a notion directly related to Dispersion Theory, which sets criteria of perceptual distinctness.

The crucial property of TCs is that they only compare candidates that differ by the offending weak element and no more, thus ignoring perceptually distant candidates altogether. The choice of candidates

being compared is determined by the extent of perceptual similarity. Only the candidate that satisfies the targeted constraint and is perceptually closest to the violator is accessible for comparison. Targeted constraints thus combine elements of both MARKEDNESS, by penalizing certain types of degeneracy (see (14a)) and FAITHFULNESS, by directing the repair to a structure that is minimally different (see (14b)). The critical innovation is that the minimal difference is measured not between an input and an output, but between a potential output, which contains perceptual cues, and an alternate output.

The remaining (non-targeted) constraints compare all violating and non-violating candidates in standard OT fashion.

Wilson (2000) showed that TCs are successful in providing a proper account of neutralization effects. In the perspective of Wilson (2000), which follows Steriade (1994, 1997), neutralizations occur for essentially Dispersion Theoretic reasons: an element in a candidate output is too close to an alternative. Since the above discussion has assumed, following Padgett, that the constraint banning [i̯] has a Dispersion Theoretic basis, it now follows that it should be interpreted as a targeted constraint. I will assume the formulation in (15), where "⇒" identifies the constraint as being targeted.

(15) ⇒ *i̯: Avoid [i̯] because it is insufficiently distinct from [i]

Wilson (2000) has shown further that besides providing a proper account of neutralization effects, targeted constraints can also account for Opacity effects, a long-standing problem for OT. I will argue that the targeted constraint in (15) is in fact responsible for the counterfeeding relation between PVF and First Velar discussed above. A simplified TC analysis of PVF is given in Tableau 7 with constraints in (16) and (17) constituting the grammar of First Velar.

Tableau 7. Post-velar Fronting

	ki̯	⇒*i̯	IDENT-V	1ST VELAR	IDENT (place,C)
a.	ki̯	*	a ≻ b, c		a ≻ c
b.	☞ ki	b ≻ a	*	*	b ≻ c
c.	či		*	b, c ≻ a	*
		b ≻ a	b ≻ a ≻ c		

(16) IDENT (place, C): Corresponding input and output consonants must have the same primary place of articulation.

(17) FIRST VELAR: Avoid [dorsal] place before [i].

In order to determine the winner of the optimization, the comparisons of candidates for each constraint, given in the otherwise empty cells, are combined into a harmonic ordering for the whole optimization, given in the bottom row, where each step gives the harmonic ordering so far, going left to right, until the winner is identified. If a comparison of candidates for a lower-ranked constraint contradicts that for a higher-ranked constraint, the lower-ranked comparison is discarded just as in regular OT.

This tableau abstracts away from palatalization. Its primary goal is to show that although the constraint hierarchy contains a grammar of First Velar, where the MARKEDNESS constraint First VELAR banning [dorsal] place dominating the corresponding FAITHFULNESS constraint, an input /kɨ/ is repaired to [ki] (PVF) without undergoing First Velar counterfeeding. The reason for this is the targeted constraint ⇒*ɨ, which compares candidate (a) only with the perceptually similar (b) and not with (c), which differs from (a) non-minimally. Since the rest of the grammar prefers faithful (a) over (c), the undominated targeted constraint simply asserts (b) over (a), making it the winner. In contrast, an input /ki/ will regularly undergo First Velar, as shown in Tableau 8.

Tableau 8. First Velar Mutation

ki	⇒*ɨ	IDENT-V	1ST VELAR	IDENT (place,C)
a. kɨ	*	*	a ≻ b	a ≻ c
b. ki	b ≻ a	b ≻ a	*	b ≻ c
c. ☞ či		c ≻ a	c ≻ b	*
	b ≻ a	b, c ≻ a	c ≻ b ≻ a	

Once again, ⇒*ɨ asserts (b) over (a), but this time this has no effect, since the rest of the grammar favors (c) over the other two candidates, as is easy to see. Thus (c) is the winner.

4.2 The distributional relation between Post-Velar Fronting and First Velar Mutation

As noted, the two phenomena discussed above, PVF and First Velar, have similar distributions, both affecting only velar consonants. We have seen that the reason PVF applies only to velars is the ranking in (18).

(18) IDENT (back, p) >> IDENT (back, k)

To express the fact that First Velar only applies to velars, there are two logical possibilities within the present approach, outlined in (19).

(19) a. MARKEDNESS distinguishes between velars and non-velars
b. FAITHFULNESS distinguishes between velars and non-velars

The previous subsection assumed (19a) by way of Tableau 8 above, which specifically referred to velars as in (17). The relevant FAITHFULNESS constraint was the undifferentiated IDENT (place, C).

Nonetheless, I will propose an alternative way to correlate PVF with First Velar that seems less problematic since so far it appears to be an accident that both PVF and First Velar both apply to velars. This account consists of tying the velar/non-velar difference relative to First Velar to FAITHFULNESS as (19b) above, expressed in (20).

(20) IDENT (dorsal, palatal):
a. Do not change [dorsal] articulation in the presence of (secondary) [palatal] articulation
b. Do not change (secondary) [palatal] articulation in the presence of [dorsal] articulation

The proposal is that IDENT constraints, at least in the case of secondary articulation, be (i) relativized to primary place and (ii) understood symmetrically, where change in primary place is correspondingly also relativized to secondary articulation. A correlation between PVF and First Velar will ensue under the ranking in (21), which updates (18).

(21) IDENT (non-dorsal, palatal) >> IDENT (dorsal, palatal)

The grammar of PVF will now consist of the subhierarchy in (22).

(22) Post-velar Fronting
IDENT (non-dorsal, palatal) >> *i >> IDENT (dorsal, palatal)

The account in (22) is virtually identical to the one given earlier, requiring no special comment. At the same time, the grammar of First Velar will correspondingly consist of the hierarchy in (23).

(23) First Velar Mutation
IDENT (non-dors, pal) >> First VELAR >> IDENT (dors, pal)

The account of First Velar applying to velars provided by (23) is very similar to the one already given. First VELAR is now able to apply to velars because dorsal place is subject to the lower-ranked IDENT (dors, pal) of (23). In contrast, First VELAR is blocked with non-velars because the higher-ranked IDENT (dors, pal) is involved as shown in Tableau 9.

Tableau 9. First Velar Mutation inapplicable to non-velar consonants

	pi	IDENT (dors, pal)	*i̯	IDENT-V	1st VELAR	IDENT (dors, pal)
a.	pi̯		*!	*		
b.	☞ pi					
c.	či	*!				*

Thus the restriction of both phenomena to velars is captured through the symmetrical interpretation in (20), which makes it possible to take the same low-ranked IDENT constraint that referred to secondary palatalization in the context of a velar controlling PVF, to also refer to velar place in the context of secondary palatalization, thus controlling First Velar simultaneously.

5 Conclusion

I have shown that PVF is by itself a special case of allophonic variation for which standard OT would be sufficient. The counterfeeding relation between First Velar and PVF can be accounted for by Targeted Constraints—a formalization of Dispersion Theory concepts, which is needed independently. The restriction of both PVF and First Velar can be achieved by postulating an IDENT constraint that refers to both place and palatalization symmetrically. In contrast to that of Padgett (2003), this account requires no derivations, no *MERGE constraints, and no dispersion of sequences.

References

Flemming, Edward. 1995. Auditory representations in phonology. Ph.D. dissertation, University of California, Los Angeles.

Kiparsky, Paul. 2000. Opacity and cyclicity. *Linguistic Review*: 17, 351–365.

Padgett, Jaye. 2003. Contrast and Post-velar Fronting in Russian. *Natural Language and Linguistic Theory* 21: 39–87.

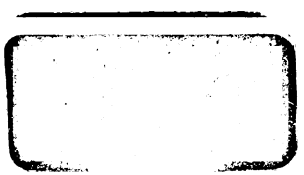
Prince, Alan, and Paul Smolensky. 1993. Optimality Theory: Constraint interaction in generative grammar. Ms., Rutgers University, New Brunswick, NJ, and University of Colorado, Boulder.

Steriade, Donca. 1994. Positional neutralization and the expression of contrast. Ms., UCLA.

Steriade, Donca. 1997. Phonetics in phonology: The case of laryngeal neutralization. Ms., University of California, Los Angeles.

Wilson, Colin. 2000. Targeted constraints: An approach to contextual neutralization in Optimality Theory. Ph.D. dissertation, Johns Hopkins University.

Wilson, Colin. 2001. Consonant cluster neutralization and targeted constraints, *Phonology* 18.1: 147-197.



Andreeva
Arnaudova
Babby
Bar-Shalom
Bethin
Brun
Bylinina
Chtareva
Davies
Franks
Gladney
Golędzinowska
Kapatsinski
Kavitskaya
Krivokapić
Kuznetsova
Lambova
Lavine
Lee
Liakin
Migdalski
Oliver
Pereltsvaig
Progovac
Pugach
Rice
Rivero
Rudin
Rutkowski
Savchenko
Scheer
Sekerina
Slabakova
Steinmetz
Testelets
Tomić
Yarmolinskaya

ISBN 0-930042-81-6
9 780930 042813