[Formal] Approaches to [Slavic] Linguistics

The Seattle Meeting 1998

Formal Approaches to Slavic Linguistics 7, 1998

Annual Workshop on Formal Approaches to Slavic Linguistics

The Seattle Meeting 1998

edited by
Katarzyna Dziwirek
Herbert Coats
Cynthia M. Vakareliyska

PG

$/3$

$.M59$

$no.44$

Contents

Preface

Preface

1998 was the first year the Workshop on Formal Approaches to Slavic Linguistics was held on the West Coast. This volume consists of revised and edited versions of papers given at the Seventh FASL Workshop at the University of Washington in Seattle, May 8–10, 1998, and co-sponsored by the University of Washington and the University of Oregon.

We are greatly indebted to the people and institutions who helped to make this West Coast debut possible. Funding was provided by the following University of Washington units: the Office of the Dean of the College of Arts and Sciences, the Graduate School, the Humanities Center, the Department of Slavic Languages and Literatures, the Department of Linguistics, and the program in Russian, East European and Central Asian Studies (REECAS). We thank them all for their generous support. We particularly wish to thank Karl Kramer, chair of the Department of Slavic Languages and Literatures, and James West, director of REECAS, who helped to get the funding ball rolling by establishing the initial finances.

We would also like to acknowledge the unstinting donation of time and expertise of colleagues who refereed abstracts for the conference; they are dedicated and generous in their service to the Slavic linguistics community. Our thanks go to Leonard Babby, John Bailyn, Christina Bethin, Loren Billings, Željko Bošković, Wayles Browne, Robert Channon, Ronald Feldstein, George Fowler, Steven Franks, Lenore Grenoble, Tracy Holloway King, Masha Polinsky, Ljiljana Progovac, Catherine Rudin, Jindrich Toman, and Draga Zec. (John Baylin, Loren Billings, George Fowler, Steven Franks, Tracy Holloway King, Catherine Rudin, and Jindrich Toman also served as panel chairs.)

A conference cannot be run without a small army of volunteers who make sure that things actually happen. Jim Augerot and Julie McCalden served on the organizing committee; Shosh Westen did everything and anything to keep the conference flowing smoothly. All three were invaluable members of the team throughout the entire process from September till May. David Miles' administrative savvy made it possible for us to navigate the budget complexities. Students from the UW Department of

Slavic Languages and Literatures helped run the conference with an outstanding degree of professionalism and good humor. Special thanks go to Dowell Eugenio, Laura Kemmer, Don Livingston, Amarilis Lugo Pagan (now Lugo de Fabritz), Charlie Mills, and Galya Samoukova.

The conference program consisted of twenty-two refereed presentations and three invited talks. We were greatly honored to have as invited speakers Johanna Nichols, Barbara Partee, and David Pesetsky and we thank them for their participation.

The papers in this volume cover East, West, and South Slavic languages, and focus on topics in the areas of phonology, morphology, syntax, and discourse. All the papers underwent a rigorous two-step editing and revision process for content and for format. We are particularly grateful to George Fowler and Andrea McDowell at Slavica Publishers, whose dedication and commitment to this volume merit very special mention. These two colleagues selflessly spent many hours copyediting and converting the camera-ready texts of the individual papers into a uniform format. We all owe them a huge debt of gratitude.

We also thank Elizabeth Jean Myers and Jindrich Toman for help in the production of the volume. We look forward to many more FASL conferences here in the other half of the U.S., west of the Mississippi.

The Editors,

Katarzyna Dziwirek,
Department of Slavic Languages and Literatures
University of Washington
Seattle, Washington

Herbert Coats
Department of Slavic Languages and Literatures
University of Washington
Seattle, Washington

Cynthia M. Vakareliyska
Department of Linguistics
University of Oregon
Eugene, Oregon

Adjectives in Russian: Primary vs. Secondary Predication

Leonard H. Babby
Princeton University

1.0. Introduction

I have returned to the relation between the long form (LF) and short form (SF) of the adjective in Russian because recent work in theta, binding, and predication theory along the lines of Williams 1994 has made it possible to propose an account that is more explanatory than the analysis I proposed in Babby 1973, 1975 (see Bailyn 1994 for a different approach). This paper will be limited to a strictly syntactic explanation of the complementarity of LFs and SFs: I argue that they never cooccur in the same syntactic positions and that sentences like (1a-b) thus have different syntactic structures.

(1) a. Vino bylo vkusno. 'The-wine was $good_{sf}$'
    b. Vino bylo vkusnoe. 'The-wine was $good_{lf}$'
    c. [vkusnoe / *vkusno vino]$_{NP}$ '$good_{lf/*sf}$ wine'

I will thus not discuss adjectives whose LF and SF have developed different lexical meanings, on-going changes involving replacement of the SF by the LF in dialect and colloquial Russian, or the nominative vs. instrumental case of the LF in sentences like *On vernulsja vzvolnovannyj$_{nom}$ / vzvolnovannym$_{inst}$* 'He returned agitated' (see Bailyn and Rubin 1991).

There are two types of predication: (i) *Primary predication*, where the adjective's (A) external theta role is assigned to the projected AP's external NP argument, the "dedicated" subject of the sentence; this NP is assigned no other theta roles (e.g. see (1a)). (ii) *Secondary predication*, where an AP's external theta role is not assigned to a dedicated subject NP: it is either assigned to an NP that is the argument of a higher predicate, as in (11a), or is satisfied by *vertical binding* (see 4.0; Williams 1994). The differences between modification and predication are discussed in section 3.0.

My main hypothesis is that in standard Russian, the SF is the formal instantiation of primary predication while the LF formally instantiates secondary predication. More specifically: (i) Both forms of the adjective have an external theta role to satisfy. (ii) The SF has an external NP-argument which projects as the sentence's dedicated subject and is assigned the predicate AP's external theta role. (iii) The LF does not project its own subject NP and, therefore, its external theta role cannot be satisfied by primary predication. In other words, LFs never have their own, dedicated subject NPs (including (1b)). If correct, this analysis constitutes additional evidence for my claim that a predicate's subcategorization frame cannot be predicted from its theta grid and is therefore autonomous (see 4.0; Babby 1998, Bošković 1997, Odijk 1997).

2.0. Earlier Analysis

My 1973 and 1975 analysis makes three claims: (i) SFs are exclusively *predicate adjectives* (subject+copula+SF) while LFs are exclusively *attributive adjectives* (AP in NP), even when they appear to be predicate adjectives, as in (1b). (ii) SFs are never NP constituents while LFs are always NP-internal. (iii) It was assumed that adjectives are stored in the lexicon as bare stems (neither LF nor SF): An adjective stem in a NP receives a case feature, becoming a LF; a stem that is not in a NP does not receive a case feature and is realized as a SF. Thus the case distinction in (iii) was construed as deriving from the stem's syntactic constituency in (ii).

I argue below that (ii) is wrong. Although it is true that SFs are never NP constituents in modern Russian and never have a case feature, and that LFs always have a case feature, it is in fact not true that LFs are *always* NP constituents. The claim that LFs are always NP-internal cannot account for the LF in sentences like (2). (The SF in (2) was possible in the early XIX century; see Kubik 1982:187, Švedova 1952:119).

(2)   On vernulsja domoj golodnyj (*goloden).
      'He returned home hungry:LF.nom (*SF)'

3.0. Attributive and Predicative Functions of the Adjective

SFs are exclusively predicate adjectives, agreeing with the subject of their clause in gender and number, but not in case. The copula in (1a), which is null in the present tense, heads the VP containing the SF, but, like all auxiliary verbs, it does not affect its complement's theta-assigning potential; an auxiliary verb "inherits" its complement's external argument. Thus the structure of (1a) can be represented in (3): the external theta role i of *vkusno* is transmitted from the AP_i headed by *vkusno* to the matrix VP_i headed by *bylo*, which does not have its own theta role to assign; VP_i then assigns i to the subject *vino* by primary (main clause) predication (i is the index of the external theta role).

(3) $[Vino]_{NPi}$ $[_{VPi}$ $[_v bylo]$ $[_{APi}$ vkusno$]]$.

The SF is historically a nominative case form, but was reanalyzed as caseless when the SF assumed its present-day exclusively predicate function. This is parallel to the loss of nominative case by SF *l*-participle forms when they were reanalyzed as the past tense form of the verb.

LF adjectives have an attributive function, agreeing with the noun they modify in gender, number, and case (cf. (1c)). Thus it is case that is responsible for the formal, morphological difference between SFs and LFs. But, as I argue below, case alone is insufficient to account for the full range of syntactic differences between SF and LF adjectives.

Sentences like (1b) appear to be a counter-example to the claim that LFs are always *attributive* (i.e. NP-internal): the LFs and SFs in (1a-b) appear to occupy the same postcopular syntactic position. But there is overwhelming evidence that sentences like (1a) and (1b) have different structures: While the SF's structure is given in (3), the evidence is that "predicate LFs" like (1b) are in fact attributive, i.e., the LF in (1b) is contained in a predicate nominal NP and modifies a null N head that refers to and identifies the subject of the sentence. The syntactic structure for (1b) that I propose is thus (4a), not (4b) ("N" stands for the null head of NP).

(4) a. Vino $[_{VP}$ bylo $[_{NP}$ N $[_{AP}$ vkusnoe $]]]$
    b. *Vino $[_{VP}$ bylo $[_{AP}$ vkusnoe$]]$

The structure in (4a) accounts for the semantic function of the "predicate LF": the property denoted by the adjective is attributed to the subject of the sentence with respect to the class of objects the subject belongs to (see Babby 1975, Stepanov 1981:152). Thus *Naša elka vysokaja* can be glossed as 'Our fir is a tall one (tall with respect to the height norm of trees).' Our analysis correctly predicts that nouns that belong to a class of one will normally not have a LF predicate: *Prostanstvo beskonečno (*beskonečnoe)* 'Space is infinite$_{sf}$ (*an infinite one$_{lf}$).' (4a) also explains why, when pronouns like *èto* 'this' and *vse* 'everything' are subjects, only the SF is grammatical.

The head of the predicate nominal can be overt, but, in keeping with its reduced semantic role, it is pronounced with accelerated tempo, reduced stress, and must precede the AP, which is why, in the Russian grammatical tradition, this noun is classified as a "copula word" linking the subject NP to the "predicate LF" (cf. Tolstoj 1966:181).

(5)   Vino, kotoroe my kupili, bylo (vino) vkusnoe.
      'The-wine we bought was (a) good (wine)'

Siegel 1976 identifies N in (4a) as a free variable ranging over common nouns (cf. (6)).

(6)   a.   Ona (ženščina) umnaja. 'She is (a) smart (woman)'
      b.   On byl samyj sposobnyj (*on).
           'He was the most capable (one/*he).

I thus claim that the "missing" noun in the predicative use of LFs is essentially the same phenomenon as in (7); in (8), the null head of the predicate nominal NP is a trace (*paren'* is topicalized).

(7)   Xvost poxož [$_{PP}$ na [$_{NP}$ N [$_{AP}$ oslinyj$_{lf}$]]].
      'The-tail looks like a donkey's'

(8)   [$_S$Paren' [$_S$ ja byl togda [$_{NP}$[t]$_N$ [$_{AP}$ zdorovyj i sil'nyj]]]]]
      'In those days I was a strong and healthy guy'

This predicate nominal analysis of "predicate LFs" requires an output constraint to ensure that a sentence like **Ona umnyj* 'She is smart' is not derived from the structure underlying *Ona čelovek umnyj* 'She is a smart person.' This constraint is reminiscent of the "matching

effects" observed in free relative constructions: The case and category of the wh-pronoun, which are determined inside the relative clause, must be appropriate for the position where the relative clause itself appears (see Izvorski 1997:268; Hirschbuhler 1983).

Another type of evidence that "predicate LFs" are null-headed predicate nominals comes from the behavior of post-copula adjectives when the subject is *vy* 'you' (referring to one person)': SFs, like verbs, must be in the *plural*; LFs, like predicate nominals, must be *singular* (cf. *Vy durak / *duraki* 'You are a fool$_{sg}$/$_{*pl}$'); see Babby 1973, 1975; Bailyn 1994. This is exactly the agreement pattern we expect if SFs are main predicates and LFs are predicate nominals (*byt'* + [$_{NP}$ N AP$_{lf}$]).

(9) a.   LF: Vy (byli) umnaja (*umnye$_{pl}$).
          'You$_{pl}$ are (were$_{pl}$) (a) smart$_{sg}$ (woman)'
     b.   SF: Vy (byli) umny (*umna$_{sg}$).
          'You$_{pl}$ are (were$_{pl}$) smart$_{pl}$'

Our analysis also accounts for the fact that LFs but not SFs are required in superlative sentences like (10a): the null head of the predicate nominal NP in (10b) is construed as identical to the head of the subject NP.

(10) a.   Ego doklad (byl) samyj interesnyj (*interesen$_{sf}$).
           'His report is (was) the most interesting$_{lf}$ (one)'
      b.   Ego doklad [$_{VP}$ (byl) [$_{NP}$ N [$_{AP}$ samyj interesnyj]]]

Thus the "predicate LF" in (1b) is an attributive adjective. I am thus claiming that, in the case of "predicate LFs," it is the predicate nominal NP (not the attributive AP contained in it) that assigns the subject NP its theta role (cf. Williams 1994). The LF's external theta role in (1b) is satisfied NP-internally by Identification, without regard for the syntactic function of the NP containing it (see Speas 1990, Napoli 1989 for discussion of theta-role satisfaction by Identification). By contrast, it is the external theta role of the SF adjective itself that is assigned to the subject NP by primary predication when the VP containing it is headed by an auxiliary verb, which does not itself assign theta roles (see (1a) = (3)).

This discussion provides the basis for an explicit definition of the difference between the modification and predication functions of AP$_i$. In

the case of modification, the external theta role i of AP_i is satisfied *NP-internally* (by Identification), while in the case of predication, i is satisfied *NP-externallly*, i.e., predication is a coindexing relation between the maximal projections AP_i and NP (see Williams 1983). For example, the a-sentences in (11)-(12) involve predication and the b-sentences modification. The rest of this paper is concerned with the ways AP_i is satisfied NP-externally, i.e., with secondary and primary predication.

(11) a. On [$_{VP}$ našel [$_{NPi}$ komnatu] [$_{APi}$ pustoj (pustuju)]].
          'He found the-room$_{acc}$ empty$_{lf.inst/acc}$'
      b. On našel [$_{NP}$ [$_{AP}$ pustuju] komnatu].
          'He found the empty$_{lf.acc}$ room$_{acc}$'

(12) a. [$_{APi}$ Golodnyj], [$_{NPi}$ mal'čik / on] vernulsja domoj.
          'Hungry$_{lf.nom}$, the-boy/he$_{nom}$ returned home'
      b. [$_{NP}$[$_{AP}$ Golodnyj] mal'čik / *on] vernulsja domoj.
          'The hungry$_{lf.nom}$ boy/*he$_{nom}$ returned home'

4.0. Secondary Predication in Russian: A New Analysis

All the uses of the LF considered in the first three sections were shown to be NP-internal (modification) and the LF's external theta theta role was thus satisfied by Identification.

(13) a. SF: [$_S$ NP$_i$ [$_{VPi}$ V$_{copula}$ AP$_i$]]
      b. LF: [$_{NP}$ N AP$_i$]

However, as noted in section 2, there is evidence that, while LFs always have case, *they are not always NP-internal.* This means that: (i) The source of the LF's obligatory case feature is not NP-internal case percolation, as proposed in Babby 1973, 1987; (ii) the LF's external theta role is not always satisfied by Indentification.

    Sentences like (2), repeated here, are crucial; an additional example is given in (14).

(2)   On vernulsja domoj golodnyj (*goloden).
      'He returned home hungry:LF.nom (*SF)'

(14) Ja ležal vjalyj, čut' živoj.
      'I lay limp$_{lf.nom}$, scarcely alive$_{lf.nom}$'

The LF in (2) and (14), which is depictive and canonically nominative (Roberts 1988), cannot be a NP constituent because NPs in this position *must be instrumental, not nominative*:

(15)   On vernulsja s vojny [oficerom / *oficer]$_{NP:nom}$.
       'He returned from the-war an-officier$_{inst/*nom}$'

Since we cannot account for the nominative case of the adjective in (2) under the assumption that all LFs are NP-internal, we must now answer the following questions about (2): What is its syntactic structure? How is the LF's external theta role satisfied? How is the LF's nominative case accounted for? Why isn't the SF possible in (2)? Why can't (4b) be the structure of (1b)?

My proposal is that *golodnyj* in (2) is a *controlled adjunct* (see Williams 1994), i.e., it is a bare AP$_i$ that is adjoined to the matrix VP$_i$ (which has its own external theta role i since the verb heading it is not a copula); see (16a). The i of AP$_i$ is satisfied by being *vertically bound* by the external theta role i of the matrix VP$_i$, which is itself assigned to the matrix subject NP by main-clause predication. Since binding involves coreference, the matrix subject *on* is construed as the subject of the secondary predicate *golodnyj* as well as the main verb *vernulsja* (but *on* is the dedicated subject only of *vernulsja*). Note that the vertical-binding analysis does not need to claim that AP$_i$ is the predicate of a "small clause" with a PRO subject, which, as we see below, makes a number of wrong predictions. The structure I am proposing for (2) is given in (16a) (see Babby 1998 for details of vertical binding in Russian):

(16)   a.   On$_i$ [$_{VP_i}$ [$_{VP_i}$ vernulsja domoj] [$_{AP_i}$ golodnyj]]
       b.   *On [$_{VP}$ [$_{VP}$ vernulsja domoj] [$_{NP}$ N [$_{AP}$ golodnyj]]]
       c.   *On [$_{VP}$[$_{VP}$ vernulsja domoj] [$_S$ PRO [$_{AP}$ golodnyj]]]

The structure in (16a) provides a natural explanation for the nominative case of AP in sentences like (2): [*golodnyj*]$_{AP}$ is part of a coindexing chain anchored by the nominative subject NP. The value of the LF's obligatory case feature is determined by agreement with the closest NP in the chain, which is the nominative subject. I am thus proposing that the case of secondary-predicate APs in sentences like (2) is determined in essentially the same way as the case of floating quantifiers like *sam* 'by-one's self' and *odin* 'alone,' which are also VP-

adjuncts that agree in case with the subject NP (see Babby 1998, Babby & Franks 1998 for details). *Odin* is vertically bound by the higher VP_i in (17):

(17) On_i [$_{VP_i}$ [$_{VP_i}$ živet zdes'] [$_{AP_i}$ odin]].
      'He$_{nom}$ lives here alone$_{nom}$'

If the structure of (2) were (16c), *golodnyj* would agree in case with the PRO subject of the "small" clause. But there is no evidence that PRO in Russian is nominative (see Babby 1991, 1998 and Neidle 1988 for discussion of PRO and its case in Russian).

It is here that we see the crucial difference between my original proposal and the revision I am proposing: In Babby 1973, 1975, an adjective stem received case, becoming a LF, by virtue of its syntactic position (NP-constituency); an adjective stem in a non-case position is realized morphologically as the caseless SF. This derivation of LF and SF from an adjective stem in terms of syntactic position, in addition to being empirically inadequate (cf. (2)), violates the Strong Lexicalist Hypothesis and basic tenets of the Minimalist Program (Chomsky 1995) since morphological material is added in the syntax. I am proposing here that the SF is {stem + gender/number} and the LF is {stem + gender/number + case} and that the derivation is lexical, not syntactic. More specifically, LFs and SFs of adjective stems are generated as complete words (stem+inflection) by lexical rules; selection of the proper form of the adjective depends on the syntactic environment, i.e., certain syntactic positions license SFs, others -- LFs. Thus only fully-formed words can be combined by syntactic rules.

We still do not have an explicit account of all the relevant morphosyntactic properties of the LF and SF. Most important, I have not yet offered a principled explanation for why SFs are no longer possible in sentences like (2): after all, the AP here is not in a case-position and SFs, like LFs, have an external theta role to discharge. In other words, why can't SFs be vertically bound? We also as yet have no explanation for why (4b) cannot be the correct structure of (1b), i.e., why doesn't *vkusnoe* simply agree in case with the nominative subject *vino* in the same way that *golodnyj* agrees in case with the subject *on* in (2)? In other words, why can't LFs be primary predicates? To answer these complementary questions we must look at the lexical derivations of the

LF and SF of the adjective from a common lexical stem and the effects these derivations have on the adjective stem's initial argument-structure representation.

5.0. The Derivation of SF Adjectives in Modern Russian

The derivations of SF and LF must capture the following generalization: The SF always involves primary predication; the LF always involves secondary predication and modification, never primary predication. The hypothesis that I propose to account for this crucial difference can be formulated as follows: The SF projects its own subject NP, which satisfies its external theta role. In other words, what I am calling *primary predication* involves satisfying the external theta role *i* of a predicate X_i by assigning *i* to an XP- external NP that is itself a projection of X_i's argument structure; this external NP is the *dedicated subject*.

   The LF never projects a dedicated subject NP, which means that its external theta role *i* cannot be satisfied by primary predication; it can be satisfied by secondary predication and, in cases of modification, by Identification (which appears to be the NP-internal analogue of vertical binding). I thus define *secondary predication* broadly as satisfaction of a predicate X_i's external theta role *i* either by vertical binding or by assigning it to a *nondedicated subject*, i.e., an NP that is an argument of and assigned a theta role by a higher predicate (see (11a) and (12a)). *Sebja* is the nondedicated subject of *goluju* in (18) and is assigned theta roles by the preposition *na* and by *goluju* (see Williams 1994 for discussion of NPs assigned theta roles by two different predicates).

(18)   Ja ne ljublju smotret' [na sebja goluju / *goloj$_{inst}$]$_{PP}$
       'I don't like to-look at myself$_{acc}$ (when I'm) naked$_{lf.acc}$'

Since predication always involves coindexation between c-commanding maximal projections (NP$_i$ and XP$_i$), it would seem that the next logical step is to try to collapse predication theory with binding theory, but space does not permit me to pursue this any further (see Williams 1983, Napoli 1989).

   I assume that the argument structure of a predicate X is represented in the lexicon as a two-tiered *diathesis*: the upper tier represents the predicate's theta grid and the lower tier its subcategorization frame, each position of which is linked to the appropriate theta role in the upper tier

(see (19)). The relative position of each pairing of theta role and categorial argument encodes a mapping from argument structure to syntax. The argument to the left of X is its external argument (of which there can be only one); arguments to the right of X project as the XP-internal arguments, of which there is a maximum of two. Lexical rules operate on diatheses, creating derived diatheses. It is only the final diathesis that projects into the syntax, which ensures that all lexical rules precede all syntactic rules and that only fully formed words enter into syntactic derivations. (See Babby 1998 for details.)

The diathetic representation of argument structure just outlined entails two controversial claims that are crucial for the analysis of Russian syntax I am proposing: (i) The theta grid and subcategorization frame are autonomous: neither is predictable in terms of the other. (ii) Verbs and adjectives in Russian subcategorize for subject (see Babby 1990, where argumentation for *external subcategorization* is based on Russian impersonal sentences).

The lexical derivation of a SF from an initial adjective stem is represented in (19). The internal arguments are left unspecified since they play no role in the derivation of LF and SF: Just as in the derivation of nonfinite verbal categories, what is crucial is the lexical rule's effect on the external theta role and the external NP it links to in the diathesis (Babby 1998, Babby and Franks 1998). We see in (19) that the SF suffix is exclusively inflectional: it supplies the features of gender and number (not shown here) and, most important, does *not* affect the base adjective stem's argument structure. Thus the SF projects the adjective stem's external theta role θ_i (or i for short) linked to its external NP argument (the dedicated subject), which accounts fully for the SF's syntactic distribution. The obligatory presence of a dedicated subject automatically restricts the SF to main clause predication. SFs can combine only with copula verbs (or verbs functioning as copulas), which, like all auxiliary verbs, do not assign their own external argument. In other words, the syntactic distribution of SFs in modern Russian derives from the fact that a clause cannot contain two predicates both of which project a dedicated subject. For example, a clause cannot contain two unconjoined SFs for the same reason that it cannot contain two unconjoined finite forms of the verb (LFs and SFs can cooccur because the former behave syntactically like nonfinite forms of the verb; cf. (22)-(24)).

(19)

θ_1	–
NP	A-

$\rightarrow$

θ_1	–
NP	$[A+af_{sf}]_A$

The derivation in (19) correctly predicts that sentences like (20) are ungrammatical. Although the SF's external theta role i can be satisfied in this position (by vertical binding), its external NP argument cannot be realized VP-internally: there is no place to project it. Thus (20) violates the Projection Principle (cf. (2)). SFs cannot occur NP-internally for the same reason (cf. (1c)).

(20)   *On [$_{VP}$ [$_{VP}$ vernulsja domoj] [goloden]$_{AP}$].
       'He returned home hungry$_{sf}$'

The ungrammaticality of (20) shows that the small clause PRO analysis of controlled AP adjuncts alluded to in (16c) is wrong: (21) incorrectly predicts that *On vernulsja domoj goloden should be well-formed since the SFs external theta role and external NP are realized in the dedicated subject position of the adjectival small clause (the Projection Principle is *not* violated here).

(21)   *On [$_{VP}$ [$_{VP}$ vernulsja domoj] [$_S$ PRO$_i$ [$_{AP_i}$ goloden]]

Our analysis correctly predicts that two nonattributive adjectives normally occur in the same clause only if one of them is in the LF, i.e., is a secondary predicate (see section 6.0):

(22) Nikolaj byl spokoen, uverennyj (*uveren) v tom, čto on skažet neobxodimoe.
       'N. was calm$_{sf}$, (since he was) sure$_{lf(*sf)}$ that he would say what was needed'

(23)   On prosto p'jan. A p'jannyj (*p'jan) on prekrasen.
       'He's just drunk$_{sf}$. And he's great$_{sf}$ (when) drunk$_{lf/*sf}$.'

(24)   Ryba tebe doroga byla živaja (*živa).
       'The fish was valuable$_{sf}$ to you (when it was) alive$_{lf/*sf}$'

Sentences like (25) appear at first glance to constitute a counter-example to this analysis: the SF can be the complement of the verbal adverb *buduči* 'being.' The apparent problem is this: it has been

demonstrated (Babby 1998) that verbal adverbs are bare VP_i secondary predicates; they have no dedicated subject NP.

(25) Buduči goloden/*golodnyj, on otpravilsja domoj.
     'Being hungry$_{sf/*lf}$, he went home'

Actually, (25) is the "exception" that proves the rule. The lexical rule that derives verbal adverbs from the base verb stem's diathesis deletes the verb's external NP, producing a bare VP_i predicate (which is why verbal adverbs cannot be formed from impersonal (subjectless) verbs and cannot themselves be primary predicates). Since the copula *byt'*, like all auxiliary verbs, is unspecified for an external argument, the external NP obligatorily deleted in the formation of *buduči* must have been inherited from the SF adjective, which is the main predicate of the verbal adverb phrase.

6.0. The Derivation of LF Adjectives in Modern Russian

The LF is derived from the same base adjectival diathesis that the SF is (cf. (19) and (26)):

(26)

θ_1	–
NP	A-

$\rightarrow$

θ_1	–
–	$[A+af_{lf}]_A$

Affixation of an LF suffix to the A-stem by the rule in (26) does two things: (i) it introduces the features of gender, number, and *case*; (ii) it deletes A's external NP argument, leaving the external theta role i intact. I am thus claiming that the LF adjective heads a bare AP_i, i.e., a maximal projection with an external theta role i, but no external NP argument. Since the LF has no dedicated subject NP to assign i to, it must serve as either an attributive adjective (i is satisfied NP-internally) or as a *secondary predicate*, i here being satisfied either by vertical binding, as in (2), or by assignment to a c-commanding NP argument of a higher predicate, as in (11a), (12a), and (18)).

In addition to case, the formal property that accounts for the diverse syntactic behavior of SF and LF adjectives is the diathesis' external NP. The SF has an external NP and no case feature; the LF has a case feature and no external NP (both have external theta roles). If this analysis is correct, the derivation of SF and LF adjectives in Russian (as well as the

derivation of verbal adverbs, participles, and infinitives) provides evidence supporting the claim that the predicate's initial diathesis must specify whether or not it has an external NP argument (cf. Babby 1990, 1998).

The derivation in (26) accounts fully for the LF's syntactic distribution: It can occur NP-internally, as in (1c), and as a VP-internal controlled adjunct, as in (2), because it has an external theta role, but no external NP to project. The LF's diathesis in (26) also provides a principled explanation for why "predicate LFs" do not have the structure in (4b) (repeated here as (27a)). The structure in (27a) is ill-formed because the subject NP *vino* is unlicensed: *bylo* inherits its external argument from the LF, which has an external theta role *i*, but no external (dedicated subject) NP. SFs can occur in this environment because they project both an external theta role and a dedicated subject NP from their diathesis (see the correct structure of "predicate LFs" in (4a)). Thus the syntactic complementary distribution of LFs and SFs, which is at the center of our investigation, is due first and foremost to the fact that SFs have an external NP in their diathesis while LFs do not; case is secondary.

(27) a. *Vino$_i$ [$_{VP_i}$ bylo [$_{AP_i}$ vkusnoe$_{lf}$]]
  b. Vino$_i$ [$_{VP_i}$ bylo [$_{AP_i}$ vkusno$_{sf}$]]

It is, however, not entirely clear to me whether the fact that *kak* 'as' and *slovno* 'as, like' require the LF is due primarily to the fact that the LF has case or that it has no external NP:

(28) a. Ona uže spit kak mertvaja (*mertva).
    'She is already sleeping like (she was) dead$_{lf/*sf}$'
  b. Kniga byla kak novaja (*nova).
    'The-book was like new$_{lf/*sf}$'

The analysis of LFs and SFs just proposed is convincing because of the large number of correct predictions it makes. In addition to the ones presented above, our analysis correctly predicts that a LF and SF cannot be conjoined: a string of adjectives must normally be homogeneous, either all LFs or all SFs (cf. Tolstoj 1966: 178). This too follows automatically from the fact that SFs but not LFs project dedicated subjects.

Let us conclude with a brief look at the morphosyntax of active participles (verbal adjectives) like *čitajuščij* 'reading,' which have the following distribution: They are used attributively or as secondary predicates, but never as main clause predicates (cf. (29)), which is directly related to the fact that they have LF endings only in modern Russian. (Passive participles have SFs and LFs and can thus be primary as well as secondary predicates).

(29)   *On byl čitajuščij knigu. 'He was reading the book$_{acc}$'

The derivation of active participles is given in (30): the affix -*šč*- converts the verb stem into an adjective stem (+V -N → +V +N) and the LF ending is responsible for the deletion of the base verb's external NP (cf. (26)); the resulting bare AP_i's external theta role i is satisfied in precisely the same way the i of LF adjectives is. Thus (29) is ill-formed for the same reason that the structure in (27a) is: LFs do not project dedicated subjects.

(30)

θ_1	–
NP	V-

→

θ_1	–
–	$[V+šč+LF]_A$
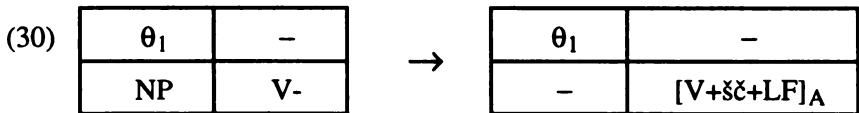
The bare AP_i analysis of active participles just proposed accounts for the well-formedness of sentences like (31) in an entirely natural way:

(31)   Ja rasskazal emu pro Ol'gu [$_{AP}$ plakavšuju, menja provožaja]
        'I told him about Olga, who was crying, seeing me off'

The verbal adverb phrase [*menja provožaja*]$_{VAP_i}$, which is also a bare XP_i (see Babby 1998), is embedded in the active participle phrase AP_i and has the matrix *direct object Ol'gu* as its understood subject (antecedent). Although verbal adverbs normally have the matrix subject as its antecedent, (31) is perfectly well-formed for the following reason: The external theta role i of VAP_i is vertically bound by the external theta role i of the APP_i, which is itself satisfied NP-internally by Identification and thus has *Ol'gu*, the head of NP, as its antecedent. We thus see the same chain of coreference at work in (31) that is responsible for determining the understood subject of *golodnyj* in (2).

I conclude that adjectives in Russian behave syntactically like adjectives in most other languages. What sets Russian apart is that it has

developed special *morphology* that formally distinguishes primary predication from the adjective's other functions.

References

Babby, L. 1973. "The Deep Structure of Adjectives and Participles in Russian." *Language*: 49, 349-360.

Babby, L. 1975. *A Transformational Grammar of Russian Adjectives*. The Hague: Mouton.

Babby, L. 1987. "Case, Prequantifiers, and Discontinuous Agreement in Russian." *Natural Language and Linguistic Theory*: 5, 91-138.

Babby, L. 1990. "Subjectlessness, External Subcategorization, and the Projection Principle." *Zbornik Matice Srpske za Filologiju i Lingvistiku* 32, 7-40.

Babby, L. 1991. "Noncanonical Configurational Case Assignment Strategies." In *Cornell Working Papers in Linguistics* 9, A. Toribio and W. Harbert, eds., 1-55. Cornell University Department of Linguistics, Ithaca, New York.

Babby, L. 1998. "Subject Control as Direct Predication: Evidence from Russian." In *Formal Approaches to Slavic Linguistics*, Z. Bošković, S. Franks, and W. Snyder, eds., 17-37. Ann Arbor: Michigan Slavic Publications.

Babby, L. and S. Franks. 1998. "The Syntax of Adverbial Participles in Russian Revisited." *Slavic and East European Journal* 42, 117-149.

Bailyn, J. 1994. "The Syntax and Semantics of Russian Long and Short Adjectives: An X'-Theoretic Account." In *Formal Ap- proaches to Slavic Linguistics*, J. Toman, ed., 1-30. Ann Ar- bor: Michigan Slavic Publications.

Bailyn, J. and E. Rubin. 1991. "The Unification of Instrumental Case Assignment in Russian." In *Cornell Working Papers in Linguistics* 9, A. Toribio and W. Harbert, eds., 56-126. Cornell University Department of Linguistics, Ithaca, New York.

Bošković, Z. 1997. *The Syntax of Nonfinite Complementation*. Cambridge, Mass.: MIT Press.

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

Hirschbuhler, P. and M. Rivero. 1983. "Remarks on Free Relatives and Matching Phenomena." *Linguistic Inquiry* 14, 505-520.

Izvorski, R. 1997. "Subject Free Relatives in Null-Subject Lanuages: Evidence from Slavic." In *Formal Approaches to Slavic Linguistics*, W. Browne, E. Dornisch, N. Kondrashova and

D. Zec, eds., 267-288. Ann Arbor: Michigan Slavic Publications.

Kubik, M. 1982. *Russkij sintaksis v sopostavlenii s češskim*. Praha:SPN.

Napoli, D.J. 1989. *Predication Theory*. Cambridge University Press.

Neidle, C. 1988. *The Role of Case in Russian Syntax*. Dordrecht: Kluwer.

Odijk, J. 1997. "C-Selection and S-Selection." *Linguistic Inquiry* 28, 365-371.

Roberts, I. 1988. "Predicative APs." *Linguistic Inquiry* 19, 703-710.

Siegel, M. 1976. "Capturing the Russian Adjective." In *Montague Grammar*, B. Partee, ed., 293-309. New York: Academic Press.

Speas, M. 1990. *Phrase Structure in Natural Language*. Dordrecht: Kluwer.

Stepanov, Ju. S. 1981. *Imena, Predikaty, Predloženija*. Moskva.

Švedova, N.JU. 1952. "Polnye i kratkie formy imen prilagatel'nyx v sostave skazuemogo v sovremennom russkom literaturnom jazyke." *Učenye zapiski MGU* 150, 73-132.

Tolstoj, I.V. 1966. "Leksiko-grammatičeskie i stilističeskie osobennosti polnyx i kratkix prilagatel'nyx v funkcii imennogo sostavnogo skazuemogo." In *Voprosy Stilistiki*, A. Abramovič, ed., 166-181. Moscow: Izd. Moskovskogo Universiteta.

Williams, E. 1983. "Against Small Clauses." *Linguistic Inquiry*. 14, 287-308.

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

Department of Slavic Languages
028 E Pyne
Princeton University
Princeton, NJ 08544
babbylh@princeton.edu

Case and Agreement in Slavic Predicates*

John F. Bailyn and Barbara Citko
State University of New York, Stony Brook

0. Introduction

Leading ideas in formal linguistics, following Chomsky 1993, propose imposing on linguistic descriptions the condition that the morphological form of all nominals be "checked" in a particular configuration by one of a limited number of licensing elements. Earlier versions of generative grammar, such as Chomsky's 1981 Government and Binding Theory, limited such requirements to argument NPs. This was known as the Case Filter. The more restrictive climate of Minimalism forces an extension of morphological checking to all non-argument nominals as well. In this article, we focus on nonverbal primary and secondary predicates in Slavic and analyze the Case forms they exhibit as further instances of generally accepted Case patterns on arguments.

The purpose of the article is twofold: first, to explain the *mechanism* responsible for Case assignment to predicate nominals and second, to derive language-specific Case forms from the interaction of universal grammatical principles with language-specific lexical properties. To do so, we develop a unified analysis of nonverbal predication in Slavic, on which Case properties of predicates result from independently motivated checking mechanisms, in line with the Minimalist Program (Chomsky 1993). We argue that the morphology of both adjectival and nominal predicates follows from two universal principles:

(1)   a.   **Universal A:** All NPs (including predicates) require *Case but not Agreement.*

     b.   **Universal B:** All APs (including predicates) require *Agreement but not Case.*

We will see that these universals, in combination with certain lexical properties, account for a wide range of apparently uncorrelated facts in a

---

unified manner. These facts include the availability of Double Nominative null copula constructions in Russian (but not in Polish), the availability of Short Form adjectives in Russian (but not in Polish), and Instrumental Case on Russian adjectival secondary predicates in argument position (but not in Polish). We also provide a coherent classification for various lexical items that have defied categorization (Russian *kak* and Polish *jak*, and predicative *za* in both languages). The result is a more elegant and theoretically sound description of Case in Slavic predicates.

1. PredP and Case

1.1. Theoretical Framework

We assume Bowers' 1993 PredP view of predication (adapted for Russian in Bailyn and Rubin 1991 and Bailyn 1995a), on which all predicational structures are headed by a functional projection PredP. Thus, under the PredP analysis the structure of a small clause (2a) is as shown in (2b) (adapted from Bowers 1993):

(2) a. I consider John a fool.

b. $[_{TP}I_i [_{PredP} [t_i \text{ consider}_j [_{VP} \text{John}_k t_j [_{PredP} t_k \text{ Pred}^0[_{NP} \text{ a fool}]]]]]]$
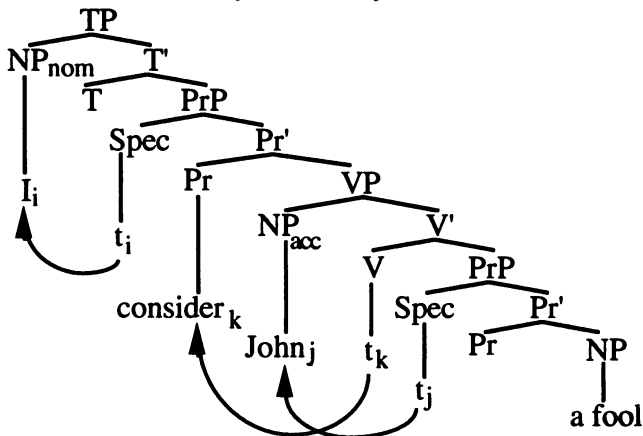
Under current assumptions, (1a-b) can be restated as (3a-b):

(3) a. **Universal A:** All NPs (including predicates) must have Case
         checked in an appropriate configuration.

     b. **Universal B:** All APs (including predicates) must be in an
         agreement relation with an appropriate head.

1.2. Structural versus Inherent Case on Predicates

First, let us examine in detail the morphological variations found in
Slavic predicates. In general, Slavic predicates show only two patterns,
either systematic occurrence of Instrumental Case or systematic
occurrence of a Case form found elsewhere in the sentence (usually
Nominative/Accusative) . Consider the following examples:

(4) a. Ja   sčitaju   ego   durakom /*duraka   (Russian)
         I   consider   him-ACC   fool-INSTR / *ACC

         'I consider him a fool.'

     b. Ja   našel   ego   p'janym[1]
         I   found   him   drunk-INSTR

         'I found him drunk.'

(5) a. Uważam   go   za   głupca /*głupcem   (Polish)
         I-consider him-ACC   as   fool-ACC / *INSTR

         'I consider him (as) a fool.'

     b. Znalazłem   go   pijanego /*pijanym
         I-found   him-ACC   drunk-ACC / *INSTR

In (4a-b) we find that Russian secondary predicates, whether arguments
or adjuncts, are marked with Instrumental Case. This is the standard
marking pattern in Russian (Pesetsky 1982, Bailyn 1995a). We will refer
to this pattern as **Absolute Case.** (5a-b), from Polish, show examples of
a different Case pattern, namely one in which the secondary predicate is
marked with the *same* Case as the NP it is coreferenced with, here the
Accusative direct object. We refer to this state of affairs as **Relative
Case.** Relative Case occurrences, also known in Russian linguistics as
vtorye kosvennye padeži ('second indirect Cases'), occur with

---

[1] We return below to the possibility of Accusative Case in such Russian
constructions.

Nominative, Accusative, Dative and Genitive of Negation (see Švedova 1980). The history of the Slavic languages shows Relative Case patterns giving way to Absolute Case in certain languages and certain construction types. See Bailyn 1998 for discussion.

The question that arises here is why we find two kinds of Case patterns in predicate position and why only these two occur.

Under Universal A, whereby NP predicates need Case in the same way as all other NPs, this puzzle receives a natural explanation. Just as there are two kinds of Case patterns on arguments, structural (Nom or Acc) or Inherent (dependent on a particular lexical item), so do we find a distinction between two kind of Case assignment in NP predicates, which correlate fairly exactly with traditional notions of Structural Case and Inherent Case. In the next two sections, we show that Absolute (Instrumental) Case exemplifies Inherent Case on predicates, whereas Relative Case exemplifies Structural Case.

1.3. Instrumental Case as Inherent Case

Consider first Instrumental secondary predicates as in (4a-b) above. Our analysis of Russian secondary predicates is based on Bailyn & Rubin 1991, 1993 in which the $Pred^0$ head is shown to be an (inherent) Instrumental Case assigner, as in (6):

(6)   Predicate Instrumental Rule (Russian) (B&R 1991)

   $Pred^0$ assigns Instrumental Case to its complement

To reconcile this idea with Minimalist assumptions, it is necessary to consider the broad question of Inherent Case assignment within the Minimalist Program. Lasnik (1993), Chomsky (1995a), and others plead agnosticism with regard to the mechanism of Inherent Case checking in Minimalism, although the tacit assumption appears to be that some mechanism for Inherent Case assignment or checking *in the complement position* remains necessary. In a purely Bare Phrase Structure account, such as Chomsky (1995b), Collins (1995), or Bowers (1998), such a device is regarded as independently necessary. We therefore assume the existence of a process of **Check-on-Merge** for lexically-required Case instances (thus explaining the direct association, in non-predicates, of Inherent Case and theta-róle assignment). This is shown in (7):

(7)   Check-on-Merge:

Strong Inherent Case features must be checked *at Merge*

(7) has several instantiations. The first is standard Inherent Case, as shown in (8):

(8)   Structure for Inherent Case Assignment

VP / PP

V^0 / P^0 **NP**

Case Feature checked,
Theta-role assigned

┌─────────────────────┐
│ *Inherent Case*   │
└─────────────────────┘
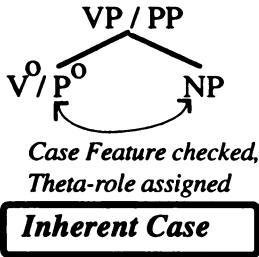
The second instantiation of (7) involves complements of Pred, immediately providing a configuration appropriate for the assignment of Absolute Case, namely Inherent Case assignment by the Pred head. This is shown in (9):

(9)   Structure for Absolute Case Assignment to predicates:

PrP

Pr^0 **NP**
Case
Feature
checked

┌─────────────────────┐
│ *Absolute Case*   │
└─────────────────────┘
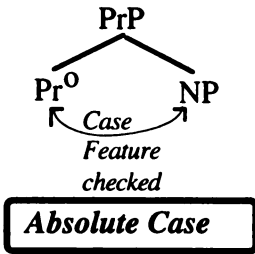
We have seen that the Pred head has Instrumental Case features in Russian. Given (7), Bailyn & Rubin's (1991) Rule I (6) is now formulable in maximally simple terms for Russian, as (10):

(10)   Russian Predicate Instrumental Rule:

$Pred^0$ has strong Instrumental Case features

Thus Pred carries a strong Instrumental Case feature which must be checked on Merge with an NP. In (4a), for example, this happens as the

[+Instr] NP *durakom* ('a fool') merges with the Pred head. Merging an NP with any other Case features will not lead to checking, causing the derivation to crash. Any other (later) checking of the Instrumental feature on Pred will violate Economy.

1.4. The Morphological Pred Rule (MPR)

The question that arises here is what happens in cases where Instrumental Case does *not* appear on the secondary predicate, as in (5a-b), a strange state of affairs given (6). With NPs, this occurs only when the particles *za, jak, kak* ('as') are present in the construction, as in (5a) or in Russian sentences like (11):

(11) Ja prinimaju ego   za duraka /*durakom   (Russian)
      I   take   him-ACC as fool-ACC / *INSTR

      'I consider him a fool.'

For these cases we propose the following additional generalization:

(12)   Morphological Pred Rule (MPR):[2]

       Overt morphology in $Pred^0$ absorbs Instrumental Case

In fact, despite the complex interaction of Predicate Instrumental and Relative Case across Slavic and in the history of Slavic (Nichols 1973, 1981), one fact is remarkably consistent: Instrumental Case **never** co-occurs with overt *za, kak*, or *jak* in any of the languages at any stage in their development. This falls out from (12).[3] (We return below to the mechanism involved in checking Relative Case.)

---

[2] Note the inherent similarity between the Morphological Pred Rule and certain accounts of Accusative Case absorption by passive morphology (Baker & Roberts 1991).

[3] An interesting consequence of (12) is that the strong Instrumental Case feature can be checked in two ways: either by lexical insertion of an appropriate particle into the Pred head, or by the Check-on-Merge mechanism given in (7). Such a view is not unprecedented in the literature. Typically the same feature can be checked either by *Move* or by *Merge*. For example, the [+wh] feature in English can be checked by *Merge* with the lexical item *whether* or by movement into an appropriate checking position:

  (i)   I wonder whether John saw Mary.
  (ii) I wonder who John saw.

1.5. The Status of *za*

Traditional analyses treat the Polish *za* ('as') in (5a) and its Russian equivalent in (11) as a preposition assigning Accusative Case. Here, however, we treat *za* as a Pred head, absorbing the [+Instr] feature, and crucially not as a preposition that assigns (or checks) Case.[4] This difference in possible analyses of *za* is characterized in (13-14):

(13) a. The PP analysis of *za*:

uważam [$_{PredP}$ go [$_{PP}$ za [$_{NP}$ głupca]]]
'I consider him a fool'

b. The PredP analysis of *za*:

uważam [$_{PredP}$ go [$_{Pred'}$ za [$_{NP}$ głupca]]]

(14) a. The PP analysis of *za*:[5]

---
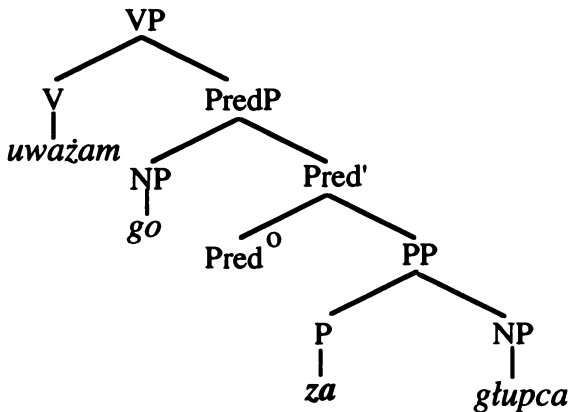
[4] This, of course, does not mean that *za* does not have any prepositional uses, as we see in (i-ii):

(i)   za stołem 'behind the table'

(ii) za króla Piasta 'during the reign of King Piast'

In this article, we are concerned only with *za* in its predicative usages.

[5] Note that both (14a) and (14b) ignore details irrelevant to the difference at hand, namely the possibility of V raising and raising of the direct object *go* ('him') into an Accusative case checking relation.

(14)   b. The PredP analysis of *za*:

VP
V — PredP
V: *uważam*
PredP: NP — Pred'
NP: *go*
Pred': Pred⁰ — NP
Pred⁰: *za*
NP: *głupca*
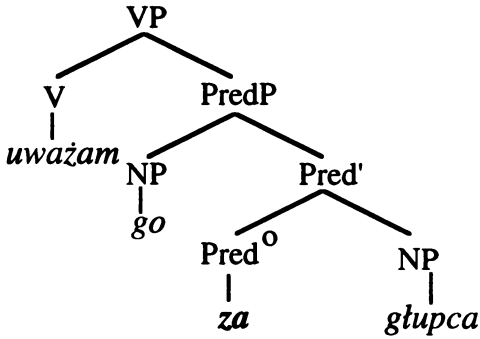
There are four major arguments against the treatment of *za* as a preposition (14a) and in favor of the Pred⁰ analysis of *za* (14b). First, (14b) allows cross-linguistically valid typological treatment of such elements as English *as,* Welsh *yn* and Slavic *za, kak, jak* as Pred heads, as originally motivated by Bowers (1993, 1998). Second, there are numerous examples in Slavic where we find *za* not assigning Accusative in predicate constructions. This is unexpected under the PP analysis. In particular, our approach allows for Nominative after *za*, something a prepositional analysis within Slavic has great difficulty motivating (no other Slavic prepositions take Nominative Case). Examples of non-Accusative *za* constructions are given in (15) (Franks 1995: 29):

(15)   a.   čto   èto   za   kniga ?
            what   that   as   book-Nom
            'What kind of book is that?'

       b.   čto   èto   za   knige   on   obradovalsja ?
            what   that   as   book-Dat   he   enjoyed
            'What kind of book was it that he enjoyed?'

       c.   čto   èto   za   knigoj   on   uvleksja ?
            what   that   as   book-Instr   he   was.carried.away.with
            'What kind of book was he carried away with?'

For us, Case assignment in (15) results from the mechanism of Relative Case, described below, and crucially is not limited to Accusative. Third, *za* in this usage can be followed by an adjective; prepositions cannot:

(16) a. Uważam   go   za   głupiego   (Polish)
          we consider   him-Acc   as   stupid-Acc
          'We consider him stupid.'

     b. *On   stoi   za   dużym
          he   stands   behind   big-Instr
          'He stands behind big.'

The fourth and strongest argument against analyzing *za* as a preposition comes from semantic considerations. Given the structure in (14a) (the PP analysis), we expect the predication relation to hold between the object NP *go* ('him') and the PP *za głupca* ('as a fool'). However, the relationship we are after appears rather to hold between the two NPs, with *za* mediating this relationship, which is precisely the function of a Pred head. Thus the PP analysis encounters various difficulties not found with our $Pred^0$ analysis. We now turn to the mechanism of Relative Case assignment.

1.6. Agreeing Case as Structural Case

The MPR given in (12) accounts for why we never find Instrumental Case in structures involving filled $Pred^0$. It does not, however, explain the mechanism of Case assignment (checking) in these structures. We propose that Relative Case is an instance of Structural Case, which we assume, following Chomsky 1993, takes place in a Specifier position of an Agreement projection (AgrO in the case of Accusative and AgrS in the case of Nominative). Following Koizumi 1995, we claim that sentences involving more than one occurrence of a given Structural Case involve **multiple Spec configurations**:

(17)   Multiple specifier configuration (Koizumi 1995: 138)

$$X^{max}$$

SPEC$_2$ X

SPEC$_1$ X

X^{min} Complement
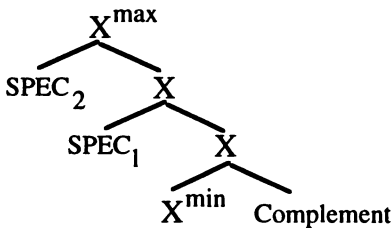
By Universal A, predicate NPs need Case to be checked in an appropriate configuration. Thus in secondary predicates where an NP is marked with the same structural Case as another NP in the sentence, Case checking involves a multiple Spec configuration. (18) is the LF-representation of an 'agreeing' secondary predicate structure; X^{min} is AgrO, Spec-1 is the raised direct object, and Spec-2 is the raised NP predicate:[6]

(18)
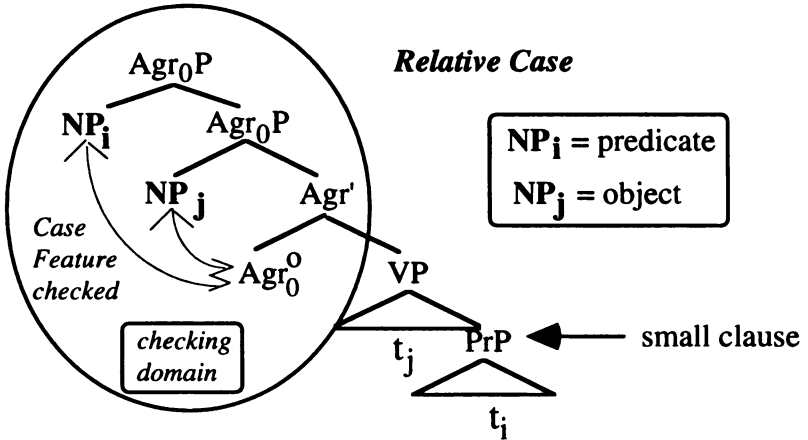
In this manner, we have reduced the two Case patterns on secondary predicates in Slavic to the two kinds of Case mechanisms well-known for arguments, namely Structural and Inherent Case.

2. PredP and Agreement
2.1. Adjectives and Agreement

By Universal B, APs do not need Case, but rather need to be in an agreement relation with an appropriate head. For attributive APs, this

---

[6] Notice that there is another possible source of Case checking for the NP secondary predicate, namely the AgrS checking domain that checks the Nominative Case on the subject. However, any LF movement of the lower secondary predicate to a position higher than the object-checking AgrO domain will violate **Shortest Move** (Chomsky 1995a), and thus cause an Economy violation. Thus we derive the fact that small clause predicates in languages like Polish are always marked with the same Case as the closest Argument NP in the sentence.

occurs within DP. For predicate APs, however, an agreement relation with an appropriate head is not available.[7] Thus consider the small clause adjectives found in Polish (19a), Serbo-Croatian (19b), and Slovak (19c):

(19) a. Znalazłem   go   pijanego / *pijanym   (polish)
        (pro) found   him   drunk-ACC / *INSTR
        'I found him drunk .'

    b. Našao   sam   ga   pijanog / *pijanim   (S/C)
        found   aux-1sg   him-ACC   drunk-ACC / *INSTR
        'I found him drunk.'

    c. Mat'   ju   našla   vyplakanú   (Slovak)
        mother-NOM   her-ACC   found   crying-ACC
        'Mother found her crying.' (from Franks 1995)

In all three cases, the adjectives agree in gender, number and Case with their antecedents. This is now expected in an account where the adjective checks agreement by moving to form a multiple Spec structure like (18). Notice that the movement is for agreement purposes, but the result also requires that the adjective be marked with the appropriate (relative) Case as in (19a-c). We predict Russian to allow such structures, because adjectives cannot agree with the Pred head. This is confirmed by the acceptability of (20), where the adjective undergoes LF raising to agree with its antecedent, and is not marked with Instrumental Case:[8]

(20) Mašinu   vzvešivali   pustuju.   (Russian)
      car   weighed   empty-Acc
      'They weighed the car empty.'

---

[7] We assume that the Complement Checking Domain required for Inherent Case assignment is *not* an appropriate agreement domain. This is in accordance with the well-known generalization that languages do *not* show any kind of object agreement with oblique internal arguments.

[8] The question may arise for such constructions: what checks the strong Pred feature in a Predicate adjective construction like (20)? Here we assume, as all theories must, that Preds selecting AP complements have different features from those selecting NP complements. In particular, they do not contain a Case feature of any kind, as part of being Preds selecting adjectives. This is similar to a transitive verb (*want*) allowing a CP complement and thus not checking a Case feature, on most accounts.

In this respect, our account is superior to Bailyn & Rubin (1991) in that it not only allows sentences such as (20), which were a problem for that account, but indeed predicts them to occur, exactly in the case of adjectives. Furthermore, this account provides a *structural* difference between sentence types that are known to differ semantically (Jakobson 1957, Nichols 1981, Smith this volume).

2.2. Russian Instrumental Adjectives

Of course it is well-known that Russian has Instrumentally-marked APs, implying that our AP/NP distinction does not fully hold:

(21) a. Ja   našel   ego   p'janym / p'janogo.   (Russian)
        I   found   him   drunk-INSTR / ACC

        'I found him drunk.'

     b. Ja   sčitaju   ego   glupym / *glupogo   (Russian)
        I   consider   him   stupid-INSTR / *ACC

        'I consider him stupid.'

In the adjunct case (21a), we have already seen the derivation of the grammatical Relative Case (Accusative) for Polish in (19). (Recall that Polish does not allow the equivalent of (21a) with Instrumental.) Polish allows neither of the variants of (21b) without *za*. Thus neither language seems to allow Relative Case APs in argument position (without *za*). (Presumably this results from some kind of movement constraint.) However, Russian Instrumental adjectives are fine in such situations, behaving as if they were NPs needing *Case*. This is reminiscent of the well-known paradigm of adjectives in primary predicate constructions, such as (22):

(22) a. Elka   —   vysoka   (Russian)
        fir   tall (Short Form)

        'The fir is tall.'

     b. Elka   —   vysokaja
        fir   tall (Long Form)

        'The fir is a tall one.'

In (22a) we have a Short Form adjective and in (22b) a Long Form adjective. The behavior of Long Form adjectives in certain agreement environments where plural agreement is expected has led researchers to posit a null-N^0 head in these constructions. (See Babby 1975, Siegel 1976 and Bailyn 1994 for discussion.) Thus the structure of Long Form adjective morphology is shown in (23):

(23)   Elka — [$_{NP}$ vysokaja[]

Adjectives with Long Form morphology share agreement (and Case) features with the head noun. Returning to (21a-b) we now see that these apparent APs are, in fact, NPs with Į-heads behaving as all NP secondary predicates do in Russian. Polish, without the Į-head available, has no such construction.[9] Only true predicate APs, such as (22a), in fact move to reach an agreement relation in Russian. Others agree with the nominal head, which checks Instrumental Case with Pred, passing it along to the agreeing adjective.[10] Once again, we see that language-specific lexical properties (the existence of Russian Į-N heads) conspires with universal Case assignment mechanisms to account for the attested forms.

3. Extensions

3.1. Russian Double Nominatives

Given our analysis, the apparently simplest construction, the Russian Double Nominative, turns out to be one of the most complicated. Examples are given in (24-25) (The semantics of pairs like (25) are discussed in detail in Kamynina (1972)):

(24)   Ivan   —   student / *studentom
       Ivan-NOM   (is)   a.student-NOM / *INSTR

       'Ivan is a student.'

---

[9] Polish has some Short Form adjectives, *zdrów* ('healthy') (Long Form *zdrowy*), which are historical remnants. Otherwise, the contrast between Long and Short Form morphology has been lost in Polish. For discussion, see Bailyn (1998).

[10] There is quite a lot of speaker variation in adjunct cases. See Bailyn (1994, 1998) for discussion of the historical change that lies behind the variability.

(25) a. Brat   byl   učitel'.
          brother-NOM   was   teacher-NOM

          '(My) brother was a teacher (by nature).'

      b. Brat   byl   učitelem'.
          brother-NOM   was   teacher-INSTR

          '(My) brother was a teacher.' (for a certain period of time)

In (24), the present tense copula is null. In comparing the two instances of past copula constructions, we see that (25a), (with double Nominative) differs in interpretation from (25b) (with Instrumental.) This semantic distinction is captured in various ways in various frameworks. See Jakobson 1957, Wierzbicka 1980, and Smith (this volume). Wierzbicka (1980) says that "the Nominative Case is used when the predicate nominal denotes a property seen as essential and inalienable; the instrumental case is used when the predicate nominal denotes a property which is seen as transient and inessential." (p. 121) Our claim is that this distinction correlates with a structural distinction, namely that double Nominative structures involve no secondary predication, and indeed no VP, thus forcing the predicate NP to raise into a multiple specifier to check Nominative Case. Indeed, Wierzbicka's characterization of the Predicate Instrumental as "instrumental of additional characteristics" corresponds exactly to our claim that these constructions involve secondary predication, syntactically.

Thus the structure of (25b), given in (26) on the following page, is no different from a standard raising verb, such as *seems* or *be* in English. In the case of (24) and (25a), the effects of Russian's other null-head, the null copula, comes into play. The existence of double Nominative sentences in adult speech triggers the opening of a marked state of affairs, typologically speaking, namely the existence of verbless sentences, in which primary Pred^0 may select any lexical category as its complement. The typological state of affairs is partially captured in (27).

(26) Structure of (25b):
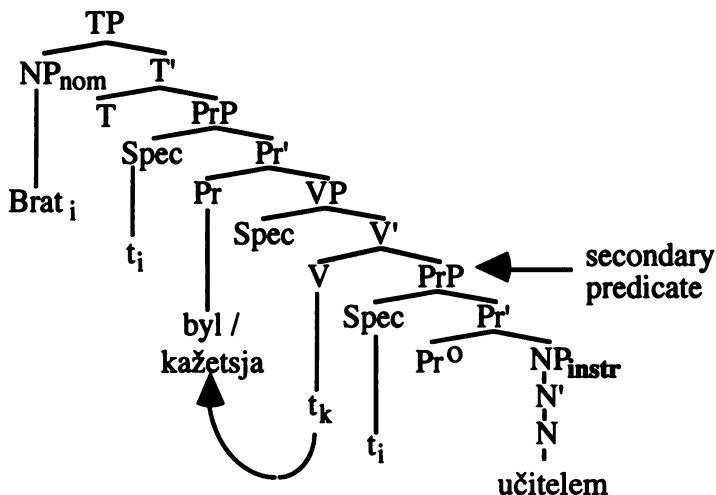
(27) Primary Predicate Selection Parameter Settings

English	Polish	Russian
[+v, −n]	[+v, ±n]]	[±v, ±n]

This account allows us to eliminate morphologically null *verbs* from the grammar of Russian. Thus when the Russian child hears sentences such as (24), with no [+v] element at all, she can only conclude that primary Pred⁰ in her language allows selection of a category other than V, V being always overt. However, such a Pred has a unique set of features for this category. Crucially, it does not carry any Case features, or there would be a feature mismatch between it and the T above it, to which it must raise. Thus no primary Pred⁰ will check Instrumental Case. The structure of a double Nominative construction is shown in (28).[11]

---

[11] In fact, (28) is a partial LF representation because the Nom feature on T is erased before the LF interface. We leave it in for exposition. However, (28) is an accurate LF representation in that covert movements are shown and the categorial features on Pred and its complement NP are in the right checking relation (for Check on Merge).

(28)   LF Structure of (25a):
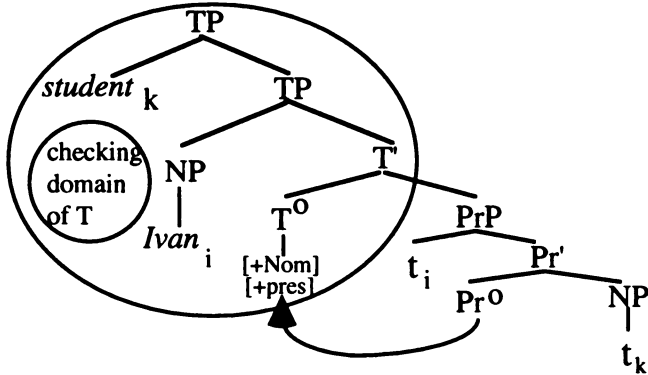
In (28) we see that Pred^0 raises to T^0 to ensure that the present tense morphology matches the true Tense marking (as all verbs must do). Returning to (27), we then predict that this kind of structure should be possible with Polish adjectives ([+v]), but not Polish NPs, since primary Pred does not select NPs.[12] This accounts for Case possibilities for APs and NPs in Polish copula constructions:

(29) a. Jan   jest   głodny / *głodnym
          Jan-Nom   is   hungry-NOM/*INSTR

          'Jan is hungry.'

(29) b. Jan   jest   studentem / *student.
          Jan-Nom   is   *studentem-INSTR / -NOM

          'Jan is a student.'

---

[12] An apparent exception involves double Nominatives in Polish in constructions involving the copula *to* such as (i):

i) Jan   to   student.
    Jan-NOM   COP   student-NOM

    'Jan is a student.'

Clearly, these cases are parallel to the Double Nominative cases of Russian and involve Polish primary predicates with a [+N] complement, something apparently licensed by the presence of *to*. We leave exact characterization of such constructions to future research.

(29a) is a primary predicate that takes an AP predicate with a structure identical to (28) in all relevant respects. Instrumental is impossible because there is no Instrumental Case assigner in the structure. A structure like (29a) with a Nominative NP predicate is impossible because Polish does not allow a [-v] category (NP) as the primary predicate. (29b), on the other hand, is a case of secondary predication, identical to (26) in all relevant respects.

3.2. Russian adjectival Case alternations

Interestingly, our analysis of Russian predicts the existence in adjunct secondary predicates of *both* Instrumental and Relative Case predicates. Polish, on the other hand, should allow only Relative (doubled Acc) marked predicates. This paradigm is repeated in (30):

(30) a. Ja   našel ego p'janym / p'janogo.   (Russian)
          I   found him drunk-INSTR / ACC

          'I found him drunk.'

      b. Znalazłem   go   pijanego / *pijanym   (Polish)
          I found   him-ACC   drunk-ACC / *INSTR

Furthermore, we expect a semantic distinction in the Russian Case to accompany the Case distinction, as is borne out by traditional descriptions, such as Jakobson's (1957) characterization of the Instrumental as being more peripheral than the Accusative.

3.3 Polish NPs

Given the existence of Russian I̥-heads determining the difference in AP predicate-marking, we now strengthen the possibility that Pred's Instrumental Case feature is universally strong. Recall that Polish NPs also show Instrumental Case in argument small clauses:

(31) a. Jan   jest   studentem / *student   (Polish)
          Jan   is   student-INSTR / -*NOM

          'Jan is a student.'

      b. Mianowaliśmy   go   prezydentem
          nominate   him-ACC   president-INSTR / *ACC

          'We nominated him (for) president.'

This is exactly what we expect for secondary predicates, given the strong Instrumental features on Pred. We are now in position to restate (10), repeated as (32a), in universal terms:

(32) a.   Russian Predicate Instrumental Rule:

   Pred⁰ has strong Instrumental Case features

   b.   Universal Predicate Case Rule:

   Pred⁰ has strong (Oblique/Instr) Case features

We have seen that the strong Case features on Pred can be checked either by its merging with a complement carrying the appropriate feature or by lexical insertion into the Pred⁰ position. In the latter case, Case on the NP complement of Pred must be checked in a multiple-spec configuration. We are thus left with the generalization that Ø-Pred checks a unique oblique Case. We leave the question of whether the case checked by Pred is universally Instrumental to further research.

4. Conclusion

We have shown in this article how the universal workings of Case and Agreement, (in particular the separate need for Agreement on the part of APs and Case on the part of NPs), interact with language specific morphological idiosyncrasies. In particular, we have seen that the existence of Ø-heads combined with the features of functional categories account for the behavior of predicate nouns and adjectives in Russian and Polish as well as for two kinds of Case assignment patterns found generally on [+N] predicates. The existence of the following universals is strengthened:

Universal A: ALL NPs (including predicates) must have Case checked in an appropriate configuration.

Universal B: ALL APs (including predicates) must be in an agreement relation with an appropriate head.

Universal C: Pred⁰ has strong Case features.

The parametric variation between Polish and Russian reduces to learnable lexical properties, such as the existence of Long and Short Form adjectives in Russian, the presence of a Ø-N head in Russian, and

the selectional possibility of primary predicates taking non-verbal complements.

References

Babby, L. (1980) *Existential Sentences and Negation in Russian*, Ann Arbor, Michigan: Karoma.

———. (1975) *A Transformational Grammar of Russian Adjectives*. The Hague: Mouton.

Bailyn, J. (1994) "The Syntax and Semantics of Russian: Long and Short Form Adjectives" in J. Toman (ed) *Formal Approaches to Slavic Linguistics:* Ann Arbor: Michigan Slavic Publications.

———. (1995a) "Configurational Case Assignment in Russian Syntax" *The Linguistic Review* 12(4): 315-360.

———. (1995b) *A Configurational Approach to Russian 'Free' Word Order*, Ph.D. Dissertation, Cornell University.

———. (1998) "Syntactic Theory and the History of the Slavic Languages" in M. Flier & A. Timberlake (eds) *American Contributions to the 12th International Congress of Slavists*, Bloomington: Slavica.

Bailyn, J. and E, Rubin. (1991) "The Unification of Instrumental Case Assignment in Russian" *Cornell Working Papers in Linguistics,* 9, 99-126.

———. (1993) "Predication and Structural Case Assignment" Paper presented at the 1993 meeting of AATSEEL, Toronto, Dec. 29, 1993.

Bowers, J. (1993) "The Syntax of Predication," *Linguistic Inquiry* 24: 591-657.

———. (1998) "Towards a Minimalist Theory of Grammatical and Thematic Relations" ms., Cornell University.

Brecht, R. and J. Levine (eds) (1986) *Case in Slavic*, Columbus, Ohio: Slavica.

Chomsky, N. (1981) *Lectures on Government and Binding*, Dordrecht: Foris.

———. (1993) "A Minimalist Program for Linguistic Theory," in *The View From Building 20* (K. Hale and S. Keyser, eds). Cambridge, MA.: MIT Press: 1-52.

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

――――. (1995b) "Bare Phrase Structure" in G. Webelhuth (ed) *Principles and Parameters and The Minimalist Program*. Oxford: Blackwell.

Chvany, C. V. (1975) *On the Syntax of BE-sentences in Russian*, Cambridge, MA.: Slavica.

Collins, C. (1995) *Local Economy* Cambridge, MA.: MIT Press.

den Dikken, M. & A Nĺss (1993) "Case Dependencies: The Case of Predicate Inversion" *The Linguistic Review* 10: 303-336.

Dziwirek, K. (1994) *Polish Subjects* Garland.

Franks, S. (1990) "Case, Configuration and Argumenthood: Reflections on the Second Dative" *Russian Linguistics* 14.

――――. (1995) *Parameters of Slavic Morphosyntax*, Oxford: Oxford University Press.

Jackendoff, R. (1977) *X-bar Syntax: the Study of Phrase Structure*, Cambridge, MA: MIT Press.

Jakobson, R. (1936/1971) "Beitrag zur allgemeinen Kasuslehre: gesamtbedeutungen der russischen Kasus" *Travaux de Cercle linguistique de Prague* VI, pp. 240-288.

Janda, L. (1993) *A Geography of Case Semantics* Berlin: Mouton.

Kamynina, A. A. (1973) "Upotreblenii vtorogo imenitel'nogo imen suščestvitel'nyx v sovremennom russkom jazyke" *Russkij Jazyk v škole.*

Koizumi, M. (1995) *Phrase Structure in Minimalist Syntax*, Ph.D. Dissertation, MIT.

Larson, R. (1988) "On the Double Object Construction" *Linguistic Inquiry* 19, 335-391.

Lasnik, H. (1993) *Lectures in Minimalist Syntax* Occasional Working Papers in Linguistics, University of Connecticut.

Laurençot, E. (1994) "On Infinitives, Agreement, and the Null Case Hypothesis" ms, University of Connecticut, Storrs, CT.

Neidle, C. (1988) *The Role of Case in Russian Syntax* Dordrecht: Kluwer.

Nichols, J. (1973) *The Balto-Slavic Predicate Instrumental* Ph.D Dissertation, University of California, Berkeley.

————. (1981) *Predicate Nominals: A Partial Surface Syntax of Russian*. Berkeley: University of California Press.

Patakova, O. (1929) "K istorii razvitija tvoritel'nogo predikativnogo v russkom literaturnom jazyke" *Slavia* VIII: 1-37.

Pesetsky, D. (1982) *Paths and Categories*, Ph.D dissertation, MIT.

Pollock, J.-Y. (1989) "Verb Movement, Universal Grammar, and the Structure of IP," *Linguistic Inquiry* 20: 365-424.

Rubin, E. (1994) *The Internal and External Structure of Modification*, Ph.D dissertation, Cornell University.

Siegel, M. (1976) "Capturing the Russian Adjective" in B. Partee, ed. *Montague Grammar*, NY: Academic Press: 293-309.

Smith, M. (this volume) "From Instrumental to Irrealis: Motivating Some Grammaticalized Senses of the Russian Instrumental"

Stowell T. (1981) *Origins of Phrase Structure*, Ph.D Dissertation, MIT.

Wierzbicka, A. (1980) *The Case for Surface Case* Ann Arbor: Karoma.

Williams, E. (1975) "Small Clauses in English" in J. Kimball, ed., *Syntax and Semantics*, vol. 4, Academic Press.

————. (1983) "Against Small Clauses" *Linguistic Inquiry* 14: 203-238.

Dept. of Germanic and Slavic Languages
State University of New York, Stony Brook
Stony Brook, NY 11794
jbailyn@ccmail.sunysb.edu
bcitko@phonlab.sbs.sunysb.edu

Semantic Types and the Russian Genitive Modifier Construction*

Vladimir Borschev
VINITI, Russian Academy of Sciences
Barbara H. Partee
University of Massachusetts, Amherst

1. Introduction

The Russian genitive modifier (GM) construction exemplified in (1) presents a number of challenges to the development of a formal theory of the integration of lexical semantics, compositional semantics, and contextual influences on interpretation.

(1) ljubitel' koek   'lover of cats, cat-lover'
     rost čeloveka   'height of the/a man'
     sled tigra   'track of the/a tiger'
     nožka stola   'leg of the table, table leg'
     krug syra   'circle (wheel) of cheese'
     sobaka dočeri   'the daughter's dog'
     nebo Andreja Bolkonskogo 'Andrej Bolkonsky's sky'

The central goal of this paper is to try to account for the diversity of interpretations on the basis of a uniform compositional semantic interpretation and its interaction with lexical meaning and context. One part of the problem is that there are conflicting arguments for classifying the genitive NP (henceforth GEN NP) as a modifier or as an "argument"

of the head noun: we believe that it is possible to combine aspects of both within a uniform analysis.

On our approach to uniform interpretation, the head N always expresses a relation, and the GEN NP always specifies one argument of that relation.[1] For examples like the first three in (1), this is not very controversial. But for examples like the last two in (1), with head Ns that do not (normally) express relations, we need to explain where the "genitive relation" comes from. Sometimes, as in *nebo Andreja Bolkonskogo* 'Andrej Bolkonsky's sky', the relation is unclear without a strong supporting context (such as the description in *War and Peace* of the sky seen by the wounded Bolkonsky). In the case of *sobaka dočeri* 'the daughter's dog', the "default" choice of 'ownership' or 'possession' seems to come from 'typical preferences' of the genitive construction itself.

The first part of our task is to provide the basic compositional semantics for the construction (the "semantics of the syntax") in a way which shows how it is simultaneously "argument-like" and "modifier-like", and which accounts for how the construction occurs with both inherently relational nouns and "plain" (non-relational) nouns. Previous work on possessive constructions in English and Danish (Partee 1983/1997, Jensen and Vikner 1994, Partee and Borschev, in press) has debated whether the construction must be split into two constructions depending on whether the head N is relational or not. We now follow Jensen and Vikner (ms.1998) in advocating a single rule plus coerced type-shifting.

The second part of the task is to understand the seemingly non-uniform contribution of lexical semantics to the interpretation. Much of the groundwork has been laid in work of Knorina (Knorina 1988, 1996, Borschev and Knorina 1990), who examined how differences in the fine-grained semantic sorts of the head N contribute to the determination of the particular relations that are evoked in the interpretation of the construction. The notion of semantic sorts, including relational classification into events and their participants, artifacts and their

---

[1] Our unification of the GM construction is less ambitious than Jakobson's (1936) unification of the semantics of the genitive overall, but his characterization of the kinds of meanings of head nouns which occur with the GM construction is consistent with our calling them all "relational".

creators, images and imaged-objects, parts and wholes, etc., was argued by Knorina to underlie not only many details of the GM interpretation but also to be an essential part of the lexical semantics of each noun and to contribute centrally to metaphorical extensions of lexical and constructional meanings, including that of the GM construction. This conception of the role of the sortal classification of nouns, discussed in Borschev and Partee (in press), is also related to the work of Jackendoff (1997) and Pustejovsky (1995).

The third part of the task is to identify how context interacts with compositional and lexical semantics, an issue which is not specific to the Russian GM construction. Context can help to support a "genitive relation" with a normally non-relational noun, and sometimes a strong context can even override a lexically given relation: in a discussion of sculpture, one is likely to interpret *ljubovniki Rodena* 'Rodin's lovers' using not the inherent "lover-of" relation but the relation of artistic creations to their creator. Borschev and Partee (1998) propose to integrate contextual information with lexical and compositional information in building up the "theory" of a sentence or text simply via entailments from "axioms" that come from multiple sources. We suggest there that coercion and the overriding of 'default' preferences result from clashes among information from different sources.

Combining these ingredients, we argue that the unifying principle in the semantics of the GM construction is that the GEN NP is always of a semantic type which "looks for" a relational interpretation of the head N; the diversity of interpretations reflects the diversity of ways in which the head N may be or may come to be construed as involving a relation. The lexical semantics may directly or indirectly supply a relation, particularly through the sortal information concerning the head N. When it does not, then lexical semantics, background, and contextual information interact in facilitating a shift or extension of the sense of the head N to an appropriate relational interpretation.

In Section 2 we discuss problems that face a unified semantics of the GM construction. In Section 3 we spell out the ingredients of a unified analysis, including the formal semantics of the GM construction and the role of semantic sorts of the parts. How the analysis solves the difficulties described in Section 2 is the subject of Section 4. In Section 5 we show why the "genitive construction with obligatory third term" is

not an instance of the basic GM construction. In Section 6 we briefly compare the Russian GM construction with other constructions in Russian, English, and Hebrew, which have similar "relational" semantics, and identify open problems for further research.

2. Problems for a Unified Semantics of the GM Construction

In this paper we make the assumption that there is, syntactically, just one GM construction in Russian (except for the construction discussed in Section 5). That assumption is controversial.[2] Much of the debate concerning multiple positions for GEN NPs in Russian NPs involves deverbal nouns with process readings, such as *lišenie Anny svobody* (*sudom*) 'the deprivation of Anna of her freedom (by the court) (Babby 1997 p.59); we have nothing to say about the important topic of 'nominalizations' and use only 'plain nouns' in our examples. If there are in fact two different structural positions for genitives within Russian NPs, the problems we are concerned with could take a different shape but would not disappear. We return briefly in Section 6 to the issue of multiple syntactic positions for GEN NPs and its potential implications for our analysis.

---

[2] Engelhardt and Trugman (1997) distinguish two positions for GEN NPs: sister to N, and in Spec,DP, the latter position hosting "subjects" and "possessors" (plus a third position, adjunct to N-max, for what in sections 2.3 and 5 we call 'genitives with obligatory third term'). Schoorlemmer (1995) allows just one structural genitive case position in NPs, sister to N, only with deverbal nouns, plus a "possessive adjunct" position for all nouns, noting that "possessives can express an infinite array of relations to the N, including 'object'". Relative to Schoorlemmer's assumptions, we are working on the problem of the semantics of the possessive. Babby (1997) distinguishes two positions, sister to N ('adnominal genitives') and sister to N-bar ('possessive genitives'), both internal positions, homologous to direct and indirect object positions, and both positions in which genitive is configurationally assigned but may also be lexically governed ('quirky' genitives). The Russian Academy Grammar (1980) separates deverbal from plain nouns, and for the latter, distinguishes genitives that are governed by the head N from genitive adjuncts (*primykanie*), noting that the distinction is not always easy to draw.

Staying neutral on many syntactic details, we will represent the syntax of the GM construction as in (2).[3]

(2)   N

N   NP$_{GEN}$
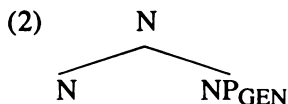
In this section we describe the "fundamental problem" for the semantics of the GM construction, whose solution will occupy Section 3, and further problems which will be addressed in Sections 4 and 5.

2.1. The Fundamental Problem

The "fundamental problem" for a unified semantics of the GM construction is the diversity of the relations expressed by the GM construction and diversity of their sources. Sometimes the relation is intrinsic to the semantics of the head N: *ljubitel'* 'lover'; *rost* 'height'. Sometimes the head N is not relational itself but 'implies' a relevant relation; we will refer to such N's below as "indirectly relational N's": *sled* 'track' implies the relation of 'created by', and *nožka* 'leg' implies the relation "part-of".[4] In other cases, the N is non-relational, a "plain (sortal) N", and the relation expressed by the GM construction seems to come from the context, as noted in the introduction for examples with *nebo* 'sky' and *sobaka* 'dog'. If the relations are so varied and have such varied sources, how can the construction have a single interpretation?

Supposing that we can find a solution to the fundamental problem, there are other problems that must be faced.

---

[3] We use N as a cover term for both lexical N^0 and non-maximal N-bar (Montague's CN and CNP) and NP as a cover term for both N^{MAX} and DP, staying neutral on the obligatoriness of D in Russian. The structure in (2) is therefore neutral between Babby's two structures and between Schoorlemmer's two structures, but not between the two structures proposed by Engelhardt and Trugman. The top N node in (2) could be dominated by NP or DP with or without the addition of further modifiers or determiners. Semantic types will be discussed in Section 3.

[4] In fact both of these might be argued to be inherently relational; the line is not sharp and criteria are debated. We are aiming for an approach on which 'relationality' can be a matter of degree in spite of the discreteness of the semantic types involved.

2.2. Genitive NPs: Referential Arguments or Descriptive Modifiers?

The GEN NP may be a normal referential NP or may have a 'generic' interpretation. Compare the examples (3a-b) and (3c-d).

(3) a. ljubovnik Maši 'Mary's lover'
     b. ljubitel' košek 'cat-lover'
     c. sledy tigra   'tracks of a/the tiger'
     d. sledy tigrov   'tracks of some/the tigers; tiger tracks'

Partially correlated with that difference, sometimes the GEN NP seems primarily to be serving as an argument of a relation in terms of which the head N is characterized, as in (3a,c) and one reading of (3d), and other times it seems to serve as a descriptive or qualitative modifier instead, as in (3b) and the other reading of (3d). The expression in (3d) can function as an answer to "Whose tracks are those?", but (3d) can also be understood as an answer to "What kind of tracks are those?". From an English-speaking perspective, the two meanings of (3d) are very different kinds of meanings, suggesting that they might exemplify two different GM constructions in Russian. So another challenge is to explain this "ambiguity" within the bounds of a unified semantics for a single GM construction.

The Academy Grammar (*Russkaja Grammatika 1980*) discusses this problem and proposes a unifying perspective with which we agree. They note that when a relational noun has a dependent, the dependent may serve as an argument of the head noun's relation, but at the same time there is always a clear element of modification of the head noun in the resulting interpretation. We view our uniform interpretation of the GM construction as consistent with the Academy Grammar's insight, and we will account for these "two interpretations" of the construction on the basis of the difference between referential and generic interpretations of GEN NPs occurring in the construction.

2.3. The "Genitive Construction with Obligatory Third Term"

A further problem which we include in order to indicate the limits of a unified analysis is whether the "genitive construction with obligatory third term" in (4) can also be assimilated within a unified analysis of the GM construction.

(4) a. galstuk krasnogo cveta 'necktie of (a) red color'
     b. *galstuk cveta   'necktie of (a) color'

The argument we offer in Section 5 for treating this as a separate construction helps to show what unites the ordinary GM construction.

3. A Unified Analysis of the Russian GM Construction

For the fundamental problem of providing a unified semantics for a construction whose meanings seem so diverse, the Russian GM construction is similar to the possessive construction in English and in Danish, discussed and debated in Partee (1983/1997), Jensen and Vikner (1994, ms. 1998), Partee and Borschev (in press). Partee (1983/1997) proposed two distinct rules for English possessives, one for relational head Ns (*John's brother*) and one for sortal head Ns (*John's team*). Jensen and Vikner proposed a single rule, with a mechanism for "lexical coercion" of some sortal Ns to relational meanings, but leaving possessives with "contextually given relations" to an unspecified separate mechanism.

Partee and Borschev (in press) discuss the problem of choosing between these empirically almost equivalent approaches. There we propose extensions to Jensen and Vikner's coercion approach to cover also the "contextual" cases, and point to a need for more fine-grained coercion principles to cover phenomena involving the relational adjective *favorite* and the difference in "most likely relation" in the interpretation of examples like *John's movie* and *John's favorite movie*. The paper concludes in favor of the extended version of Jensen and Vikner's approach, the most critical argument coming from examples like *Mary's former mansion*:[5] a compositional semantics should be able to account for two possible interpretations, one on which some "former mansion" is "Mary's", and another on which the referent was formerly "Mary's mansion"; Partee's analysis generates only the former reading, while Jensen and Vikner's approach can in principle account for both.

The uniform-genitive approach, extended as suggested above, is further developed in Jensen and Vikner (ms. 1998); in Borschev and

.

---

[5] This type of example was suggested to us by Norvin Richards (p.c.). For the full argument, see Partee and Borschev (in press).

Partee (in press), we apply it to the Russian GM construction. The main features of the resulting unified analysis are as follows.

With the genitive construction, the head N or N-bar is always construed relationally, as being of type $<e,<\underline{e},t>>$;[6] this is the heart of the unified interpretation. But it is to be emphasized that relational Ns are still Ns; both simple and relational Ns characterize the entities filling their "referential role" as belonging to a certain "sort". Relational Ns differ from simple sortal Ns in having an additional argument place; they describe their referents not only (and sometimes not primarily) as being of a certain "sort" but as standing in a certain relation to some other entity or entities. Using "Thing" as a place-holder for a sortal property and "Related-to" as a place-holder for a relation, the basic scheme of the interpretation of a simple sortal N is as in (5a), and that of a relational N as in (5b).

(5)   a. $x[\mathbf{Thing}(x)]$
      b. $y\ x[\mathbf{Thing}(x)\ \&\ \mathbf{Related\text{-}to\text{-}}y\ (x)]$

For different relational nouns, and for whole families of relational nouns of different sorts, there are different distributions of lexical information concerning the "sortal part" and the "relational part" of their meaning, including important differences about how much is explicit in the lexicon and how much often comes from stereotypically associated information or from the context. We illustrate these remarks briefly here; more detailed treatment of some particular examples can be found in Borschev and Partee (in press).

A basic sortal N, type $<\underline{e},t>$, has a referential role and a characterizing property. In (6) below, the referential role is filled by x, and the characterizing property is indicated as **nožka**.

(6)   *nožka* in type $<e,t>$ $x[\mathbf{nožka}(x)]$
      'leg'

---

[6] We follow standard type theory, with basic types e (entity) and t (truth value); the only types crucial for this paper are the types of sortal (plain, non-relational) N, $<\underline{e},t>$, and relational N, $<<e,<\underline{e},t>>$. In types for nouns we adapt the notation of Williams (1981) in underlining the "referential role" position, his name for the θ-role of what he identified as the 'external argument' of the noun (the R role of Babby 1997).

A relational N's referential role is characterized as one term of a relation. We can represent a directly relational N as in (7a) (the more "standard" representation) or, following the schema of (5b), as in (7b); an indirectly relational N is represented as in (7c).

(7)   a.   *ljubitel'* in type $<e,<\underline{e},t>>$: $\lambda y \lambda x[\textbf{ljubitel'}(y)(x)]$
           'lover'

      b.   *ljubitel'* $<e,<\underline{e},t>>$: $\lambda y \lambda x[\textbf{person}(x) \ \& \ \textbf{ljubitel'-of-}y \ (x)]$
           'lover'

      c.   *nožka* in type $<e,<\underline{e},t>>$: $\lambda y \lambda x[\textbf{nožka}(x) \ \& \ \textbf{Part-of-}y \ (x)]$
           'leg'

The whole GM construction then picks out an entity or entities (of a sort determined by the head N), described as standing in a certain relation to some other entity or entities denoted by the GEN NP. The semantic "sort" of the head N often dictates a "most easily available" choice of relation, as discussed in Knorina (1988), Borschev and Knorina (1990), Pustejovsky (1995). Thus the classification of *nožka* as a 'furniture part' makes the relation 'Part of' saliently accessible.

In the cases where context contributes a salient relation, like the *nebo* case discussed earlier, we take the context to be locally enriching the normal dictionary 'theory' of *nebo*; this is our way of integrating the "contextual relation" cases into Jensen and Vikner's approach on which the head N is always the locus of the relation in the GM construction. So we represent the *nebo* example as in (8).

(8)   *nebo* in type $<e,<\underline{e},t>>$: $\lambda y \lambda x[\textbf{nebo}(x) \ \& \ \textbf{seen-by-}y \ (x)]$

The rule for interpreting a GEN NP is simple and uniform, as illustrated in (9):

(9)   GEN NP interpretation: *stola:* $\lambda R[R(\textbf{stol})]$[7]

The resulting GEN NP meaning is partly modifier-like and partly argument-like: it is modifier-like in that it combines with an N meaning

---

[7] Here we are making a simplification in not distinguishing between the N *stol* 'table', of type $<\underline{e},t>$, and the full NP *stol* 'the/a table' of type e. In this context *stol* should be understood as of type e. This issue is discussed briefly in Section 4.

to give a new N meaning, but it is not a normal endocentric modifier, since it combines with an N meaning of type $<e,<e,t>>$ to give a new N meaning of type $<e,t>$. And it does this by "filling in" the internal argument role of the relational N meaning with the value of the NP in the GEN NP.[8]

The rule for combining a GEN NP with a relational N is just function-argument application. The application of the GEN NP *stola* (see (9)) to the relational N *nožka* (see (7c)) is as shown in (10).

(10) $\lambda R[R(\text{stol})](\lambda y\lambda x[\textbf{nožka}(x)\ \&\ \textbf{Part-of-}y\ (x)])$
       $= \lambda y\lambda x[\textbf{nožka}(x)\ \&\ \textbf{Part-of-}y\ (x)]\ (\text{stol})$
       $= \lambda x[\textbf{nožka}(x)\ \&\ \textbf{Part-of-stol}\ (x)]$

The formulas given above are rather schematic; more discussion of the compositional semantics is found in Partee and Borschev (in press) and of the role of semantic sorts of nouns in predicting natural shifts to relational meanings in Borschev and Partee (in press).[9]

4. The Effects of Referential and Generic GEN NPs

In Section 2.2 we noted that the GEN NP is sometimes referential, leading to an interpretation involving a relation between particulars (*sledy tigra* 'tracks of a/the tiger', *ljubovnik Maši* 'Mary's lover'), but sometimes "generic", as in *sledy tigrov* 'tiger tracks', *ljubitel' košek* 'cat-lover'. As illustrated in the English glosses, these two kinds of interpretations are often expressed with two different syntactic constructions in English: the possessive construction for "relation to a particular", and noun-noun compounds to express "relation to a kind". We noted that this presents another problem for the thesis that the Russian genitive construction can be given a unified semantics.

---

[8] This analysis, which was proposed for genitives with relational Ns in Partee (1983/1997) and generalized by J&V, is similar to the analysis of verb-modifying adverbs of McConnell-Ginet (1982): she takes such adverbs as expanding the valency of the verb by one if necessary and then filling in a value for that valency role. A similar proposal was made by De Hoop (1995) for 'demoting' certain weak NP objects to the status of 'detransitivizing modifiers.'.

[9] A remaining problem requiring further work is the "splitting" of noun meanings into "lexical" and "abstract" symbols of a semantic metalanguage (for instance, the word *nožka* into symbols **nožka** and **Part**).

In fact, if one started from the corresponding English glosses, the question would seem to be even deeper, since the English genitive construction clearly involves a full NP (or DP; see footnote 2) in the genitive, whereas the noun-noun compound construction involves just an N as modifier, not a full NP. And that syntactic difference provides a natural account of the mentioned semantic difference between the two constructions, since only a full NP can be referential, while an N has as its intension a "property" or "kind" or "sort", the kind of meaning which is suited to "generic" rather than referential interpretation. So it might even be imagined that we actually have two different constructions in Russian, one involving a full NP in the genitive, for the referential case, and one involving just an N, for the "generic" case; because of the optionality of determiners in Russian, it is less obvious whether what we see in the construction is an NP or an N.

But to see why these two kinds of readings can be expressed by a single construction with a common semantics in Russian, note first that while bare Ns cannot be referential, full NPs can indeed be generic; and the GEN NP in Russian, as in English, is presumably always a full NP, never just an N,[10] even though the absence of obligatory determiners in Russian makes this less obvious in Russian than it is in English. Two arguments can be given for the (probably uncontroversial) claim that it is always a full NP that shows up in the genitive in Russian: (i) There are no other clear cases where a bare N rather than an NP is assigned case in Russian; and (ii) some genitive N(P)s are obviously full NPs, since they contain determiners, and there are none that could not be full NPs.

The statement that the GEN N(P) is always a full NP is another way of saying that the genitive construction is a syntactic construction, not a lexical derivation. The syntactic status of the genitive construction thus contrasts with the status of relational adjectival modifiers like *tigrinye* 'tiger (Adj)', which are lexically derived.

When we combine the fact that the GEN NP is always a full NP with the fact that the Russian NP may be definite, indefinite, or generic, it follows that GEN NPs have all those possibilities, yielding referential or

---

[10] There is actually a second "lexical" genitive construction in English which applies to plural common nouns, as in *a men's bicycle*; this one may be historically related to the *-s* morpheme which often appears in compound nouns in German.

generic relational modifiers. The greatest ambiguity may be found with a bare plural NP as the GEN NP, as in (11), since a plural bare NP in Russian may have the full range of possible interpretations as definite, indefinite, or generic.

(11)   sledy tigrov
       tracks tigers-GEN
       'tracks of the/some tigers', 'tracks of tigers', 'tiger tracks'

Note the continuum in 'referentiality' of the 'modifier' in English as we proceed from 'that tiger's tracks' to 'some tigers' tracks' to 'tigers' tracks' to 'tiger tracks'. The last two are almost interchangeable, but one is expressed in English with a possessive using a generic plural NP, the other with a N-N compound.

Similarly in Russian, the possibility of a generic NP in the genitive allows the meaning of the genitive construction to become almost as purely descriptive as the adjectival construction *tigrinye sledy*.

The Russian denominal adjective-forming rule, by contrast, almost never yields a 'referential' relation; because it is a lexical rule, it operates on an N, not on an NP. So *tigrinye sledy* can only describe a kind of tracks, and cannot mean the tracks of a particular tiger. (The exceptions are adjectives formed from culturally salient proper names, as in *Amerikanskoe posol'stvo* 'American Embassy'.)

We can thus see how the line between descriptive or qualitative modifiers and arguments of a relation can be non-absolute, in part as a result of the referential and generic interpretations of GEN NPs. When the GEN NP is generic, the resulting "genitive modifier" can easily have a "descriptive" meaning (answering "what kind of ...?), and when it is referential, its meaning is more argument-like.

As noted above, the Academy Grammar remarked (in different terms) that whenever the governor of a dependent is a relational noun (discounting process readings of deverbal nouns), the fact that the head noun has a referential role as an obligatory valence exerts a strong influence on the understood relation, leading to the simultaneous interpretation of the dependent as an argument of the relation and as contributing a modifier of the noun. We explained above how we capture these simultaneous dual roles by analyzing the GEN NP as semantically a function from an $<e,<e,t>>$ noun meaning to an $<e,t>$ noun meaning.

The varying strength of the two aspects of the GEN NP meaning can now be seen as reflecting in large part the relative referentiality of the NP in the GEN NP.

5. Genitive Construction with Obligatory Third Term.

The genitive construction "with obligatory third term",[11] illustrated in section 2.3. with example (4), repeated below, is in a way opposite to "normal" genitive construction. Both are relational, but whereas in the normal GM construction the head N is relational, in this construction the genitive N expresses a function which combines with a value-specifying adjective to provide a particular relation.

(4) a. galstuk krasnogo cveta 'necktie of (a) red color'
     b. *galstuk cveta   'necktie of (a) color'

In simple cases like (4a) and (12), *cvet* (color) and *rost* (height) are parameters of entities denoted by head Ns. Without the additional adjective they cannot be construed as providing any actual relation, and the construction without the adjective is just ill-formed, as in (4b).

(12) čelovek vysokogo rosta   'man of great height'

In more complicated cases of this construction like (13) and (14), a normally non-relational noun (*derevo* 'wood' or *opasnost'* 'danger') is conceived as a parameter, and an adjective is then interpreted as a value of this parameter (what kind of wood? – 'red'; what degree of danger? – 'high').

(13) stol krasnogo dereva   'desk of red wood' (mahogany)

(14) zona povyshennoj opasnosti   'zone of high danger'

It is interesting that in a case like (15), where the head N could be considered as "relational" (as it is unambiguously in (16)), the genitive noun could be understood either as parametric (by analogy with (18)) or as "normal" (cf. the possibility of (17), without an obligatory adjective). So the whole construction could be understood in either way, but this structural ambiguity does not result in any difference in truth-conditional

---

[11] Our understanding of this construction is based very heavily on the work of Knorina that is reported in Borschev and Knorina (1990).

content, just a difference in how that content is arrived at compositionally.

(15) zona osobogo kontrolja 'zone of special control/ inspection'

(16) zona otdyxa 'zone of leisure'

(17) zona kontrolja 'zone of control/ inspection'

(18) otrjad osobogo naznachenija 'troop of special assignment'

(19) *otrjad naznachenija 'troop of assignment'

6. Related Constructions and Open Problems.

The problems of the Russian GM construction are partly similar, although not fully identical, to problems of the semantics of English possessives (20) and English noun-noun compounds (21), as well as with some adjective-noun combinations in both languages where the adjective is denominal, as in the English *nuclear physics, financial news*, or their Russian equivalents *jadernaja fizika, finansovye novosti*.

(20) John's arrival/ teacher/ height/ team/ chair/ sky; team of John's

(21) clothes dryer, moon landing, flu virus, oil crisis, horse shoes

In this paper we have treated only the Russian GM construction; here we add some brief remarks about similarities and differences with other constructions within and across languages. We want to note in particular the problem of identifying the universal principles involved and explaining the basis for and the range of language-particular and construction-particular differences that may be observed.

In English, in addition to the constructions noted above, there are at least the following:

(22) Adjectival noun: stone wall, paper tiger, city lights

(23) PPs with of: wheel of cheese, tracks of a tiger

In Russian, besides the GM construction, there is productive formation of some kinds of denominal adjectives with relational meanings (*otnositel'nye prilagatel'nye*): *mednyj* 'copper', *tigrinyj* 'tiger',

ženskij 'women's'. There are also PP modifiers with Genitive-governing prepositions such as *iz* 'of', *ot* 'from', *u* 'at, of'.

Both languages also have possessive "pronouns" whose behavior seems sometime adjective-like and sometimes determiner-like, with the Russian case complicated by the identity in form between the possessive pronoun *ego* 'his' and the genitive/accusative form of the personal pronoun, *ego* '(of) him'. The complex relationship between these possessive pronominal forms and possessive or genitive NPs raises problems that have been explored in the literature (Padučeva 1984, Schoorlem mer 1995) but remain largely open.

In Hebrew, there is, among others, the *smikhut* ('construct state') construction, in which the head N is morphologically modified, and semantically becomes relational. Example (24) is from Knorina (1996).

(24)   shaarei   he-hatser (Ez. 44:17)
       gates(-of) the-yard

       'the gates of the yard'

None of these constructions is exactly equivalent to any of the others (within or across languages) in interpretation and range of uses. This raises interesting questions concerning universals and typology; how are language-specific constraints integrated with the contextual "openness" of interpretation of most or all of these constructions?

A hypothesis which we plan to explore further is that the kinds of type-shifting and meaning- shifting operations that we have seen at work in the coercion of sortal nouns to relational meanings in the GM construction are in fact universal, with language-particular differences arising from sources like the following principles (which are rough first approximations, and certainly not entirely original):

(i) Each language has a finite number of constructions which can express "relational modifiers". Each of these constructions has "central meanings" or "typical default interpretations" (either stipulated or somehow predictable), and occupies a certain "region" in the space of possible meanings. The number of regions and their (vague) boundaries may differ from language to language.

(ii) The meaning-shifting principles that allow for the (semi-)-productive generation of new examples (as in *nebo Bolkonskogo*) may

operate freely, but the existence of other constructions which less ambiguously express the meaning in question can block their use.

Closely related to these considerations is the issue of whether there really is just one syntactic GM construction in Russian (aside from the "obligatory third term" construction discussed in section 5), and if not, how that bears on the semantic questions that have been the focus of this paper. Have we "over-unified"? How can one decide?

Our schematic phrase structure tree actually would allow for two distinct positions within the possibilities we conflated: there could be a "sister of N" position plus an "adjunct to N-bar" position, as in Babby or as in Schoorlemmer. Our structure is inconsistent only with the structure proposed by Engelhardt and Trugman, where one of the positions is a D position (analogous to English prenominal possessives). But we have not delved seriously into this problem so far. The hard question here is whether, if one excludes deverbal nouns from consideration, there are any arguments for two syntactically distinct positions with plain nouns, and if so, whether there is any consistent semantic difference between the kinds of "genitive relations" in the two positions. Our approach does not predict any such difference.

Semantically, our approach is consistent with recursion, but we would predict that recursion would lead to processing difficulty. On our approach, a GEN NP combines with an N(-bar) of type $<e,<e,t>>$ to make an N-bar of type $<e,t>$, which could (under coercion with a strong supporting context) be shifted to an $<e,<e,t>>$ interpretation and could then combine with another GEN NP. It would presumably be quite difficult to have multiple shifts within a single NP; so we expect multiple GEN NPs to be easiest to interpret when one is clearly an argument of the head N and the other is interpreted with respect to a contextually salient relation or the default possessive relation of ownership or control; this is the case in the prototypical "good" example of two genitives, as in (25) below, discussed by Padučeva 1984, p.60, and by Babby 1997, p.61.

(25)   tablica elementov   Mendeleeva
       table elements-GEN   Mendeleev-GEN

       'Mendeleev's table of the elements'

Relevant open issues not explored here include the hypothesis that "possessives" (in adjunct position) are more "subject-like" and real

"arguments" of relational nouns more "object-like"(as suggested by the Academy Grammar); whether possessive adjectives like *Petin* 'Petja's' can replace "possessive" genitives but not "argument" genitives (as Schoorlemmer claims; the first author of this paper disagrees).

The more we look at the issues surrounding the syntax, semantics, and pragmatics of genitive constructions, the richer this area appears as a source of interesting material for the study of the interaction of grammar, lexicon, and context. Researchers working in this area from various perspectives have made important advances in uncovering some of the syntactic and semantic principles involved and identifying some of the ways that these principles interact with each other and with the context of interpretation. Our aim in this paper has been to build on these advances and make a contribution to the understanding of the integration of linguistic and non-linguistic sources of "axioms" in building up the contribution of a GM construction to the "theory" of a given text in a given context. But neither we nor our predecessors have achieved a fully comprehensive account of the structure and interpretation of the full range of GM constructions or of the broader family of constructions to which they belong; that remains an important future goal.

References

Babby, Leonard H. (1997) Nominalization in Russian. In *Formal Approaches to Slavic Linguistics: The Cornell Meeting 1995*, ed. Wayles Browne, Ewa Dornisch, Natasha Kondrashova, and Draga Zec, 54-83. Ann Arbor: Michigan Slavic Publications.

Borschev, V.B. and L.V.Knorina (1990) 'Tipy realij i ix jazykovoe vosprijatie'. In *Voprosy Kibernetiki: Jazyk logiki i logika jazyka*, ed. V. V.Ivanov, 106-134. Moskva: Akademija Nauk SSSR.

Borschev, Vladimir and Barbara H. Partee (1998). Formal and lexical semantics and the genitive in negated existential sentences in Russian. In *Formal Approaches to Slavic Linguistics: The Connecticut Meeting 1997*, ed. Željko Bošković, Steven Franks and William Snyder, 75-96. Ann Arbor: Michigan Slavic Publications.

Borschev, Vladimir and Barbara H. Partee (In press). Semantika genitivnoj konstrukcii: raznye podxody k formalizacii. To appear in

Tipologija i teorija jazyka: ot opisanija k ob"jasneniju, ed. E. Rakhilina and J. Testelec. Moskva: Jazyki russkoj kul'tury, 1999.

Engelhardt, Miriam and Helen Trugman (1998) D as a source of adnominal genitive in Russian. In *Formal Approaches to Slavic Linguistics: The Connecticut Meeting 1997*, ed. Željko Bošković, Steven Franks and William Snyder, 114-133. Ann Arbor: Michigan Slavic Publications.

Hoop, Helen de (1995) On the characterization of the weak-strong distinction. In *Quantification in Natural Languages*, ed. E.Bach, E.Jelinek, A.Kratzer and B.H.Partee, 421-450. Dordrecht: Kluwer.

Jackendoff, Ray (1997) *The Architecture of the Language Faculty*. Cambridge, Mass.: MIT Press.

Jakobson, Roman (1936) Beitrag zur allgemeinen Kasuslehre. Gesamtbedeutungen der russichen Kasus. *Travaux du Cercle Linguistique de Prague*, VI. Reprinted in Jakobson, Roman (1971) *Selected Writings, Vol. II: Word and Language*, 23-71. The Hague: Mouton.

Jensen, Per Anker and Carl Vikner (1994) Lexical knowledge and the semantic analysis of Danish genitive constructions. In *Topics in Knowledge-based NLP Systems*, ed. S.L.Hansen and H.Wegener, 37-55. Copenhagen: Samfundslitteratur.

Jensen, Per Anker and Carl Vikner (ms.1998) Relation-requiring constructions. Kolding and Copenhagen.

Knorina, L.V. (1988) Klassifikacija leksiki i slovarnye definicii. In *Nacional'naja specifika jazyka i ee otraženie v normativnom slovare*, ed. Ju.N. Karaulov, 60-63. Moskva: Nauka.

Knorina, L.V. (1996) 'The range of Biblical metaphors in smikhut', *The Moscow Linguistic Journal*, vol. 3, 80-94.

McConnell-Ginet, Sally (1982) Adverbs and logical form: a linguistically realistic theory. *Language* 58, 144- 184.

Padučeva, E.V. (1984). Pritjažatel'noe mestoimenie i problema zaloga otglagol'nogo imeni. *Problemy Strukturnoj Lingvistiki 1982*, ed. V.P.Grigor'ev, 50-66. Moskva: Nauka.

Partee, Barbara (1983/1997) "Uniformity vs. Versatility: The Genitive, a Case Study" appendix to Theo Janssen (1997), "Compositionality". In *The Handbook of Logic and Language*, ed. Johan van Benthem and Alice ter Meulen, 464-470. Amsterdam: Elsevier.

Partee, Barbara H. and Vladimir Borschev (in press). Integrating lexical and formal semantics: Genitives, relational nouns, and type-shifting. To appear in *Proceedings of the Second Tbilisi Symposium on Language, Logic, and Computation, ed.* R. Cooper and Th. Gamkrelidze.

Pustejovsky, James (1995) *The Generative Lexicon.* Cambridge, MA: The MIT Press.

Russkaja grammatika (1980 edition) ed. by N. Ju. Švedova. Akademija nauk SSSR, Institut russkogo jazyka. Moskva: Nauka.

Schoorlemmer, Maaike (1995) *Participial Passive and Aspect in Russian.* Ph.D. dissertation, Utrecht: OTS.

Williams, Edwin (1981) Argument structure and morphology. *Linguistic Review* 1, 81-114.

borshev@viniti.msk.su

Dept. of Linguistics
226 S. College
University of Massachussetts
Amherst, MA 01003
partee@linguist.umass.edu

Negated Yes/No Questions in Russian and Serbian/Croatian: Yes or No, Both, Either, or Neither?*

Sue Brown
Harvard University

0. Introduction

In this paper I propose a Minimalist account of the behavior of negation in negated Yes/No questions in Russian and Serbian/Croatian, with special focus on the pattern of occurrence of morphologically negative pronouns in these contexts.[1] While sentential negation licenses negative pronouns in declaratives and can license them in interrogatives with declarative word order, negation in Yes/No questions with Subject-Verb inversion does not. Indefinite pronouns that are normally disallowed in the scope of clausemate negation occur in these contexts instead. Previous literature in the field of Slavic linguistics on negated Yes/No questions has focused on the pragmatic effects of negation in these constructions (see, in particular, Restan 1969).[2] In particular, negation is often considered in certain Yes/No interrogatives as a "politeness" marker, not really expressing negation at all. In this paper I develop a

---

[1] I have chosen Russian and Serbian/Croatian as the focus of this study, due to the fact that these languages are from two different Slavic language groups (East and South Slavic, respectively), but both exhibit overt movement of the verb to the head of the Complementizer Phrase (CP) (i.e., Subject-Verb Inversion) in certain types of Yes/No questions, and both have three distinct indefinite pronouns, e.g., those used in negative contexts, those used in contexts with no truth value established, and those used in contexts where the truth of the utterance has already been established. The importance of this for the exposition will become clear in later sections.

[2] See also Brown (1996, Chapter 4) for extensive discussion of the pragmatic types of Yes/No questions.

formal account based on syntactic features of why this is so, or, in other words, why negation in certain types of negated Yes/No questions does not carry negative force.

1. Polarity Theory

Morphologically negative pronouns and indefinite pronouns have been treated extensively within the framework of polarity theory. Ladusaw (1980), Linebarger (1981, 1987), and Progovac (1993, 1994), among others, have shown that certain elements are "polarity-sensitive". One group of polarity-sensitive items is licensed only in the scope of clausemate negation or some other polarity licenser.[3] In other words, they are disallowed in contexts not containing some polarity licenser, e.g., in affirmative declaratives. These items, which are referred to as *negative polarity items*, henceforth NPIs, can be divided into *non-strict* NPIs and *strict* NPIs. *Non-strict* NPIs, such as English *any*-pronouns, can occur in any polarity environment, as shown by their ability to occur with clausemate negation (1a), in a Yes/No question (1b), or in the complement clause of an adversative predicate (1c); however, non-strict NPIs still require some polarity licenser in order to be licit, as shown by their ungrammaticality in an affirmative declarative (2):[4]

(1) a. Vince didn't see **anyone**.

     b. Did Vince see **anyone**?

     c. I doubt that Vince saw **anyone**.

(2) *Vince saw **anyone**.

Strict NPIs, on the other hand, are those which only occur in the scope of clausemate negation, but are disallowed in other polarity contexts as well as in non-polarity contexts, as illustrated in (3) for English *until*, and in (4) for Russian *ni*-pronouns.[5] The (a) examples show the behavior of

---

[3] The canonical polarity licensers, besides clausemate negation, include Yes/No questions, conditionals, adversative predicates, and superordinate negation.

[4] But see Progovac 1994 (in particular, pp. 41–43) for a treatment of Serbian/Croatian *i*-pronouns as NPIs that are disallowed in the scope of clausemate negation.

[5] Serbian/Croatian NI-pronouns behave in all respects the same way the Russian NI-pronouns do.

strict NPIs in contexts of clausemate negation, the (b) examples in non-negative polarity contexts, and the (c) examples in non-negative polarity environments (i.e., affirmative declaratives):

(3)   a.   Vince didn't start the movie **until** Mike got there.

      b.   *Did Vince start the movie **until** Mike got there?

      c.   *Vince started the movie **until** Mike got there.

(4)   a.   Ivan   **nikogo**   ne   vidit.   (R)
           Ivan   no-whom   NEG   sees

           'Ivan doesn't see anyone.'

      b.   *Ivan   **nikogo**   vidit?   (R)
           Ivan   no-whom   sees

           'Does Ivan see anyone?'

      c.   *Ivan   **nikogo**   vidit.   (R)
           Ivan   no-whom   sees

           'Ivan sees no one.'

While strict NPIs require clausemate negation, Positive Polarity Items, henceforth PPIs, are anti-triggered in the scope of clausemate negation. PPIs include English *some*-pronouns, Serbian/Croatian *ne*-pronouns (e.g., *neko* 'someone'), and Russian *to*-pronouns (e.g., *kto-to* 'someone'). PPIs cannot have a narrow scope reading with respect to clausemate negation, as shown in (5) for English *someone* and (6) for Russian *kogo-to* ('someone$_{ACC}$').

(5)   #Vince didn't see **someone**.

Example (5) can only have the reading where there was someone, such that Vince didn't see that person, but not the reading where Vince didn't see anyone[6]. The same reading applies in the Russian example in (6).[7]

---

[6] The # symbol is used here and below to indicate ungrammaticality on the reading where the PPI takes narrow scope with respect to clausemate negation.

[7] The Serbian/Croatian *ne*-pronouns behave in the same way that the Russian *to*-pronouns behave in this environment.

(6) #Ivan   **kogo-to**   ne   videl.
    Ivan   whom-some   NEG   saw

    'Ivan didn't see someone.'

These terms will play an important role in the discussion to follow.

2. The Data

2.1. Negation in Declaratives

As mentioned above, negation in declaratives licenses strict NPIs (Russian and Serbian/Croatian *ni*-pronouns, English *until*), as shown in (7–9):

(7) **Nikto**   ne   zvonil.   (R)
    no-whom   NEG   called

    'No one called.'

(8) Marija   **nikoga**   ne   zna.   (SC)
    Marija   no-whom   NEG   know

    'Marija doesn't know anyone.'

(9) Vince did not start the movie **until** Mike got there.

Negation in declaratives disallows a narrow scope reading for PPIs (Russian *to*-pronouns, S/C *ne*-pronouns, English *some*), as shown in (10–12):

(10) #Marija   **kogo-to**   ne   znaet.   (R)
    Marija   whom-some   NEG   knows

    = There is someone that Marija does not know.

(11) #Marija   **nekoga**   ne   zna.   (SC)
    Marija   some-whom   NEG   knows

    = same as (4)

(12) #Marija does not know **someone**.

These examples are licit only where the PPI has undergone Quantifier Raising to take wide scope over negation.

2.2. Negation in Questions without Inversion

Negation in questions with declarative word order can also license strict NPIs, as shown in (13–15):[8]

(13) **Nikto**   ne   zvonil?   (R)
     no-who   NEG   called

     'No one called?'

(14) Marija   **nikoga**   ne   zna?   (SC)
     Marija   no-whom   NEG   knows

     'Marija doesn't know anyone?'

(15)   Mark didn't start the Star Trek movie **until** Jay got there?

Here the behavior of negation is the same as in negative declaratives. Likewise, the PPIs are only licit in these questions on the reading where the PPI takes wide scope over clausemate negation.[9]

2.3 Negation in Yes/No Questions with Subject-Verb Inversion

In contrast to negation in negative declaratives and negative Yes/No questions with declarative word order, negation in questions with Subject-Verb inversion does **not** license strict NPIs.[10] This is shown in (16–18):

---

[8] Note that declarative word order is the only licit word order for presumptively negative questions, such as those given in exapmles (13–15).

[9] Note that native speaker informants are generally very hesitant to accept negated Yes/No questions with declarative word order containing *to*-PPIs, given the wide scope reading and the fact that the *to*-pronouns imply the existence of a referent whose identity is simply not known or has been forgotten by the speaker (see, in particular, Padučeva 1985 for discussion). Hence it is pragmatically odd for a speaker to ask whether Ivan does not know someone whose identity is not known to the speaker.

[10] In the Russian and Serbian/Croatian examples the [*ne* V] complex raises to C, the head of the Complementizer Phrase (CP), to host the interrogative clitic *li*. English disallows V-movement over negation (cf. Pollock 1989), and for this reason the dummy auxiliary *do* with the negative particle *n't* attached raises to C, perhaps to host a [+yes/no] feature there.

(16)   Ne   zvonil   li   ***nikto?**   (R)
         NEG   called   Q   no-who

(17)   Ne   zna   li   Marija   ***nikoga?**   (SC)
         NEG   knows   Q   Marija   no-whom

(18)   *Didn't Vince start the movie **until** Mike got there?

Compare these examples to those in (7–9) and (13–15) above where
there is no such inversion. In further contrast to negation in declaratives
or in questions with declarative word order, negation in questions with
Subject-Verb inversion *does* allow a narrow scope reading for PPIs, as
shown in (19–21)[11]:

(19)   Ne znaet   li   Marija   **kogo-to?**[12]   (R)
         NEG   know   Q   Marija   whom-some

         'Doesn't Marija know someone (i.e., who can get us into the
            concert)?'

(20)   Ne   zna   li   Marija   **nekoga?**   (SC)
         NEG   knows   Q   Marija   some-whom

         'Doesn't Marija know someone (i.e., who can get us into the
            concert)?'

(21)   Doesn't Marija know **someone** (i.e., who can get us into the
            concert)?

---

[11] Note that *li* is more restricted in its usage in Serbian/Croatian than in Russian,
and is unable to participate in "constituent interrogation." In other words, *li* in
Serbian/Croatian can attach only to a fronted verb, while in Russian it can attach
to any fronted and questioned constituent. However, the observation made in
this article, i.e., that negative pronouns (which indicate a presumptively negative
question) and *li* attached to a fronted verb (which represents a neutral question)
are incompatible, remains valid.

[12] Note that not all speakers of Russian accept the *to*-pronouns in non-negative
polarity contexts with this reading. Rather the to-pronouns is interpreted as a
definite individual whose identity is for some reason not being disclosed. This
suggests for those speakers, the *to*-pronouns behave as true referring expressions
and not indefinites, and therefore must take wide scope in all contexts.

Compare these to the negated declaratives in (10–12) above, where the PPIs must take wide scope.[13]

In addition, negation in Yes/No questions with inversion allows *nibud'*-pronouns in Russian, *i*-pronouns in Serbian/Croatian, and *already* in English (cf. (a) examples), which crucially are anti-triggered by clausemate negation in simple declaratives ((b) examples):[14]

(22) a. Ne   narušil   li   **kto-nibud'**   èksperimenta?   (R)
        NEG ruin   Q   who-any   experiment$_{GEN}$

        'Didn't someone ruin the experiment?'

   b. ***Kto-nibud'**   ne   narušil   èksperimenta.

---

[13] The *to*-pronouns occur in Yes/No questions only in certain contexts, and much less frequently than the *nibud'*-pronouns treated in the next paragraph, due to the fact that semantically they behave as [+specific]. The semantics of the Russian indefinite pronouns has been treated in the traditional framework in such works as Ponamereff 1978 and Padučeva 1985 (cf. in particular pp. 87–98). The same can be said about the Serbian/Croatian *ne*-pronouns with respect to the *i*-pronouns.

[14] Note that the Russian *nibud'*-pronouns and the Serbian/Croatian *i*-pronouns differ from true PPIs in that, while they are anti-triggered by true clausemate negation like true PPIs, they require some licenser to be licit. Thus, the examples in (i) and (ii), where these pronouns occur in simple declaratives, are ungrammatical:

   (i) *Ivan   znaet   **kogo-nibud'**.   (R)
         Ivan   knows   whom-any

   (ii) *Ivan   zna   **ikoga**.   (SC)
         Ivan   knows   i-whom

True PPIs require no trigger to be licit, as shown in (iii) and (iv):

   (iii) Ivan   znaet   **kogo-to**.   (R)
          Ivan   knows   whom-some

          'Ivan knows someone.'

   (iv) Ivan   **nekoga**   zna.   (SC)
          Ivan   some-whom knows

          'Ivan knows someone.'

(23) a. Ne   zna   li   Marija   **ikoga**?   (SC)
          NEG   knows   Q   Marija   any-whom

          'Doesn't Marija know anyone?'

      b. *Marija   ne   zna   **ikoga**.

(24) a. Didn't Mark **already** start the movie?

      b. *Mark didn't **already** start the movie.

In sum, negation in Yes/No questions with Subject-Verb inversion generally patterns with non-strict polarity contexts in NPI licensing patterns.

3. The Structure

3.1. Negated Declaratives

Negation in declaratives resides below the Complementizer Phrase (CP), the locus of force indicators and the root of the clause, raising along with V(erb) to T(ense), as seen in the structure in (25) for the example in (26):[15,16]

(25)

---
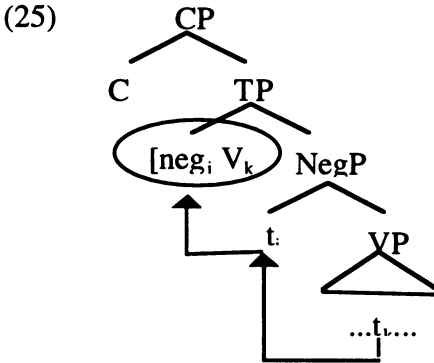
[15] Note that the structures presented in this section apply to Russian, Serbian/Croatian, and English, but for the sake of saving space, only Russian examples are used as illustrations.

[16] While I present the structure with the Inflectional Phrase (IP) split into TP and NegP, below I will occasionally refer to these functional categories together as IP for expository purposes.

(26) $[_{CP} [_{TP}$ nikto$_i$ $[_T$ ne$_j$ zvonil$_k]$ $[_{NegP}$ t$_j]$ $[_{VP}$ t$_i$ t$_k]]]$
          no-who   NEG called

The structure in Yes/No questions with declarative word order is presumably the same, except that C hosts an abstract feature indicating interrogativity.[17]

3.2. Negated Yes/No Questions with Inversion

In negated Yes/No questions with inversion, negation resides in CP, having undergone head-to-head movement to C along with the verb to host the clitic *li* (or, in the case of English, the interrogative feature) which resides there. This is shown in (27) for the example in (28):

(27)
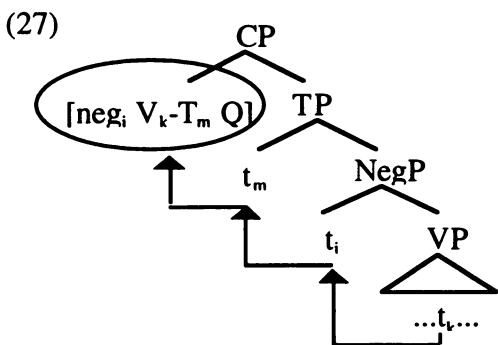
(28) $[_{CP} [_C$ [ne$_j$ [zvonil$_k]_m$ li]] $[_{TP}$ kto-nibud'$_i$ $[_T$ t$_m$ $[_{NegP}$ t$_j$ $[_{VP}$ t$_i$ t$_k]]]]]$
          NEG called   Q   who-any

In the remainder of the paper I will address the question of why negation behaves differently in the above structures.

4 .Analysis

4.1. Preliminaries

From the word order facts in these data, we might gather that negation that remains in IP (as in declaratives) for some reason behaves differently from negation that raises with the Verb to CP (as in interrogatives).

---

[17] I will return to the nature of this feature below.

Negation in IP renders the clause negative and licenses strict NPIs, while negation that raises to CP does neither.

However, simple raising of negation out of IP cannot be the whole story. Unlike in questions, in declaratives movement of negation out of IP *does* render the clause negative and *can* license strict NPIs. In (29a) and (30a), movement of negation out of IP in declaratives still renders the clause negative and licenses strict NPIs, while in (29b) and (30b) the same movement in an interrogative does not (cf. Progovac (1993: 334) for discussion of examples similar to (20a)).

(29) a. $[_{CP}$ [In no case]$_i$ $[_{C'}$ should $[_{IP}$ Jay t$_i$ start the movie **until** Mark arrives]]]

   b. *Didn't Jay start the movie **until** Mark arrived?

(30) a. $[_{CP}$ [Ne   čitaet]$_i$ $[_{TP}$ on t$_i$ **ničego**]]!
          NEG   reads   he   no-what

   'He doesn't read anything!'

   b. *Ne   čitaet   li   on   **ničego**?
          NEG   reads   Q   he   no-what

Likewise, raising of negation in Serbian/Croatian presumptively negative *zar*-questions still renders the clause negative and licenses strict NPIs (and anti-triggers the *i*-pronouns), as shown in (31) (modified from Progovac (1993: 338), showing *ne zna* in pre-IP position).

(31) Zar   **ne**   zna   *i(t)ko/ni(t)ko   od   vas
       Really NEG   know   *any-who/no-who   of   you

       kako   se   to   radi?
       how   REFL this does

       'Can it be that none of you know how this is done?'

4.2. Previous Accounts (Progovac 1993)

According to Progovac (1993), negation that resides within the local IP differs from negation that resides outside the local IP (in CP or a higher clause) in its contribution to the *truth value* of the local clause and in *polarity licensing*. Negation residing in C will not render the complement clause negative and will pattern with superordinate negation (and non-negative polarity contexts) in Negative Polarity Item (NPI) licensing, i.e.,

strict NPIs will not be licensed. This is supported by the data above, given that negated Yes/No questions are not intuitively negative in any sense and also given that negation in Yes/No questions does not license strict NPIs.

Given that non-negative polarity licensers as well as superordinate negation pattern with negation in the local CP, Progovac (1993: 334) concludes that all non-overt Polarity Operators in Comp that license NPIs in non-negative contexts are actually negative. The position of the negative operator determines which NPIs are licensed as well as what impact negation has on the truth value of the clause. Negation can sit in Infl and render the clause negative, or it can sit in Comp, where it only renders the truth value indeterminate. In constructions with Neg-Raising and Neg-Preposing, such as (20a), negation still makes the local clause negative, due to the trace of negation in IP. This, however, begs the question as to why negation in negated Yes/No questions cannot also render the local clause negative by virtue of the trace that remains, and it implies that for Progovac's analysis to hold, negation must be base-generated in C in such questions. Otherwise it should behave no differently than negation that originates in IP and raises to C, as in (28a). The correct analysis must account for how negation in negated Yes/No questions gets to CP, and, if this is by raising out of IP, why it differs from negation that raises out of IP in declaratives, i.e., why it does not render the clause negative or license strict NPIs.

There is evidence from Russian to suggest that negation in Yes/No questions is not base-generated in C, or at least to suggest that negation simply residing in C is not what accounts for the curious NPI licensing pattern observed in questions with inversion. Namely, negated Yes/No questions where negation is not in C, i.e., those with declarative word order, also allow *nibud'*-pronouns in Russian, which, recall, are normally anti-triggered in the scope of true clausemate negation (cf. fn. 11), and in such cases pattern with negated Yes/No questions where negation is in Comp, as shown in (33):[18]

---

[18] This fact was previously noted by Brown (1996: 215) and Brown and Franks (1995: 273).

(33) a. A   **kogo-nibud'**   **drugogo**   iz   podpol'ščikov
          and whom-nibud'   other   of   undergrounders

          ty   **ne**   znaeš'
          you NEG   know

          'So do you know anyone else from the underground?'

      b. A   **nikogo**   **drugogo**   iz   podpol'ščikov   ty
          and no-whom   other   of   undergrounders   you

          ne   znaeš'?
          NEG   know

          'So do you know anyone else from the underground?'

This indicates that it is not so much the location of negation, but its
status, that determines NPI licensing and truth value interpretations of
the clauses containing it.[19]

4.3. The Present Analysis

Several questions have arisen out of the discussion so far. These are
outlined in (34–39) and will be addressed in subsections 4.3.1–4.3.6.

(34) How does raising of Neg to CP in interrogatives which do not
      allow strict NPIs differ from raising of Neg to CP in declaratives
      which do?

(35) How does sentential negation license strict NPIs?

(36) Why can't negation in Yes/No questions with inversion license
      strict NPIs?

(37) Why can negation in Yes/No questions without inversion license
      strict NPIs?

---

[19] A reviewer points out that the difference between (33a) and (33b) stems from
the fact that *ne* in these *li*-questions is used as a "politeness marker"; hence it
does not indicate true sentential negation (cf. Restan 1969, Brown 1996).
However, the focus of this paper is on the formal status of negation, i.e., its
feature composition, and the effect this has on its ability to license strict NPIs.
This account, in fact, explains why this pragmatic effect is observed.

(38) Why can negation in Neg-Preposing constructions with Neg-to-C movement license NPIs?

(39) How do we account for the fact that questions can be formally negative but cannot license strict NPIs?

4.3.1. How Raising of Neg to CP that oes not License Strict NPIs Differs from Raising of Neg to CP that does

Examples (16–18) vs. (29–31) show that negation that raises to CP does not license strict NPIs in interrogatives but does in declaratives with Neg-Preposing (or Neg-Raising). It is generally assumed, following Chomsky and Lasnik 1977, that Yes/No questions have an interrogative force indicator (overt or covert) in C, while declaratives do not. It appears that some interaction of negation with the interrogative force indicator in C is taking place in negated Yes/No questions with Neg-to-C movement, and that this somehow prevents the licensing of strict NPIs. This interaction does not take place in declaratives with Neg-Preposing due to the absence of the interrogative force indicator.

At this point we may be able to exploit the similarity between Negation and Yes/No Interrogation: both are polarity indicators that determine the truth value (or lack thereof) of the sentence. Negation fixes the truth value as negative, while Yes/No interrogation renders it indeterminate. For some reason, negation in Yes/No questions with Neg-to-C movement, as in (22–24), behaves just like Yes/No interrogation by itself. While we have determined that the difference between the NPI licensing patterns in negated Yes/No questions with Neg-to-C movement and in declaratives with Neg-to-C movement stems from the fact that negated Yes/No questions contain the interrogative force indicator lacking in the declaratives, we must still ascertain what role this interaction plays in determining their truth value properties and NPI licensing pattern. In other words, we must resolve whether negation in Yes/No questions is stripped of its negative force upon movement to C, or whether this negation is special, somehow different from true sentential negation. Intuitively, you can question a negated sentence, but you cannot negate a question. In other words, we can question a sentence with a presupposed (negative) truth value (resulting in a presumptively

negative question), but we cannot negate a sentence whose truth value has not been fixed. This suggests that the latter is the case.

Before continuing it is important at this point to discuss the feature decomposition of negation and Yes/No interrogation. Here I argue that sentential negation and Yes/No interrogation represent two distinct variants of a polarity feature [POL], as shown in (40) and (41), where [Q] in (41) is equivalent to an indeterminate truth value (cf. Laka 1990 for a discussion of a separate PolP):

(40)   Sentential Negation
           [POL]
             |
           [NEG]

(41)   Yes/No Interrogation
           [POL]
             |
            [Q]

I borrow this type of feature decomposition from Bonet's (1995) discussion of morphology, from Generalized Phrase Structure Grammar's representation of features (Gazdar 1982, Gazdar, Klein, Pullum, and Sag 1983), and from phonological feature geometry (Clements 1985, Sagey 1986, Mester 1986, McCarthy 1988), whereby features can take other features as their values, and extend this notion to these syntactic features. This is akin to a type of feature redundancy rule: the presence of [NEG] or [Q] always indicates the presence of [POL] (but crucially not vice versa). This type of feature geometry allows for the existence of a [POL] feature with no features attached as well.

4.3.2. How Sentential Negation Licenses Strict *ni*-NPIs

I assume that in order for *ni*-NPIs to be licit, they must check and erase the feature [NEG] in their sublabel (cf. Brown (1996), Brown (forthcoming)). Suppose we have a numeration containing a *ni*-pronoun as well as the negative marker *ne*. Suppose further that this negative marker contains in its sublabel the feature [POL] with the feature [NEG] attached, as shown in (40) above. Let us derive the grammatical sentence given in (42):

(42) Ja   **nikogo**   **ne**   videl.
      I   no-whom   NEG   saw

      'I didn't see anyone.'

In (42), the *ni*-pronoun *nikogo* must raise to [Spec, NegP] to check its uninterpretable [NEG] feature against the [NEG] feature in the feature sublabel of *ne*, as shown in (43):[20]

(43) Checking of [NEG] in the Sublabel of *nikogo*

$$
\begin{array}{c}
\text{NegP} \\
\overbrace{\qquad\qquad} \\
\text{nikogo} \qquad \text{Neg}' \\
[\text{NEG}] \quad \overbrace{\qquad\qquad} \\
\qquad\qquad \text{VP}
\end{array}
$$
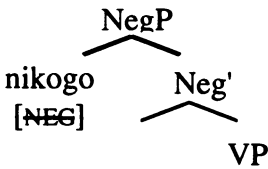
The feature [NEG] is checked and the derivation converges.

4.3.3. Why Negation in Yes/No Questions with Neg-to-C Movement Cannot License Strict NPIs

Just as the negative marker *ne* contains the feature [POL] with the feature [NEG] attached in sentences containing true sentential negation, as in (40), the interrogative particle *li* contains the feature [POL] with the feature [Q] attached, as shown in (41). The features [NEG] and [Q] are distinct. It is this distinctiveness that causes the ungrammaticality of Yes/No *li*-interrogatives with strict *ni*-NPIs as seen in (44):[16, 21]

(44) **Ne**   vyzyvaet **li**   pobeda   kadetov   **kakix-nibud'/**
      NEG   cause   Q   victory   of-cadets [which-nibud'/

      ***nikakix**   **besporjadkov?**
      *no-which   disturbances]$_{GEN}$

      'Could it be that the cadet victory is causing disturbances?'

---

[20] Note that the Serbian/Croatian sentences equivalent to the Russian examples in (42) would be treated identically in this analysis. (Cf. (8) and (23) above).

[21] Note that should (44) occur without optional *li* the *ni*-pronoun would still be disallowed. This follows from the analysis, where the clash between the negative and the, in this case, abstract interrogative feature in C still occurs.

In order to account for this, I argue that the raising of the [*ne*+V] complex to host *li* phonologically and the concomitant feature mismatch between [NEG] and [Q] causes the ungrammaticality of such sentences as (44) with the *ni*-pronoun present. The two features, [POL]-[NEG] and [POL]-[Q], are distinct polarity features that end up in a checking relation and cause the derivation to crash This is shown in (45) and (46):

(45) Checking of [NEG] on *nikakix (besporjadkov)*
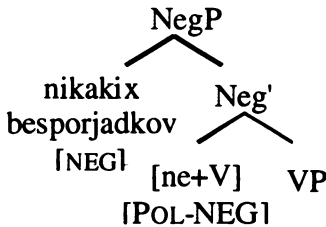
(46) Raising of *ne vyzyvaet* to host *li*
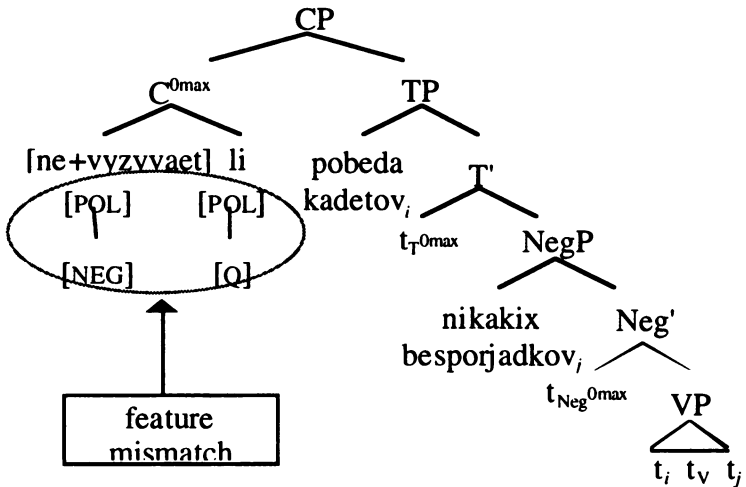
In (45), *nikakix besporjadkov* has raised to [Spec, NegP] in order to check the [NEG] feature of the *ni*-pronoun against the [POL]-[NEG] feature of the negative head. Once the derivation reaches the level of CP, the complex head [*ne vyzyvaet*] raises to host the clitic *li* which serves as the head of CP, as shown in the circled area of the tree structure in (46). Notice, however, that the sublabel of C^{0max} now contains the mismatch-

ing features [POL]—[NEG] and [POL]—[Q] in a checking relation; this feature mismatch causes the derivation to crash.[22] Therefore, what would be necessary to license the strict *ni*-NPI *nikakix* in (44) above causes a feature mismatch once the [*ne*+V] complex reaches C.

4.3.4. Why Negation in Yes/No Questions without Neg-to-C Movement can License NPIs

Yes/No questions without Neg-to-C movement, as in (13–15), behave like negative declaratives. Negation does not raise to C, and no feature mismatch between [POL]-[NEG] and [POL]-[Q] occurs. Note that this also explains why presumptively negative Yes/No questions cannot have Neg-to-C movement. The feature [NEG] which is necessary to license strict NPIs also renders the question presumptively negative, and we have seen that this feature in Yes/No questions with Neg-to-C movement is somehow rendered defective.

4.3.5. Why Negation in Neg-Preposing Constructions with Neg-to-C Movement can License NPIs

These constructions (cf. (29–30)), behave like negative declaratives as well. Negation raises to C, but there is no [POL]-[Q] feature there, and therefore no feature mismatch between [POL]-[NEG] and [POL]-[Q] occurs.

4.3.6. How Negated Questions still Occur without being Able to License Strict NPIs

Now that we have accounted for the ungrammaticality of strict *ni*-NPIs in negated *li*-questions with Neg-to-C movement, we must determine how negated questions can still occur. At this point I take advantage of the fact that in the Minimalist Program (Chomsky 1995) all features are optional and certain universal principles ensure that only the correct derivation reaches the interface levels. What I propose is that the only licit option for negation in Yes/No questions is for the feature [POL] to occur in the sublabel of *ne* without any feature value specified. In other words, there is no [NEG] attached to [POL]. This also accounts for why the *nibud'*-pronoun is acceptable: there is no negative feature to "anti-

---

[22] The notion *feature mismatch* is from Chomsky 1995.

trigger" it. This is shown in (47) on the following page. The configuration in the circled area that is established once [ne+V] reaches C in (47) does not cause a feature mismatch, because [POL] is nondistinct from [POL]-[Q]. Negation with only the [POL] feature will always be interpreted as a sentence with indeterminate truth value, i.e., a Yes/No question.

(47) [ne+V] raises to host li
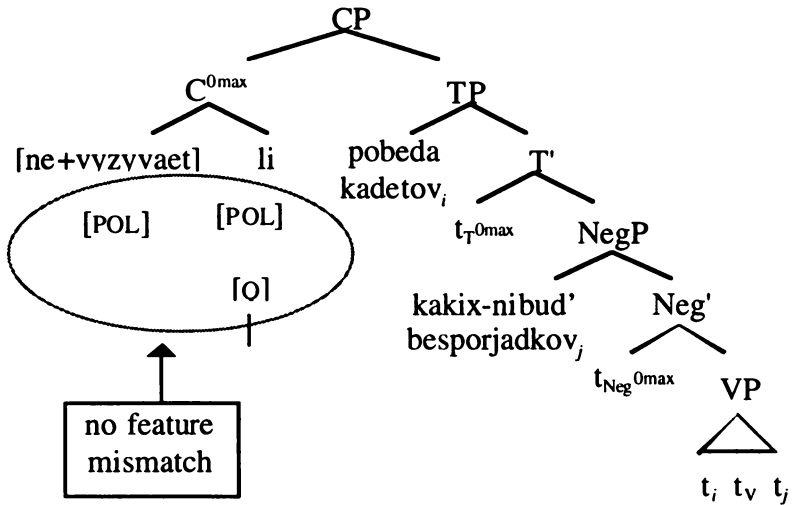
5. Extensions

The analysis presented above also accounts for the variation in Russian negated Yes/No questions with no Neg-to-C movement between the *nibud'*-pronouns and the *ni*-NPIs in (33), repeated here as (48):

(48) a. A   **kogo-nibud'** **drugogo** iz   podpol'ščikov
          and   whom-nibud'   other   of   undergrounders

          ty   **ne**   znaeš'?
          you   NEG   know

          'So do you know anybody else from the underground?

(48) b. A **nikogo** **drugogo** iz podpol'ščikov
     and no-whom other of undergrounders

     ty **ne** znaeš'?
     you NEG know

     'So you don't know anyone else from the underground?'

In (48a), the negative marker is "optionally" generated without the [NEG] feature attached to its [POL] feature, and for this reason, the *nibud'*-pronoun rather than the *ni*-pronoun occurs. These questions are interpreted as non-presumptive Yes/No questions. In (48b), the negative particle is generated with [POL]—[NEG]. The [NEG] feature of the *ni*-pronoun can be checked, and since nothing is forcing *ne* to raise to C (i.e., there is no *li* to host), no feature mismatch results between the [POL]—NEG] feature on *ne* and the [POL]—[Q] feature in C. These questions are interpreted as presumptive Yes/No questions with negative implicature, due to the presence of the [NEG] feature (cf. Brown 1996, Restan 1969).

6. Conclusions

As the preceding discussion as shown, raising of Neg in Russian and Serbian/Croatian takes place in negated Yes/No questions and in Neg-Preposing constructions.[23] The Neg that raises in negated Yes/No questions is different to start with from the Neg of sentential negation. Neg in Yes/No questions is marked [POL], not [POL—NEG]. It can raise to C or not raise to C, and will still have the same effect on the sentence: it will provide an indeterminate truth value (resulting in a question) and will not license strict NPIs. Negation that does license strict NPIs will be marked [POL-NEG]. In questions it can remain in NegP and result in a legitimate derivation, or raise, but in the latter case will cause the derivation to crash, due to a feature mismatch with the [POL—Q] feature there.

---

[23] Note that this analysis also extends to English, as has been implied in the above discussion.

References

Bonet, E. 1995. "On the internal feature structure of Romance pronominal clitics". *Natural language and linguistic theory* 13.4: 607–647.

Brown, S. 1995. "Scope of negation: Genitive of Negation and polarity in Russian". *Proceedings of the Formal Linguistics Society of Mid-America* 6(2): 13–24.

———. 1996. *The syntax of negation in Russian*. Ph.D. dissertation, Indiana University.

———. forthcoming. *A Minimalist approach to the syntax of negation in Russian*. Stanford: CSLI Publications.

Brown, S. and S. Franks. 1995. "Asymmetries in the scope of Russian negation". *Journal of Slavic linguistics* 3(2): 239–287.

———. 1997. "The syntax of pleonastic negation in Russian". *Formal approaches to Slavic linguistics IV: The Cornell meeting*. Michigan Slavic Publishers: Ann Arbor.

Chomsky, N. 1995. *The minimalist program*. Cambridge, Mass.: MIT Press.

Clements, G. 1985. "The geometry of phonological features". *Phonology Yearbook* 2: 225–252.

Gazdar, G. 1982. *Phrase Structure Grammar*. Reidel: Dordrecht.

Gazdar, G., E. Klein, G. Pullum, and I. Sag (1983), "Foot Features and Parasitic Gaps". In Geest, W. de, Y. Putseys, H. van Riemsdijk (eds), *Sentential complementation: Proceedings of the International Conference Held at UFSAL, Brussels*: 83–94.

Kobozeva I. M. 1981. "Opyt pragmatičeskogo analiza *-to* i *-nibud'* mestoimenij". *Izvestija Akademii nauk SSSR: Serija literatury i jazyka* 40:2.

Kristensen, A. 1988. "Značenie i upotreblenie neopredelennyx mestoimenij s časticami *-to* i *-nibud*". *Materialy i soobščenija* (78–80).

Ladusaw, W. 1980. Polarity sensitivity as inherent scope relations. New York: Garland.

Laka, I. 1990. Negation in syntax: On the nature of functional categories and projections. Ph.D. dissertation, Massachusetts Institute of Technology.

Linebarger, M. C. 1981. The grammar of negative polarity. Bloomington: Indiana University Linguistics Club.

Linebarger, M. C. 1987. "Negative polarity and grammatical representation". Linguistics and philosophy 10: 325–387.

McCarthy, J. 1988. "Feature geometry dependency: A review". Phonetica 43: 84–108.

Mester, R. 1986. Studies in tier structure. Ph.D. dissertation, University of Massachusetts. [Published by Garland Press, New York, 1988].

Paduĉeva, E. V. 1985. Vyskazyvanie i ego sootnesennost' s dejstvitel'nost'ju. Moscow: Nauka.

Pollock, J.-Y. 1989. Verb movement, universal grammar, and the structure of IP, Linguistic Inquiry 20, 365–424.

Ponomareff, S. 1978.. A semantic feature study of CSR determinative and indefinite pronominals. Ph.D. dissertation, University of California–Los Angeles.

Progovac, Lj. 1993. "Negation and Comp". Rivista di linguistica 5.2 (329–347).

———. 1994. Negative and positive polarity: A binding approach. Cambridge: Cambridge University Press.

Restan, P. 1969. Sintaksis voprositel'nogo predloženija. Oslo: Universitetsforlaget.

Sagey, E. 1986. The representation of features and relations in non-linear phonology. Ph.D. dissertation, Massachusetts Institute of Technology.

Željakin, M. A, 1978. "O semantike i upotreblenii neopredelennyx mestoimenij v russkom jazyke". *Uĉenye zapiski Tartuskogo universiteta*, 442.

Department of Slavic Languages and Literatures
Harvard University
Barker Center
12 Quincy Street
Cambridge MA 02138
sbrown@fas.harvard.edu

Serbian/Croatian/Bosnian Clitics at the Lexical Interface

Andrew Caink
University of Durham/University of Wolverhampton

1. Introduction

Debate within the Principles & Parameters framework over clitic cluster placement in Serbian/Croatian/Bosnian (SCB)[1] is polarized between purely syntactic accounts that stipulate a syntactic position for cliticization (Rivero 1991, Cavar & Wilder 1993, 1994, Bošković 1995) and analyses that modify the syntactic representation via a form of phonological movement (Halpern 1995, Schütze 1994, King 1996). This paper proposes a third alternative. Adopting the independently motivated theory of syntactic and phonological lexicalization in Emonds (1985, 1997), we argue that the clitic cluster in SCB is phonologically lexicalized on the highest head in the extended projection. For Emonds, pronominal clitics are the 'Alternative Realization' of formal features on null argument XP. We revise the definition of Alternative Realization to include SCB pronominal clitics, and further argue that so-called 'clitic auxiliaries' in SCB are the Alternative Realization of features in I^0. Suppletive forms, clitichood, 'second position' effects and restrictions on licensing a movement trace follow from the phon logical lexicalization of the clitic cluster.

First, we review some problems in purely syntactic and phonological movement accounts of clitic cluster placement. We then show that the clitic cluster appears on the highest head in the extended projection. Following an outline of our theoretical assumptions in section 3, we demonstrate how the phonological lexicalization of the clitic cluster accounts for the data.

---

[1] My Seattle presentation also addressed the clausal and DP clitics in Bulgarian and Macedonian. Space prevents me from taking such a cross-linguistic approach here. However, a cornerstone of this analysis is that, unlike the majority of competing accounts, this analysis is not language-specific. See Caink (1998).

2. The SCB Clitic Cluster Position

Much dispute regarding the SCB clitic cluster has centerd around Browne's (1974) observation that in data such as (1), the clitic cluster appears to follow either the first constituent or the first phonological word.

(1) a. [*Moj brat*]   *je*   *došao*
         my brother   be-3-sg   come-p-pl.

     b. [*Moj je brat*] *došao*

         'My brother has come.'

Generative accounts have generally agreed that (1a) results from syntactic movement of the initial constituent to the left of the clitic cluster. Progovac (1996) and Franks (1998) argue that (1b) similarly results from syntactic movement of the initial element across the clitic cluster via 'remnant topicalization'; all but the initial phonological word is scrambled out of a constituent prior to topicalization of the remainder of that constituent.

   Alternatively, Halpern (1995) and Schütze (1994) advocate variations of a phonological rule that modifies the output of the syntax: SCB clitics lacking a host to their left move rightwards into second position, cliticizing on the first phonological word.

   All accounts agree that the syntactic position of the clitic cluster is higher than IP; some authors stipulate the cluster is adjoined to C^0, others stipulate a separate functional projection between CP and IP (without independent motivation). In this section, we note some of the drawbacks of these competing accounts before arguing that the true descriptive generalization is that the SCB clitic cluster *appears on the highest head in the extended projection*.

2.1. Problems for Purely Syntactic Accounts

Let us focus on the remnant topicalization (henceforth RT) analysis of the second position effect in (1b) (Progovac 1996; Franks 1998). Central to their account is the notion that restrictions on second position clitic placement, such as between N^0 and its complements in (2b), are independently mirrored by restrictions on RT (2c) (data from Progovac 1996: 418):

(2) a. [*Roditelji uspešnih   studenta*]   *su   se   razišli*
         parents successful-*GEN* students-*GEN* be-3-pl refl. dispersed

         'The parents of the successful students have dispersed'

     b. (*)*Roditelji su se uspešnih studenta razišli*

     c. *[*Roditelji t*ᵢ] *su se razišli* [*uspešnih studenta*]ᵢ

These judgements are not shared by all native speakers. N. Leko finds
(2b) acceptable, hence we bracket the star in the example. Further
examples in the literature are equally satisfactory for some speakers (a
point made by Halpern, cited in Progovac 1996: 418).

(3) a. (*)[*Prijatelji su moje   sestre*]   *upravo stigli*
         friends be-3-pl   my-*GEN*   sister-*GEN*   just arrive-p-pl

         'My sister's friends have just arrived'   (Progovac 1996: 419)

     b. (*)[*Studenti su   iz   Beograda*] *upravo stigli*
         students be-3-pl from   Belgrade   just arrive-p-pl

         'Students from Belgrade have just arrived.' (Halpern 1992: 94)

Evidently this is an issue of differing dialects/languages. In terms of
establishing the limits of Universal Grammar, it is more interesting to
concentrate on data which is less widely attested.

   Regardless of this, the problem for the RT analysis of the second
position is that while (2b) and (3) are possible to varying extents, *all*
native speaker judgements agree strongly that (2c) is ungrammatical.
This variation in acceptability is not predicted by the RT account.

   Further difficulties for the RT argument are encountered in the
examples from Schütze (1994) in (4):

(4) a. *Na veoma si   se lepom mestu smestio*
         on very be-2-sg refl. nice place   placed-p-pl

         'You've placed yourself in a very nice place.'

     b. *U ovu je   veliku sobu Jovan ušao*
         in this be-3-sg big room   J.   enter-p-pl

         'Jovan entered this big room.' (Schütze 1994: 381, 401)

Assuming Abney's (1987) DP structure ᴅᴘ[ᴀᴘ[ɴᴘ[ ]]], the RT account
must assume that an AP has scrambled in each case, prior to

topicalization of the remaining PP (contra Franks 1998, where it is assumed AP scrambling from DP is barred). Some explanation must be found for why only NP cannot scramble out of DP in just this case (hence allowing clitics to appear in 'third position following the adjective).

Interestingly, in Bulgarian, clitics are also barred from first position and hence appear in second position, intervening within a constituent such as an AP in (5a). Yet unlike SCB, RT is *not* freely available in Bulgarian, shown in (5c).

(5) a. {*Tvŭrde/pocti/suvsem*}   *e*   *štjasliv*   (Bulgarian)
       quite/almost/rather   be-3-sg   happy

       'He is quite/almost/rather happy.'

   b. *Izgležda*   {*tvŭrde/pocti/suvsem*}   *štjasliv*
      appear-3-sg   quite/almost/rather   happy

      'He appears quite/almost/rather happy.'

   c. *{*Tvŭrde/pocti/suvsem*} *izgležda štjasliv*

In (5a), the clitic auxiliary intervenes between the adjective and its modifier. In (5b), the same AP constituent is the complement of the lexical verb *izgležda* 'appears'. If RT underlay the word order in (5a), it should also be possible in (5c), which is not. This fact suggests that the RT account of second position data in SCB is at best language-specific.

More problematic still is (6) where RT is followed by further splitting of the PP constituent by the clitic auxiliary:

(6) ??*U   ovu je   veliku Jovan   ušao   sobu*
      into this be-3-sg big J.   entered-3-sg   room

      'Jovan entered this large room.'   Schütze (1994: 237)

Assume first that *sobu* 'room' has moved out of the PP [*U ovu veliku sobu*] 'into this large room', and the remainder of the PP has then moved up. Further splitting of the PP takes place, with the clitic auxiliary following the first phonological word: the proclitic P and the determiner *U ovu* 'into this'.

A highly significant fact is that the acceptability of a construction such as (7a) becomes less acceptable if the clitic cluster contains a

greater number of morphemes (Browne 1975: 114; Radanović-Kocić 1996: 436), as in (7b) from Franks (1998: 19):

(7) a. *Lav je   Tolstoj veliki ruski   pisac*
         L. be-3-sg   T.   great Russian   writer

         'Leo Tolstoy is a great Russian writer.'

     b. **Lav   mi   ga   je   Tolstoj poklonio*
         L.   1sg-*DAT*   3-sg-*ACC* be-3-s. T.   give-p-pl

         'Leo Tolstoy gave it to me.'

In (7a), the clitic auxiliary intervenes between a first and second name. In (7b), three clitic elements in this position render the example ungrammatical for some speakers. It is difficult to see how a purely syntactic account could ever cope with such facts. Note also that in recent attempts to account for clitic cluster placement in grammatical (7a), we are provided with no more than a promissory note based on the distribution of inflectional morphemes (Franks 1997: 5; Bošković 1997).

Finally, there is a further case of second position placement termed 'long head movement' in Lema & Rivero (1988) in which the clitic cluster follows a non-finite verb as seen in (8), (from N. Leko, pers. comm.):

(8) *Odgovorio   je   na njihovo pitanje*
     answered-p-pl   be-3-sg   on their   question

     'He answered their question.'

Rivero (1991) and Roberts (1994) propose that the participle has moved up to C^0 via a 'relativized' head movement, crossing the auxiliary. Independent evidence for this addition to the typology of movements is poor, as is the exact distinction of A and A-bar heads in such an account. Instead, Cavar & Wilder (1994)/Wilder & Cavar (1994) argue erroneously that both the participle and clitic auxiliary in (8) are in C^0 (but see data below from Bošković 1995). Bošković (1995) stipulates optional weak/strong features and optional left or right adjunction in a single language in order to account for the array of participle-clitic cluster data in SCB. All of these purely syntactic approaches resort to *ad hoc* accounts of motivation for syntactic movement and the latter two are language-specific accounts, despite the existence of a [participle–

auxiliary] construction like (8) in, say, Bulgarian. See Caink (1995) for discussion.

To conclude, the remnant topicalization account of second position data requires the marginalization of some data that many speakers find acceptable. There is a mismatch between restrictions on remnant topicalization and clitic cluster placement which is not predicted by purely syntactic accounts. Finally, the acceptability of the clitic cluster in the second position may be substantially decreased if more items appear in the clitic cluster, an unlikely result of purely syntactic operations.

2.2. The Drawbacks of Phonological Movement

'Prosodic Inversion' PI (Halpern 1995, Schütze 1994, King 1996) attempts to account for (1b) via a phonological movement rule: if the output of the syntax leaves a clitic without a host to its left, the clitic is moved to second position following the first phonological word.

On a conceptual level, the question remains whether we wish to accept the notion of a phonological movement rule, and the lack of restrictiveness this would appear to allow in our system. In comparison to the widespread displacement effects in the syntax cited as evidence for syntactic movement, examples such as (1b) are not strong evidence for a 'phonological move α'. Furthermore, no version of PI is underpinned by any theory of syntactic categories that predicts which items may be 'clitic' and hence which may be moved in the phonology.

Empirical problems also arise. PI is not predicted to occur in the following contexts (from Cavar & Wilder (1993):

(9)   a. *Imaš*   [*mnogo vremena citati*   **ga**]
         have-2-sg   much time   read-inf   3-sg-*ACC*

         'You have much time to read it.'

      b. *Ivan je*   *vidio   auto* [*i   kupio   ga   je*]
         I.   be-3-sg see-p-pl car   and buy-p-pl 3-sg-*ACC* be-3-sg

         'Ivan saw the car and bought it.'

The [V^0 – clitic cluster] word order follows, in (a), a noun, and in (b) the conjunction *i* 'and', in both cases without a prosodic break. This lack

of prosodic break provides no context for PI to be triggered, yet in both cases the clitic cluster follows the non-finite verb[2].

2.3. A Default Position: Highest Head in the Extended Projection

Largely on account of evidence such as (10), a number of authors have suggested that the SCB clitic cluster is always right-adjoined to C^0 (Cavar & Wilder 1994, 1997; Progovac 1996, Schütze 1994), or have proposed a separate CleftP between CP and IP to host the clitics (Halpern 1995).

(10) a. *Stefan* *tvrdi* *da* ***mu*** ***ga***
   S.   claims that 3-sg-*DAT* 3-sg-*ACC*

   je   *Petar poklonio*
   be-3-sg P. give-p-pl

   'Stefan claims that Peter has given it to him as a present.'

   b. * *Stefan tvrdi da Petar **mu ga je** poklonio*

Progovac (1996: 412)

The cluster follows the complementizer and precedes the subject in (10a). (10b) indicates the cluster cannot follow the subject. We concur that the clitic cluster in (10a) appears to be in C^0. However, as a descriptive generalization, we maintain that the 'clitics in C^0' approach is inadequate, and propose (11) instead.

(11) **Descriptive generalization:** SCB clitics are adjoined to the highest head of the extended projection.

In other words, we avoid stipulating a specific head under which the clitic cluster appears. Assuming that CP is part of the extended projection of V (Grimshaw 1991), then (11) captures the fact that in (10a) the clitic cluster is in C^0. However, the claim is that the clitic cluster does not *always* appear in C^0.

The drawback of stipulating that clitics always appear in C^0 is that one is forced to stipulate the presence of a CP whenever a clitic is

---

[2] Schütze (1994) assumes Rivero's (1991) account of [participle – auxiliary] constructions, such as in (9b). However, the trigger for participle movement in Rivero's account is similarly absent in (9b).

present. However, there are reasons to believe that a CP is not always present when a clitic cluster appears. We have three arguments against the 'clitics in C^0' position:

(i) *Parsimony:* In theoretical terms, it is preferable not to stipulate a full CP in the absence of any independent motivation in, say, (1) and (3).

(ii) *Adverb data:* Bošković (1995) has shown that the interpretations derived from the scope of adverbs *pravilno* 'correctly' and *mudro* 'wisely' indicate that the clitic cluster must be below C^0 in the 'long head movement' construction. When the adverb is adjoined to IP in (12), the interpretation is ambiguous between a subject-oriented and manner reading:

(12) *Jovan   je   IP[pravilno odgovorio Mariji]*
     J.   be-3-sg   correctly answered-p-pl.M

     'Jovan did the right thing in answering Maria.'

     'Jovan gave Maria a correct answer.'   Bošković (1995: 249)

When the adverb takes VP scope in (13), the sentence has the manner reading only:

(13) *Jovan   je   odgovorio   pravilno VP[Mariji]*
     J.   be-3-sg   answer-p-pl   correctly M.

     *'Jovan did the right thing in answering Maria.'

     'Jovan gave Maria a correct answer.'   Bošković (1995: 249)

In (14), the so-called 'long head movement' construction (Rivero 1991), the adverb follows both the past participle and the clitic auxiliary. If the clitic auxiliary were in C^0, then the adverb should be adjoined to IP and yield the same ambiguity as (12). In fact, the subject-oriented reading is blocked, as in (13), which suggests the adverb in (14) cannot be adjoined to IP.

(14) *Odgovorio   je pravilno Mariji*
     answered-p-pl   be-3-sg correctly M.

     *'He did the right thing in answering Maria.'

     'He gave Maria a correct answer.'   Bošković (1995: 249)

The fact that the adverb can only be adjoined to VP in (14) undermines the argument that the clitic cluster is always in C^0.

(iii) *Gerund clauses are not CP:* Consider the following example of a gerund construction from (Cavar & Wilder 1993):

(15) [*Dajući*   *joj ružu*], *Damir ju*   *je*   *poljubio*
      giving 3-sg-*DAT* rose   D.   3-sg-*ACC* be-3-sg kiss-p-pl

Again, those who advocate that the clitic cluster appears in C^0 are forced to assert that a gerund is a full CP.

However, Franks (1995: 259) demonstrates that Russian gerunds are not CP because there is no WH-movement. Similar data can be constructed for SCB. Hence in (16), it is not possible to form a relative clause via WH-movement out of a gerund and in (17), WH-movement is not possible out of a gerund:

(16) a. *[*Knjiga*   [*koju*$_i$ [*citajući*   t$_i$]]
            book   which-*ACC*   reading

      b. *[*Žena*   [*koju*$_i$ *je*   *umro*   [*voleći* t$_i$]]
            woman   who-*ACC* be-3-sg die-m-p-pl loving

(17) a. *Ivan je*   *ušao*   *u*   *sobu* [*citajući* *pismo*]
            I.   be-3sg. enter-ppl. into room reading   letter
            'Ivan entered the room reading a letter.'

      b. *[*šta je*   *Ivan ušao*   *u*   *sobu* [*citajući*   t$_i$]?
            what be-3sg. I.   enter-ppl. into room   reading
            'What did Ivan enter the room reading?'

If gerund constructions are not CP, then the clitic cluster cannot be in C^0.

In a gerund construction, what position does the clitic cluster appear in? We have established that gerunds are not CP; in fact, the evidence suggests that gerunds are not IP either. Gerunds cannot be conjoined with an infinitival IP:

(18) *Marija je*   *htjela*   *Ivan*   *dati*   *knjigu*   *i*
        M.   be-3-sg want-p-pl I-*DAT* give-inf book   and

        razgovarajući / razgovarati *s*   *njim*
        talk-gerund   talk-inf   with   him
        'Maria wanted to give Ivan the book and talk with him.'

An infinitival IP can appear as a complement to N, but a gerund cannot:

(19) a. *Imaš   vremena   citati   knjigu*
       have-2-sg   time   read-inf   book

       'You have time to read the book'

    b. **Imaš   vremena   razgovarajući   s   njim*
        have-2-sg   time   talking   with   him

Finally, an infinitival IP may appear as a complement to verbs like *htjela* 'want', whereas gerunds cannot:

(20) a. *Marija je   htjela   vanu   dati   knjigu*
       M.   be-3-sg   want-p-pl   Ivan-*DAT*   give-inf   book

       'Maria wanted to give Ivan the book.'

    b. **Marija je htjela razgovarajući s njim*

In conclusion, we assume that an SCB gerund is a bare VP. The only head position for the clitic cluster to attach to is therefore V^0. This is still the highest head available, hence (11) holds true.

2.4. Licensing a Movement Trace

An important issue observed in Rivero (1991) but which has so far received no explanation concerns the clitic auxiliaries' inability to license a movement trace in (21a). In contrast, full form auxiliaries can license a movement trace, for example (21b):

(21) a. *[Pio   vina]$_i$ sam t_i*
       drink-p-pl   wine   be-1-sg

       'I have drunk wine.'

    b. *[Pio   vina]$_i$ jesam t_i*
       drink-p-pl   wine   be-1-sg

       'I have drunk wine.'

In (a), the VP cannot be topicalized across the clitic auxiliary *sam* 'am'; in (b), a full form emphatic auxiliary *jesam* 'am' can license a VP trace. We will argue that this boils down to PF head licensing (Aoun *et al.* 1987). The clitic auxiliary is not 'visible' for head government at the relevant level at which PF licensing applies whereas the full form is

visible. We relate these facts in section 3.1 to the Phonological Lexicalization of the clitic auxiliaries.

2.5. Conclusions: An Alternative Account is Required

Empirically, neither the purely syntactic account nor the phonological movement accounts are fully adequate to deal with the second position effects in SCB. On the one hand, a simple requirement of a prosodic gap preceding the clitic is not the whole story in triggering 'last resort' second position effects, for e.g. (9). On the other hand, a purely 'remnant topicalization account' can deal with some, but not all, second position data and to date provides only a promissory note with respect to a syntactic analysis of the infamous data in (7a).

In contrast to stipulating a fixed head to which clitics (inexplicably) adjoin in the syntax, we have asserted the descriptive generalization that SCB clitics appear on the highest head in the extended projection available. Evidently, this is a major problem for any account that assumes syntactic movement of the clitics (which includes *all* the above accounts): what feature is it that can be checked on more than one head and which can be independently justified? Indeed, what is the nature of the clitic auxiliary that allows it to behave in the same way as the pronominal clitics, appearing on, say, C^0 in (10a)? Most accounts remain silent on these issues, or merely stipulate 'clitichood' as the defining, but unrevealing, characteristic.

Accounts which advocate an AgrP hierarchy, where each pronominal clitic represents a separate AgrP projection are not particularly revealing of morpheme order or clitic cluster placement in South Slavic generally (Rudin 1996, Franks 1998). Essentially, such approaches stipulate a template in the syntax. In what follows, we shall assume Bonet's (1991) arguments in favour of a morphological template, and concur with Schütze (1994) that the clitic cluster is lexicalized as a single unit. Unlike the latter account, we do not assume all lexical insertion to be at PF.

3. Theoretical Assumptions

3.1. Syntactic and Phonological Lexicalization

We assume the lexicalization theory developed in Emonds (1985, 1994, 1997) in which features independently required in the lexical entry of an item determine the level of lexicalization. A lexical entry that contains features interpretable at LF triggers syntactic insertion. Examples include all open class items (which contain purely semantic features) and closed class items whose lexical entry includes a formal feature with semantic interpretation at LF (e.g. [+animate]). In contrast, a morpheme whose entry contains no feature required at LF is, by economy, not inserted into the syntax. It is 'phonologically lexicalized'. Examples of such items in English are closed class inflectional morphology on the finite verb and semantically null auxiliary verbs in English *do*, *be*, and *have*.

The mechanism of Phonological Lexicalization works bottom-up, targeting each projection at a time, and inserting closed class lexical items which can be seen as 'place-holders' for formal features in the computational syntax.

Caink (1998) develops the mechanism of 'phonological lexicalization' further. Following Collins (1997), it is assumed that economy is a feature of the system as a whole. Phonological lexicalization is hence subject to an economy restriction essentially similar to that which tends to limit Attract to the covert syntax. Phonological lexicalization of closed class morphemes are inserted as late as possible in the extended projection, modulo language-specific and item-specific contextual restrictions. An example of such a contextual restriction is +Vššš for inflectional morphemes in English; the inflectional morpheme is phonologically lexicalized on a verb. In contrst, we shall see that the SCB clitic cluster portrays the default case, being lexicalized on the last head in the extended projection available.

3.2. Pronominal Clitics as 'Alternative Realization'

Emonds (1987) argues for the mechanism of 'Alternative Realization' whereby a closed class feature may be alternatively realized on another node in the tree, via sisterhood:

(22) a. *Alternative Realization* (AR): A syntactic feature F matched in UG with category B can be realised in a grammatical morpheme under X^0, provided X^k is a sister of [B, F]. (Emonds 1987, 1997)

b.

In (22b), B is a sister to X^0, hence F may be alternatively realized under X^0. As a result, B may be null. Examples of this include the features of I^0 in English, which may be alternatively realized on V, VP being a sister to I^0; dative case in many Indo-European languages is the AR of an empty P; 'semantic' cases in Finnish are the Alternative Realization of empty P.

Emonds (1997) argues that Romance pronominal clitics are a further instance of AR: the closed class formal features associated with argument XP can be alternatively realized on V. AR allows the argument XP to be possibly null; languages, however, vary over whether and under what circumstances 'clitic doubling' may occur. Referring to (22b), clitic doubling is a subset of the cases where both B is overt and F is realised on X^0.

Henceforth, we regard pronominal clitics in SCB as the AR of formal features (case, φ-features) of argument phrases inside VP[3]. Significantly, AR morphemes play no role at LF, hence are subject to Phonological Lexicalization. In SCB, they include the contextual specification +Xššš, indicating they are enclitic on a host to the left. Recall that Phonological Lexicalization works by extended projections, hence we assume that contextual restrictions must be satisfied within an extended projection.

---

[3] In SCB, pronominal clitics generally license argument phrases to be null. In Macedonian, clitic doubling is obligatory for specific direct objects, and in Bulgarian, clitic doubling occurs with topicalized objects (Rudin 1997). The presence of clitic doubling in these languages may be related to the absence of nominal case inflections, in contrast to SCB. Our concern here is to determine the nature of pronominal clitics and the structural relation that exists between them and the respective argument phrases, not the way in which individual languages utilize the AR mechanism.

However, Emonds' structural definition in (22) does not predict the distribution of SCB pronominal clitics: in, say (10a), the pronominal clitics are evidently *not* in a sisterhood relation to argument phrases within VP. We therefore revise (22) in terms not of sisterhood but of extended projections:

(23) **Revised Alternative Realization:** A syntactic feature F matched in UG with category B in the extended projection of Y may be realised in a grammatical morpheme under X^0, X^0 being part of the extended projection of Y^0.

Focusing on pronominal clitics, informally an argument phrase within VP may be null if the formal features are alternatively realized on a head within the extended projection of the verb. Languages then differ in terms of the contextual restrictions carried by the AR morphemes. In Bulgarian and Macedonian, pronominal clitics are specified to appear on a [+V] head. SCB pronominal clitics, however, are not specified to appear on a head with any particular categorial features. Accordingly they may appear on any head in the extended projection. Economy and the bottom-up nature of the Phonological Lexicalization mechanism conspire to ensure the SCB clitics appear on the highest head in the extended projection.

3.3. The Clitic Auxiliary and PF Head Licensing

So far, we have considered only the pronominal clitics. The clitic auxiliaries are also subject to Phonological Lexicalization, given that they contain no features required at LF. Indeed, we see in data such as (10a) that the clitic auxiliary may also appear as high as C^0. In contrast, in Bulgarian and Macedonian, the clitic auxiliaries always appear in I^0 (Mišeska Tomić 1996).

We propose that the SCB clitic auxiliaries have no categorial feature specification, whereas Bulgarian and Macedonian clitic auxiliaries are specified [+V,–N]. This is tantamount to asserting that the SCB clitic auxiliaries are *not* auxiliary verbs at all. Indeed, in this account they are rather the Alternative Realization of features in I^0. They are therefore formally equivalent to an inflectional bound morpheme hosted by the verb in English. The single difference is that in English, inflectional morphemes are specified to appear on a verb, whereas the SCB 'clitic

auxiliary' is specified as simply +Xššš. In a CP, the I^0 features in SCB
are realized on C^0, in the same way as occurs in certain dialects of Dutch
(Zwart 1996). The example is (10a). In an IP, the features are realized on
I^0, as in (1a), (2a) and (3).

Finally, we assume that a trace must be head-governed at PF (Aoun
et al. 1987) prior to the level at which Phonological Lexicalization
occurs. Consequently, the clitic auxiliaries in all South Slavic languages
are not 'visible' at the relevant level to license a movement trace, hence
they are unable to license a trace in (21a). In Caink (1998), this is related
to the inability of English clitic auxiliary forms to license a movement
trace:

(24) a. *Where$_i$ do you think he   *'s/is t_i today?*
      b. *I wonder what$_i$ John *'s/is t_i now*

In (a) and (b), the clitic auxiliary is not visible for head government
because its phonological lexicalization.

However, the full form auxiliary in (24) is able to license a
movement trace, suggesting it is lexicalized into the syntax. In the same
way, full form auxiliaries in SCB are able to license a movement trace.
Let us consider what triggers syntactic insertion of the SCB full form
auxiliaries. Consider (25):

(25) *Nedžad tvrdi da...*

     Nezdad claims that...

   a. *Ivan i Marija   jesu   čitali   knjigu*
      I. and M.   be-3-pl   read-p-pl   book

      '...Ivan and Maria were reading the book.'

   b. *Ivan i Marija   nisu   čitali   knjigu*
      I. and M.   neg.be-3-pl read-p-pl   book

      '...Ivan and Maria were not reading the book.'

   c. *su   Ivan i Marija čitali   knjigu*
      be-3-pl   I. and M.   read-p-pl   book

      '...Ivan and Maria were reading the book.'

In (25a) and (25b), we see declarative and negative full forms
respectively, and in (c), the 'clitic auxiliary' form adjoined to C^0. Full

form declarative auxiliaries in SCB yield an emphatic assertion reading, as shown in (25a), unlike the clitic auxiliaries (25c). We assume the lexical entry of the declarative full form auxiliaries contain an LF-interpretable feature, which we shall call [+FOCUS]. The same feature appears on the English auxiliary *do*, yielding a similar emphatic assertion in contemporary English. The lexical entries of the negative full form auxiliaries such as in (25b) contain the feature [+NEGATION].

Both [+FOCUS] and [+NEGATION] are required at LF; hence in Emonds' system, they trigger syntactic insertion. Consequently, full form auxiliaries are visible for head-government, and thus are able to license a movement trace. As we would expect, they appear in I^0 to check features, just like finite lexical verbs.

4. Last Resort Phonological Lexicalization

In Emonds (1985, chap. 4), a characteristic of closed class lexical items is the fact that they often display suppletive morphology and may be bound morphemes, requiring a host. Such phonological idiosyncrasies can be seen as a reflection of Phonological Lexicalization.

For Emonds, however, Phonological Lexicalization is no more than "extra-syntactic". However, SCB (and Bulgarian) indicate that Phonological Lexicalization is subject to further prosodic idiosyncrasies. We have suggested that the contextual restriction +Xššš in the lexical entry of a clitic must be satisfied within the domain of phonological lexicalization, the extended projection. If the output of the syntax is such that the clitic has no host to its left within the extended projection, then a 'last resort' lexicalization occurs following the first phonological word.

In terms of the data discussed in this article, we analyse (1a), (2b), (4), (6), (7a) and (8) as cases of last-resort phonological lexicalization. In none of these cases is a CP projected. We assume subjects in (1a), (2b), (3) and (7a) are in specVP, with last-resort insertion following the initial word. In (4) and (6), PP appears in a scrambled position below I^0, and the clitic cluster is lexicalized again following the first phonological word. We analyse 'long head movement' (8) in the same terms[4].

---

[4] See Caink (1995) for such an analysis of so-called 'long head movement' in Bulgarian.

To some extent, last resort phonological lexicalization is empirically similar to Prosodic Inversion. It differs because of its avoidance of a phonological movement rule, and in being underpinned by an independently motivated theory of syntactic categories. This account relates the second position effect to a cluster of characteristics centring around the mechanism of Phonological Lexicalization. Emonds' system predicts that inflectional morphology, AR morphemes, and semantically null auxiliaries, all containing no LF-interpretable features, undergo phonological lexicalization. We assert that only a subset of these may undergo last resort insertion into the second position.

Further empirical differences from PI exist. In a case such as (9b), repeated here, the clitics are in second position following a non-finite V^0, yet there is no preceding prosodic gap to trigger either rightward phonological movement of the clitic or leftward syntactic movement of the V^0. In our account, the crucial factor is the lack of a host within the extended projection (bracketed in (26)):

(26) *Ivan je   vidio   auto   i   [kupio   ga   je]*
     I.   be-3-sg see-p-pl car   and buy-p-pl 3-sg-*ACC* be-3-sg
     'Ivan saw the car and bought it.'

If the clitics are lexicalized on I^0, it being the highest head available, they would be in first position in the extended projection, hence the contextual restriction +Xššš would not be satisfied. Consequently, a 'last resort' insertion occurs following the first phonological word. In this case, the first word is the non-finite verb. There is no unorthdox 'long head movement' (Rivero 1991, Roberts 1994) of the verb, nor phonological movement of the clitics.

5. Summary

The SCB 'clitic auxiliary' is not a member of one of the major classes N, A, V, and P, and has no categorial feature specification. Rather, it is a morpheme which alternatively realizes features in I^0. Similarly, pronominal clitics are the Alternative Realization of argument phrases inside VP. The clitic cluster as a whole must therefore appear on a head in the extended projection of the verb. In SCB, the cluster appears *on the highest head in the extended projection* as a result of a combination of economy and the bottom-up nature of Phonological Lexicalization.

Hence, in a CP, the clitic cluster appears on C^0; in an IP, on I^0; and in demonstrable cases of bare VPs (e.g., gerund clauses), the cluster appears on V^0. If a clitic does not have a host within the domain of phonological lexicalization (the extended projection), then last-resort insertion occurs following the first phonological word. The phonological lexicalization of a clitic auxiliary prevents the auxiliary from being visible for head government.

References

Abney, S. 1987. 'The English Noun Phrase in Its Sentential Aspects', Ph.D. diss., MIT, Cambridge, Mass.

Anderson, S. 1993. 'Wackernagel's Revenge: Clitics, Morphology and the Syntax of Second Position', *Language* 69: 68–98.

Aoun, J., Hornstein, N., Lightfoot, D. & A. Weinberg. 1987. 'Two Types of Locality', *Linguistic Inquiry* 18: 537–577.

Bonet, E. M. 1991. 'Morphology After Syntax: Pronominal Clitics in Romance', PhD.diss., MIT.

Bošković, Ž. 1995. 'Participle Movement and Second Position cliticization in Serbo-Croatian', *Lingua* 96: 245–266.

Browne, W. 1974. 'On the Problem of Enclitic Placement in Serbo-Croatian', in *Slavic Transformational Syntax*, Brecht, R. & C. Chvany (eds.), 36–52, Michigan Slavic Publications.

Caink, A.D. 1995. 'Late Insertion and the Bulgarian Auxiliary *buda* 'be''', paper presented at *The First Conference on Formal Approaches to South Slavic Linguistics*, Plovdiv, to appear in *Issues in South Slavic Syntax*, Dimitrova-Vulchanova, M. & L. Hellan (eds.), John Benjamins.

Caink, A.D. 1998. 'The Lexical Interface: Closed Class Items in South Slavic and English', Ph.D. diss., University of Durham.

Cavar, D. & C. Wilder. 1993. '"Clitic Third" in Croatian', *ESF Eurotyp Working Papers Grammatical Models Section* 6: 19–61.

Cavar, D. & C. Wilder. 1994. 'Word Order Variation, Verb Movement, and Economy Principles', *Studia Linguistica* 48: 46–86.

Chomsky, N. 1965. *Aspects of the Theory of Syntax*, MIT Press, Cambridge, Mass.

Chomsky, N.1986. *Barriers*, MIT Press, Cambridge, Mass.

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

Collins, C. 1997. *Local Economy*, MIT Press, Cambridge, Mass.

Emonds, J. 1985. *A Unified Theory of Syntactic Categories*, Foris, Dordrecht.

Emonds, J. 1987. 'The Invisible Category Principle', *Linguistic Inquiry* 18: 613–632.

Emonds, J. 1994. 'Two Principles of Economy', in *Paths Towards Universal Grammar; Studies in Honor of Richard S. Kayne*, Cinque, G. *et al.* (eds.), Georgetown University Press.

Emonds, J. 1997. 'How Clitics License Null Phrases; A Theory of the Lexical Interface', in *Empirical Approaches to Language Typology: Clitics in the Languages of Europe,* Riemsdijk, van H.C. (ed.), Mouton de Gruyter.

Franks, S. 1995. *Parameters of Slavic Morphosyntax*, Oxford University Press.

Franks, S. 1997. 'South Slavic Clitic Placement is *Still* Syntactic', *Penn Working Papers in Linguistics* 4.2: 111–126.

Franks, S. 1998. 'Clitics in Slavic', Position paper, Comparative Slavic Morphosyntax Workshop, Spencer, Indiana.

Grimshaw, J. 1991. 'Extended Projections', unpublished ms., Brandeis University.

Halpern, A. L. 1995. *Topics in the Placement and Morphology of Clitics*, CSLI publications, Stanford.

King, T. H. 1996. 'Slavic Clitics, Long Head Movement, and Prosodic Inversion', *Journal of Slavic Linguistics* 4/1: 274–311.

Lema, J. & M.-L. Rivero. 1989. 'Long Head Movement: ECP vs. HMC', *Cahiers Linguistique d'Ottawa* 18: 16–78.

Mišeska Tomić, O.M. 1996. 'The Balkan Slavic Clausal Clitics', *Natural Language & Linguistic Theory* 14/4: 811–872.

Progovac, L. 1996. 'Clitics in Serbian/Croatian: Comp as the Second Position', in *Approaching Second Position: Second Position Clitics and Related Phenomena*, Halpern, A. & A. Zwicky (eds.), 411–428, CSLI Publications, Stanford.

Rivero, M.-L. 1991. 'Long Head Movement and Negation: Serbo-Croat vs. Slovak and Czech', *The Linguistic Review* 8: 319–351.

Roberts, I. 1994. 'Two Types of Verb Movement in Romance' in *Verb Movement*, Hornstein, N. & D. Lightfoot (eds.), CUP.

Rudin, C. 1997. 'AgrO and Bulgarian Pronominal Clitics', in *FASL 5*, Lindseth & Franks (eds.), 224–252, Michigan Slavic Publications.

Schütze, C.T. 1994. 'Serbo-Croatian Second Position Placement and the Phonology-Syntax Interface' *MITWPiL* 21: 373–473.

Wilder, C. & D. Cavar. 1994. 'Long Head Movement? Verb Movement and Cliticisation in Croatian', *Lingua* 93: 1–58.

School of Languages & European Studies
University of Wolverhampton,
WV1 1SB, U.K.
a.d.caink@wlv.ac.uk

Optimality Theory and Clitics at PF*

Steven Franks
Indiana University

1. Introduction

1.1. Some General Considerations: Syntax and PF

This paper reexamines a traditional issue for generative models of grammar (cf. e.g. Selkirk 1984) from the perspective of the Minimalist architecture. The larger question addressed is "How are syntactic representations mapped into ones the phonology can use?" With the advent of Minimalism as the leading derivational model, the mapping from Spell Out into PF has received less attention than the problem of mapping syntactic representations into ones the semantics can use. Ironically, taking the two levels of PF and LF to be the minimum necessary for the syntactic computational system to interface successfully with sound and meaning, it is the former interface which is the less transparent one. Recent proposals abound that radically diminish or even eliminate the mapping from syntax to LF (cf. e.g. Hornstein 1995, Bobaljik 1995, Brody 1995, Pesetsky 1998). These however require a concomitant enriching of the ways syntax can be related to PF. In this light, the careful study of elements which have both syntactic and phonological properties becomes essential. Slavic clitics are just such elements, offering a mini-laboratory for the investigation of the mapping problem.

Pronominal and verbal auxiliary clitics occur in fixed positions and orders in most South and West Slavic languages. However, since the factors relevant to their positioning seem to be both syntactic and prosodic, such "special" clitics pose a problem for strictly modular theories of grammar. Whereas purely syntactic approaches (e.g. Ćavar and Wilder 1994, Progovac 1996) cannot accommodate prosodic effects

and purely phonological (e.g. Radanović-Kocić 1996) or morphological (e.g. Anderson 1996, Legendre 1997) approaches necessarily ignore syntactic effects, I argue, developing ideas due to Bošković (1995, forthcoming), that most clitic placement can be handled syntactically, and that pronunciations which are prosodically ill-formed are "filtered out" in the mapping to PF. That is, although the syntax treats clitics as syntactic entities, the output of the syntax is manipulated in certain ways which accommodate the phonology but which obscure the essentially syntactic nature of clitic placement.

My general answer to the interface problem is to employ a kind of combination of Minimalism and Optimality Theory (OT), inspired by Pesetsky (1998), in which the syntax is generative but OT considerations regulate PF. The idea is that a number of aspects of syntactic representations are left unspecified and need to be filled in by the mapping to PF. This mapping compares possible ways of resolving what the syntax has left vague and ranks them, along Optimality Theoretic lines. Syntax serves the OT function of GEN(erate), whereas the phonology serves EVAL(uate). In short, syntax "composes" and phonology "disposes".

1.2. Overview: Two Squibs About Slavic Clitics

The paper deals with two classic problems in the analysis of Slavic clitics. These have solutions that exploit specific mechanisms that are part of the mapping from syntax into PF, as follows:

i. Second position clitics in Serbo-Croatian and Slovenian move as heads in the syntax as high as possible in the tree. These clitics are functional heads which (for pronouns) are generated as arguments and move to the highest functional head position in the extended projection of V (typically but not necessarily C°). Movement is really copying; in PF all but one copy is deleted (unpronounced). Movement can be broken down into two more elementary operations, (Merge α) Copy and Delete (all but one copy), the former applying in the syntax and the latter in PF. Ordinarily, when clitics move copies are left in all intervening head positions, and in PF all but the highest copy deletes. However, PF

considerations can sometimes cause a lower copy to be the one pronounced instead.

ii. Verb-adjacent clitics in Bulgarian and Macedonian are Agr (nonargument) heads and the verb raises to them. The direction of adjunction is unspecified, with "linearization" part of the mapping to PF. Adjunction of heads respects a constraint LEFT=HIGHER (LEH), which puts clitics to the left of the verb, everything else being equal. However, everything is not always equal, and PF considerations can sometimes cause the clitics to be linearized to the right of the verb. Finally, linearization is a cyclic process in that only strictly local PF considerations impact on direction of linearization.

2. Second Position Clitics

2.1. Some Basic Properties of SC Clitics

Although word order is generally "free" in Slavic, the clitics are required (i) to appear in a particular position (or positions) and (ii) to be ordered in specific ways among themselves. SC clitics go in second (or "Wackernagel") position (2P), regardless of what comes first (1). Both lower placement (2) and higher placement (3) result in ungrammaticality.

(1) a. Zoran **mi**   **je**   kupio   knjige.
      Zoran me.dat aux.3sg bought books

      'Zoran bought me books.'

   b. Knjige **mi je** Zoran kupio.

   c. Kupio **mi je** Zoran knjigu.

(2) a. *Zoran knjige **mi je** kupio.

   b. *Zoran kupio **mi je** knjige.

(3) a. *__Mi je__ Zoran kupio knjige.
   b. *__Mi je__ kupio Zoran knjige.

SC clitics come in a particular order; if the direct object *knjige* 'books' were replaced by the 3pl accusative clitic *ih*, this clitic must immediately follow dative *mi*, as in (4):

(4) Zoran **mi**   **ih**   **je**   kupio.
     Zoran me.dat   them.acc   aux.3sg   bought
     'Zoran bought me them.'

Note that 3sg *je* is exceptional; all other auxiliaries precede the pronominal clitics (5).

(5) Ja **sam**   **ti**   kupila   knjigu.
     I   aux.1sg   you.dat   bought   book
     'I bought you a book.'

These requirements are part of a larger ordering pattern, roughly as in (6):

(6) li > AUX > DAT > ACC > GEN > se > je

2.2. Syntax vs. Prosody

A basic dilemma lies in whether 2P be defined in syntactic or prosodic terms. Considering just the data in (1), a reasonable characterization of the distribution of SC clitics might be that they can follow either the first phrase (XP) or the verb (V°). This state of affairs can however be described not only in these syntactic terms, but also in phonological terms. Adopting the terminology of Nespor and Vogel (1986), the clitics could be said to appear after the first prosodic word in their intonational phrase (ι-phrase). The syntactic treatment involves moving the clitics as functional heads all the way up the tree and then letting either the verb or a single XP precede the clitics, the former being left-adjoined to the clitics and the latter occupying the specifier position to the left of the clitics:

(7)   ZP
                       /   \
                   (XP)   Z'
                             |
                            Z°
                           / \
                      (verb)   clitics
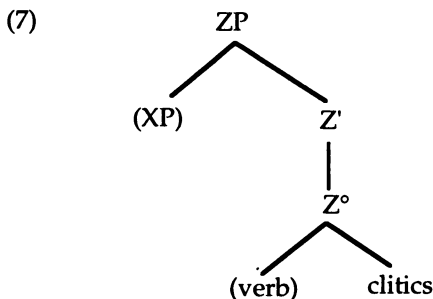
The phonological treatment relies on two independent facts about SC clitics: (i) clitics in general lack word-level prosodic structure, hence must attach to another prosodic word in order to be pronounced, and (ii) clitics in SC are *enclitic*, hence look to their left for prosodic support.

(8)   [[prosodic word]$_\omega$ clitics ...]$_\iota$

The interesting thing about SC clitics, and a major reason why their analysis is particularly problematic, is that *both* syntactic and phonological characterizations seem to be correct. When larger phrases are considered, we see that clitics can either follow the first phrase or the first prosodic word. This is shown in (9) and (10) for "adjective + noun" units, which can be split regardless of the function of the NP—subject (10a), object (10b), or adjunct (10c).

(9)   a.   Taj   čovjek   **joj**   **ga**   **je**   poklonio.
           that   person   her.dat   it.acc   aux.3sg   gave

           'That person gave it to her.'

      b.   Zanimljive   knjige   **mi**   stalno   kupuje   Zoran.
           interesting   books   me.dat   constantly   buys   Zoran

           'Zoran is constantly buying me interesting books.'

      c.   Prošle   godine   **su**   otvorili   gostiteljsku   školu.
           last   year   aux.3pl   opened   hotel   school

           'Last year they opened a hotel school.'

(10) a.   Taj **joj ga je** čovjek poklonio.

      b.   Zanimljive **mi** knjige stalno kupuje Zoran.

      c.   Prošle **su** godine otvorili gostiteljsku školu.

2.3. Some Syntactic Effects

Clitic positioning has clear syntactic effects that call for syntactic placement. While discussions that point out reasons why SC clitic placement cannot be purely phonological are myriad, arguments that it must be syntactic are far rarer. Two of the most convincing have to do with clitic climbing. Progovac (1993, 1996) makes a distinction between "subjunctive-like" and "indicative-like" complement clauses in SC on the basis of a broad range of syntactic criteria, including: negative

polarity items extend their domain only in subjunctive-like complements; topics can prepose only out of subjunctive-like complements; *wh*-movement across negation applies only out of subjunctive-like complements. These contrasts are syntactic diagnostics that two different verb classes are involved. Interestingly, clitic placement also respects this dichotomy, which shows that it too is a syntactic phenomenon. As Progovac observes, clitic climbing only takes place out of subjunctive-like complements, as in (11d).

(11) a. Milan   kaže   da   **ga**   vidi.
          Milan   says   C   him.acc   sees

          'Milan says that he can see him.'

      b. *Milan **ga** kaže da vidi.

      c. Milan   želi   da   **ga**   vidi.
          Milan   wishes C   him.acc   sees

          'Milan wishes to see him.'

      d. ?Milan **ga** želi da vidi.

Clearly, there can be no phonological explanation of domain extension in subjunctive clauses for various syntactic dependencies, including movement, which crucially embraces clitic placement.

Another argument can be constructed based on (11d). If the embedded verb has multiple clitics, in addition to both or neither climbing, for some speakers it is also possible for only one clitic to climb out of the *da*-clause, as reported in Stjepanović (1998). In (12), the dative clitic has climbed and the accusative one remains in the lower clause. It is however never possible to climb the accusative to the exclusion of the dative, as in (13).

(12) ?Marija   **mu**   želi   da   **ga**   predstavi.
       Maria   him.dat   wants C   him.acc   introduces

       'Maria wants to introduce him to him.'

(13)   *Marija **ga** želi da **mu** predstavi.

The ungrammaticality of (13) vs. the grammaticality of (12) can be interpreted in purely syntactic terms. Assume that pronominal clitics are introduced as D° (or, in Slavic, K° for "Kase") heads as arguments in

theta-positions. They then move to the appropriate Agr° for case purposes, Agr$_{IO}$ checking dative and Agr$_O$ checking accusative. The contrast between (12) and (13) follows if Agr$_{IO}$ is higher than Agr$_{O,}$ an assumption which is reflected in the invariant "dative precedes accusative" clitic order in Slavic. We can then take the fact that the lower Agr head cannot skip over the higher one to be a familiar HMC effect, however formalized.

A third argument, also as shown in Stjepanović (1998), is that ellipsis which deletes a dative clitic (i.e. targets Agr$_{IO}$P) necessarily includes Agr$_O$P, whereas ellipsis which deletes an accusative clitic (i.e. targets Agr$_O$P) leaves the dative clitic intact.

(14) a. Ona **mu**   **ga**   **je**   dala,
          she him.dat it.acc aux.3sg gave

          a   i   ja **sam**   **mu**   **ga**   ~~dala~~.
          and also I   aux.1g him.dat it.acc gave

          'She have it to him, and I did, too.'

      b. Ona **mu ga je** dala, a i ja **sam mu** ~~ga dala~~.

      c. Ona **mu ga je** dala, a i ja **sam** ~~mu ga dala~~.

      d. $^?$*Ona **mu ga je** dala, a i ja **sam** ~~mu~~ **ga** ~~dala~~.

While these facts provide additional support for my contention that, wherever they end up, clitics are introduced as separate functional heads, they also raise a serious problem for the strictly syntactic approach to clitic placement: ellipsis must target the phrase in which clitic features are checked *before* the clitic continues its upwards move. This is impossible if ellipsis is a PF phenomenon and clitic raising is syntactic.

The grammaticality of (15) shows that ellipsis cannot be simply a matter of surface string adjacency:

(15) Ja **sam**   **mu**   **ga**   dala,
      I   aux.1sg him.dat it.acc gave

      a   i   ona ~~mu~~——~~ga~~ **je**   ~~dala~~.
      and also she him.dat it.acc aux.3sg gave

      'I gave it to him, and she did too.'

At the relevant level of abstraction, *je* heads a phrase above both Agr$_{IO}$ head *mu* and Agr$_O$ head *ga*, presumably TP. In other words, the cluster *mu ga je* cannot yet have been formed when ellipsis takes place. Hence, whatever is going on, (14), does not really constitute a definitive argument against syntactic clitic placement. Instead, the paradigm suggests to me that clitics might under certain conditions remain separate in the syntax.

In light of this, let me consider another idea, one that treats as special not those clitics which are retained, but rather the clitics that are deleted. I propose that these clitics fail to raise out of economy considerations. That is, they can raise and be elided, or they can stay put and be deleted *in situ*. Normally, failure to move would cause problems since their strong features would not be checked off, but if they are deleted anyway, the offending strong features will disappear as well, assuming this to be a PF rather than LF offense. So even if ordinarily the clitic cluster is formed syntactically, when the clitics are going to be deleted they need not (or cannot) raise. This is reminiscent of a problem discussed by Lasnik (in press) with respect to Sluicing (*wh*-movement followed by deletion of IP). The question is why one gets (16b) and not (16c):

(16) a. Mary will see someone.
      b. Who C° [$_{IP}$ ~~Mary will see~~ *e*]?
      c. *Who will [$_{IP}$ ~~Mary~~ *e* ~~see~~ *e*]?

Lasnik's solution is that it is more economical for *will* not to move. C° has a strong formal feature which attracts the matching strong feature of *will* from I°. Either the phonological material can be copied as well (or "pied-piped", under the view that two distinct chains are formed), or the phonological material can be ignored. Ordinarily, pied-piping is obligatory with overt movement and impossible with LF movement; the reason for the former is because failure to pied-pipe would result in a defective constituent at PF, and the reason for the latter is that it is either otiose or nonsensical to move phonological material in LF. Lasnik then claims that PF deletion of IP in (16c) obviates the need to pied-pipe, hence failure to do so is the more economical option. It seems to me we can tell a similar story about a clitic which is deleted instead of raising to

its respective Agr: only its formal features move, not its phonological content, but this is sanctioned because that phonological content is elided anyway, avoiding the PF crash that would otherwise ensue.

Apparently phonological positioning is (mostly) really also syntactic. Phrases can (for the most part) be split by clitics to the extent they can be split anyway. First, things other than clitics can "split" most phrases that clitics seem to split. Second, the existence of what Halpern (1995) calls "fortresses" requires that clitic place-ment be able to discriminate *syntactic* criteria:

(17) *Roditelji **su**   **se**   uspešnih   studenata razišli.
        parents   aux.3pl refl successful students   dispersed

      'The parents of the successful students dispersed.'

As Franks and Progovac (1994) and Progovac (1996) point out, V is the only head which can support clitics. The relevant criterion is the head-complement relation, which clitics cannot interrupt, unless the head itself moves past the clitics, as in (1c). Third, splitability by clitics not only correlates across 2P languages with the independent possibility of splitting, but also among different speakers of SC. Thus, for example, Bošković finds (17) marginal, but as predicted he also accepts (18).

(18) ?Roditelji dolaze uspešnih   studenata
        parents   arrive successful.gen students.gen

      'The parents of the successful students are arriving.'

In my analysis, presented in more detail in Franks (1998) and Franks and King (forthcoming), verbal auxiliary clitics are generated in verbal functional head positions, such as AgrS° and T°. Pronominal clitics in 2P systems are generated in argument positions as K° heads. They undergo head movement to the appropriate Agr for case checking purposes, then continue moving as high in the tree as they can, which is, following Bošković (forthcoming), not necessarily to a consistent position, but usually to AgrS or C.

2.4. Some Phonological Effects

There are however phonological effects that cannot be so cavalierly dismissed as really syntactic in essence. One is "delayed" clitic

placement, which involves pronouncing clitics lower than second position, typically where pronunciation in second position would violate prosodic requirements. This can be seen in appositives (19), where the clitics *sam ti* cannot immediately follow *tvoja mama* because the appositive is obligatorily set off by ι-boundaries. The next best option is apparently selected; similarly for contrastive focus (20), when set off prosodically, and parentheticals (21).

(19) a. *#Ja#,   #tvoja   mama#,   **#sam   ti**
          I   your   mother   aux.1sg you.dat
          obećala   igračku#.
          promised toy

          'I, your mother, promised you a toy.'

      b. #Ja#, #tvoja mama#, #obećala **sam ti** igračku#.

(20) #Javili   su   nam   da# #prije nekoliko dana#
       announced   aux.3pl us.dat C   ago   several   days
      #na   toj   liniji# #voz **je**   kasnio   tri   sata#.
       on   that line   train aux.3sg   was-late three hours

      'They announced that, several days ago, on that line, the train was 3 hours late.'

(21) #Znači   da#,   #kao što   rekoh#
       means   C   as   what   said.1sg
      #oni **će**   sutra   doći#.
       they fut.3pl   tomorrow arrive.inf

      'It means, as I said, that they will arrive tomorrow.'

There is also phonologically sensitive splitting, where a single clitic is marginally able to split fortresses which cannot be penetrated by larger amalgamations of clitics. Progovac (1996) cites the examples in (22), drawn from Browne's (1975) study of SC clitic placement. These are constituents that do not seem independently splitable but which can nonetheless be broken up by clitics.

(22) a. ??Sestra **će**   i   njen muž   doći   u   utorak.
          sister   fut.3sg and her   husband come   on   Tuesday.
          'My sister and her husband will come on Tuesday.'

(22) b. ??Lav **je**   Tolstoj veliki ruski   pisac.[1]
         Leo   aux.3sg   Tolstoi great   Russian   writer

         'Leo Tolstoi is a great Russian writer.'

     c. ??Prijatelji **su**   moje sestre upravo stigli.
         friends   aux.3pl   my   sister just   arrived

         'Friends of my sister's have just arrived.'

She notes that the addition of more clitics makes them completely unacceptable (23):

(23) a. *Sestra **će**   **mi**   **ga**   i   njen muž   pokloniti.
         sister   fut.3sg   me.dat   it.acc and her   husband give

         'My sister and her husband will give it to me.'

     b. *Lav **mi**   **ga**   **je**   Tolstoj poklonio.
         Leo   me.dat   it.acc   aux.3sg Tolstoi gave

         'Leo Tolstoi gave it to me.'

     c. *Prijatelji **su**   **mi**   **ga**   moje sestre poklonili.
         friends   aux.3pl   me.dat   it.acc my   sister gave

         'Friends of my sister's gave it to me.'

2.5. A "Copy and Delete" Analysis

Most accounts of SC 2P clitics placement are therefore mixed; see e.g. Halpern (1995). Syntax does the basic work but there is some housekeeping that is the responsibility of PF. The real question is just the nature and extent of this housekeeping. My proposal is that (i) clitics are copied up to the highest head position; (ii) which copy is pronounced is a matter of PF; and (iii) ordinarily the highest head is pronounced, as follows:

(24) [ja **sam**   **ti**   [kupila [~~sam ti~~ [~~kupila~~ knjigu]]]]]
      I   aux.1sg   you.dat bought   book

      'I bought you a book.'

---

[1] For some speakers splitting names is syntactic; see Franks (1997, 1998) for relevant arguments.

However, (iv) if this would result in an initial clitic, then a lower copy is pronounced:

(25) a.   [*pro* ~~sam ti~~ [kupila [**sam ti** [~~kupila~~ knjigu]]]]]

      b.   [*pro* ~~sam ti~~ [knjigu [**sam ti** [kupila]]]]]

Finally, (v) the discriminating desiderata are OT-like constraints.

The result in (25) is inevitable since *sam* and *ti* in SC are enclitics, which means they need prosodic support and can only look to their left for this support. I propose to achieve this effect through relative satisfaction of OT-like constraints which apply in the mapping from Spell Out to PF. I take a general PF desideratum to be that the highest copy is the optimal one to pronounce, presumably because this preserves the most information and is thus the one most "faithful" to Spell Out. Let us call this constraint PRONOUNCE HIGHEST; I also assume that when pronouncing the highest copy would violate some highly ranked constraint, so that PRONOUNCE HIGHEST is violated instead, the next highest one is the next most faithful one to retain. PRONOUNCE HIGHEST is however violated in (25), the reason clearly being that pronunciation of the higher copy would violate the prosodic support requirements of these enclitics, a constraint that can be called PROSODIC SUPPORT and which must therefore be ranked higher than PRONOUNCE HIGHEST.

(26)   Prosodic Support » Pronounce Highest

This system naturally extends to accommodate "delayed" clitic placement, so that (19) has the analysis in (27).

(27)   ja #tvoja mama# ~~sam ti~~ [obećala [**sam ti** [~~obećala~~ igračku]]]

The reason why the lower copy of *sam ti* must be pronounced is clear: pronunciation of the higher copy would again violate PROSODIC SUPPORT, since the ɩ-boundary prevents the clitics from adjoining to the prosodic word to their left. The contrastive focus and parenthetical examples are similar in that clitics are pronounced lower than expected given their syntax. Partial PF representations for focus phrase (20) and parenthetical (21) are in (28).

(28) a.   ... da **je** #prije nekoliko dana# **je** na toj liniji# **je** voz **je** kasnio tri sata.

  b.   ... da **će** #kao što rekoh# **će** oni će sutra doći.

In (28) we see that the copy that is pronounced may be two or even three heads down from the root.

2.6. Variations on a Theme: Slovenian

The crucial difference between Sln and SC is that Sln clitics are prosodically neutral. The examples in (29) reveal the possibility of starting with a clitic after various types of heavy constituent. In the SC versions of the sentences in (29), the clitic would appear one word to the right of where it does in Sln. The flexible nature of the Sln clitic can be seen particularly in (29a), where *bom* is enclitic and *je* is proclitic. I thus conclude that Sln clitics are still in syntactic second position, which I have defined as the highest head position available, but the fact that they can be phonologically proclitic means that they can tolerate a pause to their left.

(29) a.   'Počival **bom**!'   **je**   rekel!
    rest   fut.1st   aux.3sg   said
    '"I am going to have a rest!" he said.'

  b.   Moj prijatelj Peter Košenina   **je**   velik   junak.
    my   friend   Peter Koshenina aux.3sg   big   hero
    'My friend Peter Koshenina is a big hero.'

Clitic-initial sentences can be created in Sln by deleting the understood first word or phrase, as in (30).

(30) a.   **Si**   **ga**   videl?
    aux.2sg   him.acc   saw
    'Have you seen him?'

  b.   **Se** **je**   Rajko   res   poročil?
    refl   aux.3g   Rajko   really   married
    'Did Rajko really get married?'

  c.   **Se** **mi**   **je**   smejal.
    refl   me.dat   aux.3sg   laughed
    'He was laughing at me.'

3. Verb-Adjacent Clitics

3.1. Some Basic Properties of Bulgarian and Macedonian Clitics

In Bg most clitics immediately precede the verb (31c, d) unless there would be nothing to their left (31a), in which case they follow (31b); in Mac, on the other hand, the order in (31a) rather than (31b) would be grammatical.

(31) a. ***Ti   go   dade   Vera   včera.**
          you.dat   it.acc   gave   Vera   yesterday
          'Vera gave it to you yesterday.'

     b. Dade **ti go** Vera včera.

     c. Vera včera **ti go** dade.

     d. Vera **ti go** dade včera.

I interpret this as follows: (i) the clitics prefer to be syntactically preverbal if possible and (ii) they are prosodically enclitic in Bg but neutral in Mac. Example (31a) thus does not violate PROSODIC SUPPORT in Mac but does in Bg, and the differences between Bg and Mac are purely prosodic (just as in SC vs. Slvn).

How do we express the idea "preverbal if possible" without derivational globality? To avoid look-ahead, I propose abstracting linear order out of the syntactic head-adjunction of the verb to the clitics. Linearization is part of the PF mapping process, such that the verb will precede or follow the clitics based on OT considerations. The fact that the clitics are to the left if possible is taken to reflect a constraint called LEFT=HIGHER (LEH), which is ranked lower than PROSODIC SUPPORT. This explains why candidate (31b) wins over (31a) in Bg.

Note that even *i* 'and' can support the clitics, a fact which will be relevant when the effect of *li* is examined. Compare (32) with (31a):

(32)   I **ti go** dade Vera včera.
       'And Vera gave it to you yesterday.'

3.2. Overview of the Analysis

The syntactic part of the analysis is summarized in (33):

(33) I. Verbal auxiliary clitics are generated in verbal functional head positions, such as AgrS° and T°.

    II. Pronominal clitics, although technically K°s even in Bg and Mac, are generated directly adjoined to their appropriate Agr heads; cf. clitic doubling of argument DPs.

      a. They move up to AgrS through successive adjunction.

      b. The verb adjoins to AgrS.

      c. Arguments are DPs which undergo case checking in the standard Spec-head way.

The mapping to PF part is as follows:

(34) Linearization respects the following ranking:

PROSODIC SUPPORT » LEFT=HIGHER

3.3. The *li* Puzzle

The Yes/No interrogative *li* is enclitic in both Mac and Bg. It appears in a superficially mysterious array of places, different in Mac and Bg, and depending also on whether the clause is negative (35) or affirmative (36). Stress is indicated with capital letters:

(35) a. Ne   **ti**   **GO**   dade   **li**?   [√Mac/*Bg]

       neg   you.dat it.acc gave Q

       'Didn't she/he give it to you?'

   b. Ne **TI li** go dade?   [*Mac/√Bg]

(36) a. **Ti**   **go**   DAde **li**?   [√Mac/*Bg]

       you.dat it.acc gave Q

       'Did she/he give it to you?'

   b. DAde **li ti** go?   [*Mac/√Bg]

In both languages, interrogative *li* is a simple enclitic introduced in C°, typically to the left of all other material. In descriptive terms, *li* goes right after the first prosodic word in the sentence. The differences between

Mac and Bg, which are purely on the PF side, are as follows: (i) in Mac, but not Bg, the auxiliary and pronominal clitics can be proclitic, and (ii) in Bg, but not Mac, proclitic *ne* is actually post-accenting.[2] This means that *ne* not only forms a prosodic word with the following element, but if that element is not itself a prosodic word, *ne* causes it to be one by stressing it, and then procliticizes. The result is that pronominal and verbal auxiliary clitics following *ne* in Bg actually bear the stress; cf. Bg (35b). Interrogative *li* is then positioned immediately after that stressed clitic. In addition to *li* placement requiring reference to stress in Bg, *li* never counts in locating the antepenult in Mac. It thus seems inevitable that *li* placement is subsequent to stress assignment and hence must be phonological, as follows: Pronounce *li* at the right edge of the first prosodic word to its right.

In short, *li* goes after the first prosodic word in both languages, with the difference between Bg and Mac being whether or not "*ne + ti*" constitutes a prosodic word. The *li* morpheme is a simple enclitic introduced in C°, typically to the left of all other material. This is resolved by pronouncing *li* minimally displaced from its syntactic position, which means at the right edge of the first prosodic word to its right. This is different in Bg and Mac, as shown in (37).[3]

(37) a. Mac: **li** [ne **ti** go dade]$_\omega$ → [ne ti GO dade]$_\omega$ li

b. Bg: **li** [[ne **ti**]$_\omega$ [go dade]$_\omega$]$_\omega$ → [[ne TI]$_\omega$ li [go DAde]$_\omega$]$_\omega$

c. Mac: **li** [ti go dade]$_\omega$ → [ti go DAde]$_\omega$ li

d. Bg: **li** [[dade]$_\omega$ ti go]$_\omega$ → [[DAde]$_\omega$ li ti go]$_\omega$

How is the order "*dade ti go*" determined in Bg (37d)? The interaction of Yes/No interrogative *li* with linearization shows that linearization applies cyclically, with linearizing a lower syntactic concatenation required when the next element up is merged. Before (37d), when *ti go* is combined with *dade*, there are two candidates to be compared:

---

[2] Note that these differences, as with SC vs. Sln, are lexical properties, *not* different constraint rankings.

[3] I take the fact that displacement ("Prosodic Inversion") is minimal to be a matter of "sympathy", with degree of violation counting prosodic rather than syntactic units.

(38) a. li [ti go dade]   or   b. li [dade ti go]

The linearization in (38b) wins, since enclitic *li* does not provide valid
support for *ti go*. Note that this linearization is the same as when *li* is not
present, as in (31b). Interestingly, the linearization decision is very local,
so that initial *i* 'and' does not cause *ti go* to precede *dade* 'gave';
compare Bg (39) with (32):

(39) I   dade   **li** **ti**   go?
      and   gave   Q   you.dat   it.acc
      'And did she/he give it to you?'

If linearization operates in a cyclic fashion, selecting the highest ranked
candidate when the next element up is merged, then *i* will be counted in
(32) but ignored in (39), since it is protected by *li*.

3.4. C° *li* and XPs

In Bg, focused DPs and PPs are in [Spec, CP], hence followed by *li*.

(40) [[Novata]$_\omega$ [zelena]$_\omega$ [riza]$_\omega$]$_{DP}$ **li ti**   podari Krasi?
      new-the   green   shirt   Q you.dat gave   Krasi
      'Did Krasi give you the new green shirt?'

The DP *novata zelena riza* 'the new green shirt' fronts to [Spec, CP], and
li is happily enclitic on it; syntax, rather than phonology, is relevant to
the position of *li* in (40).

   In Russian, which has lost all special clitics, this is not what
happens. Instead, *li* obligatory splits up the focused constituent; cf. King
(1994) or Brown and Franks (1995):

(41) a. [Na ètom]$_\omega$ **li**   zavode on rabotaet?
          in   this   Q   factory he works
          'Is it in THIS FACTORY that he works?'
          'Is it in THIS factory that he works?'
          'Is it in this FACTORY that he works?'

          (*Na ètom zavode **li** on rabotaet?)

(41) b. [Doroguju]$_\omega$ **li** knigu on čitaet?
expensive   Q book   he reads

'Is it an EXPENSIVE BOOK that he is reading?'
'Is it an EXPENSIVE book that he is reading?'
'Is it an expensive BOOK that he is reading?'

(*Doroguju knigu **li** on čitaet?)

In Ru, *li* necessarily comes after the first prosodic word. The reason is because the syntax really leaves the focused constituents *na ètom zavode* 'in this factory' and *doroguju knigu* '(an) expensive book' in the specifier of the phrase immediately to the right of C°. Hence, in the mapping to PF, OT considerations produce the "Prosodic Inversion" (PI) effect of minimally displacing *li* in (42) to the right edge of the first prosodic word to its right, to get (41).

(42) a. [li [na ètom]$_\omega$] zavode on rabotaet

b. [li [doroguju]$_\omega$] knigu on čitaet

Some corroboration for this account can be drawn from Stepanov (in press), who adduces a number of arguments that *wh*-phrases in Ru actually front to a position to the right of C°. Stepanov shows that Ru fails the superiority tests applied to SC in Bošković (1998); cf. (43). I conclude that there is in fact no movement to [Spec, CP] in Ru and that focused phrases are just like *wh*-phrases in (for the sake of explicitness) being adjoined to IP. Since in the syntax *li* is in C°, hence necessarily initial, it can only be positioned through Prosodic Inversion. Compare in this light SC (43), with Superiority effects, to Ru (44), which lacks them:

(43) a. Tom   čoveku,   ko   **je**   šta   poklonio?
that.dat man.dat who.nom aux.3sg what.acc gave

'To that man, who gave what?'

b. $^{??}$Tom čoveku, šta **je** ko poklonio?

(44) a. A   ètomu   čeloveku,   kto   kogo   predstavil?
and that.dat man.dat   who.nom whom.acc introduced

'And to that man, who introduced whom?'

b. A ètomu čeloveku, kogo kto predstavil?

A final question that might be asked, once PI is allowed in principle, is whether we ever need it in SC? It seems to me, returning to (22) vs. (23), that the only way (22) can be derived would be through PI. Once PI is assumed to apply to single simple clitics, the fact that for some speakers splitting as in (22) can slip by, although splitting as in (23) cannot, will follow as a marginal instance of prosodically rather than syntactically driven splitting.

References

Anderson, S. (1996) "How to Put Clitics in their Place or Why the Best Account of Second-Position Phenomena may be Something like the Optimal One" *The Linguistic Review* 13: 165-191.

Bobaljik, J. (1995) *Morphosyntax: the Syntax of Verbal Inflection.* unpublished Ph.D. dissertation, MIT.

Bošković, Ž. (1995) "Participle Movement and Second Position Cliticization in Serbo-Croatian" *Lingua* 96: 245-266.

Bošković, Ž. (1998) "Wh-Phrases and Wh-Movement in Slavic". Position paper for Comparative Slavic Morphosyntax workshop, McMormick's Creek State Park, Spencer, IN, 5-7 June.

Bošković, Ž. (forthcoming) "Second Position Cliticization: Syntax and/or Phonology?", in *Clitic Systems in Eastern Central Europe*, F. Beukema and M. den Dikken, eds., John Benjamins: Amsterdam.

Brody, M. (1995) *Lexico-Logical Form: a Radically Minimalist Theory.* Cambridge, Mass.: MIT Press.

Brown, S. and S. Franks (1995) "Asymmetries in the Scope of Russian Negation" *Journal of Slavic Linguistics* 3: 239-287.

Browne, W. (1975) "Serbo-Croatian Enclitics for English-Speaking Learners" *Kontrastivna analiza engleskog i hrvatskog ili srpskog jezika*, Institut za lingvistiku Filozofskog fakulteta, Zagreb, pp. 105-134.

Ćavar, D. and C. Wilder (1994) "Long Head Movement? Verb Movement and Cliticization in Croatian" *Lingua* 93: 1-58.

Franks, S. (1997) "South Slavic Clitic Placement is *Still* Syntactic". *Penn Working Papers in Linguistics* 4.2: 111-126.

Franks, S. (1998) "Clitics in Slavic". Position paper for *Comparative Slavic Morphosyntax* workshop, McMormick's Creek State Park, Spencer, IN, 5-7 June.

Franks, S. and T. King (forthcoming) *A Handbook of Slavic Clitics*, Oxford University Press: New York.

Halpern, A. (1995) *On the Morphology and Placement of Clitics*, CSLI Publications:Stanford.

Hornstein, N. (1995) *Logical Form: from GB to Minimalism*. Cambridge, Mass.: Blackwell.

King, T. (1994) "Focus in Russian Yes-No Questions". *Journal of Slavic Linguistics* 2.1: 92-120.

Lasnik, H. (in press) "On Feature Strength: Three Minimalist Approaches to Overt Movement". *Linguistic Inquiry.*

Legendre, G. (1998) "Morphological and Prosodic Alignment at Work: The Case of South-Slavic Clitics", to appear in *WCCFL XVII proceedings.*

Nespor, M. and I. Vogel (1986) *Prosodic Phonology*. Foris: Dordrecht.

Pesetsky, D. (1998) "Some Optimality Principles of Sentence Pronunciation", in *Is the Best Good Enough?*, in P. Barbosa, D. Fox, P. Hagstrom, M. McGinnis and D. Pesetsky, eds., Cambridge, Mass.: MIT Press.

Progovac, Lj. (1993) "Locality and Subjunctive-like Complements in Serbo-Croatian," *Journal of Slavic Linguistics* 1:116-144.

Progovac, Lj. (1996) "Clitics in Serbian/Croatian: Comp as the Second Position", in A. Halpern and A. Zwicky, eds. *Approaching Second: Second Position Clitics and Related Phenomena*, CSLI Publications: Stanford, pp. 411-428.

Progovac, Lj. (forthcoming) "Where do Clitics Cluster?", in *Clitic Systems in Eastern Central Europe*, F. Beukema and M. den Dikken, eds., John Benjamins: Amsterdam.

Radanović-Kocić, V. (1996) "Placement of Serbo-Croatian Clitics: a Prosodic Approach" in A. Halpern and A. Zwicky, eds. *Approaching Second: Second Position Clitics and Related Phenomena*, CSLI Publications: Stanford, pp. 429-445.

Selkirk, E. (1984) *Phonology and Syntax: the Relation between Sound and Structure*. Cambridge, Mass.: MIT Press.

Stepanov, A. (in press) "On *Wh*-Fronting in Russian", to appear in *Proceedings of North Eastern Linguistic Society* 28, University of Massachusetts, Amherst.

Stjepanović, S. (1998) "On the Placement of Serbo-Croatian Clitics: Evidence from Clitic Climbing and VP Ellipsis", in *FASL 6: The Connecticut meeting*, ed. Ž. Bošković, S. Franks and W. Snyder, Ann Arbor, Mich.: Michigan Slavic Materials, pp. 267-286.

Zec, D. and S. Inkelas (1990) "Prosodically Constrained Syntax", in S. Inkelas and D. Zec, eds., *The Phonology Syntax Connection*, The University of Chicago Press: Chicago.

Dept. of Slavic Languages
Ballantine 502
Indiana University
Bloomington, IN 47405–7103
franks@indiana.edu

Approaches to "Schizophrenic" Polish Person Agreement

Steven Franks
Indiana University

Piotr Bański
University of Warsaw

1. Introduction

The past tense person-number agreement markers (PNs) in Polish differ from auxiliary clitics in other Slavic languages in that the PNs only inconsistently display clitic properties; in some respects they are more like desinences. This puzzling "schizophrenic" behavior has three possible explanations: either PNs are (i) really always inflectional and their apparent clitic-like behavior is a variant of this; (ii) really always clitics and their apparent inflectional behavior is a variant of this; or (iii) sometimes clitics, sometimes inflections, and sometimes ambiguous between the two. In this paper we examine these three approaches, devoting special attention to the final "mixed" approach in order to assess its merits and disadvantages.

2. The Chameleon Nature of Polish PNs

We begin by surveying some data which discriminate clitics from inflectional suffixes.[1] In doing so, recapitulate portions of the discussion in the literature about how the PNs should be treated.

2.1. Some Inflectional Properties

In this section we consider some phonological arguments that Polish PNs are inflectional, following Dogil (1987), as elaborated by Booij and Rubach (1987), among others. A traditional conclusion is that the PNs are inflectional on verbs, as in (1), with the 1pl PN -**śmy**:[2]

---

[1] The term "suffix" subsumes both derivational and inflectional morphemes. We shall variously refer to the desinential analysis of PNs as "inflectional" or "suffixal".

[2] For ease of reference, all PNs are cited in boldface throughout the paper.

(1) Wczoraj   poszli-**śmy** do   parku.
     yesterday   went-1PL   to   park

     'We went to the park yesterday.'

One reason for this conclusion is that certain word-internal phonological processes take the PN into consideration. Raising turns /o/ into [u] (orthographically *ó*) in a word-final syllable closed by a voiced consonant, as in (2a). The presence of a PN, however, blocks Raising from applying by adding an additional syllable:

(2) a. Ja-**m**   mu   pom[u]gł.   b.   Ja mu pom[o]głe-**m**.
         I-1SG   him   help

         'I helped him.'

Since Raising is a postcyclic lexical rule, the PN must already be present at the stage when lexical rules operate in order for Raising not to apply in (2b). Hence 1sg PN -**m** must be inflectional.

Example (3) presents another argument for lexical status:

(3) a. robił-Ø   ~   robił-ę-**m**   c.   robil-i   ~   robil-i-**śmy**
     b. robił-a   ~   robił-a-**m**   d.   robił-y   ~   robił-y-**śmy**

In (3a), the underlined vowel is not present in the participle when pronounced in isolation. It has been suggested in various studies, including Gussmann (1980), Rubach (1984), and Booij and Rubach (1987), that this [e] spells out a masculine gender ending with the quality of a synchronic "jer". We take this to be a floating melody segment which surfaces as a full vowel as the result of "Jer Vocalization". The jer in (3a) is vocalized since it immediately precedes another jer assumed to be in the PN. Because Jer Vocalization is a cyclic lexical rule, in order for the masculine jer ending of the participle to surface as [e] the PN must be present when Jer Vocalization applies. Booij and Rubach thus suggest that the PN is introduced by a Word Formation Rule.

The inflectional properties of PNs are further illustrated by the operation of the Polish Stress Assignment. Main stress is assigned to the penultimate syllable of the phonological word, as in (4):[3]

---

[3] Stressed vowels are capitalized throughout the paper, whenever stress is relevant.

(4) a. CzYtał   b. CzytAli.
       'He read.'   'They read.'

These examples, which do not involve PNs, should be compared with those in (5), where the verbal participles have attached PNs:

(5) a. CzytAłe̜-m.   b. CzytalI-śmy.
       read-1SG   read-1PL
       'I read.'   'We read.'

The examples in (5) show that when the PN is present, the syllable it creates is counted by the stress rule, which therefore applies at the postcyclic lexical stage of the derivation to stress the entire "verb + PN" unit as a single word. The conclusion is thus that the PN must also be present at this level.

2.2. Some Clitic Properties

The most obvious reason to call the Polish PN a clitic is its mobility:

(6) a. My-śmy   znowu   wczoraj   poszli   do   parku.
        we-1PL   again   yesterday went   to   park

        'We went to the park again yesterday.'

    b. My znowu-śmy wczoraj poszli do parku.

    c. My znowu wczoraj-śmy poszli do parku.

    d. My znowu wczoraj poszli-śmy do parku

    e. *My znowu wczoraj poszli do-śmy parku

    f. *My znowu wczoraj poszli do parku-śmy

Any analysis of PNs must explain why they can attach to almost any constituent preceding the verb, but to no element following it.

   While the singular PNs display fairly consistent inflectional behavior when they are attached to a participle, the plural forms are not as consistent. Although the stress indicated in singular (5a) is the only option, the example in (5b) with a plural PN can also be more formally stressed on the antepenultimate syllable, as in (7).

(7) CzytAl-i-śmy

The fact that stress does not shift from its original position indicates that the PN here is behaving like a clitic. The PN in (7) is attached to the stem *czytAli* only after the lexical phonological rules—including, crucially, Stress Assignment—have operated.

Another relevant phenomenon is ellipsis of PNs in coordination structures, as discussed by Mikoś and Moravcsik (1986), Pruska (1991), and Bański (1997); the silent material in (8) and elsewhere is represented in outline font:

(8) CzytAli-**śmy** i   pisAli-.
     read-1PL   and   wrote-1PL

     'We read and wrote'

The deleted elements cannot be desinences, because deletion of a piece of a word violates lexical integrity. The ellipsis phenomenon thus constitutes strong evidence for the clitic status of PNs.

Interestingly, (8) is grammatical only with antepenultimate stress on *czytAliśmy*; deletion is incompatible with penultimate stress:

(9)   *CzytalI-**śmy** i pisAli-.

eletion is also blocked for constructions involving singular PNs:

(10) *Czytałe-**m**   i   pisał-.
      read-1SG   and   wrote-1SG

      'I read and wrote.'

Taken in conjunction with the fact that the singular PNs only allow one pattern of stress, we interpret (10) to mean that the singular PNs always behave as inflection.[4]

2.3. The Role of the Host

2.3.1. XP vs. X^0

Closer inspection reveals that the inflectional diagnostics we surveyed above are satisfied only when the PN is attached to a verb. When the PN

---

[4] Actually, the feminine singular PNs, which do not trigger Jer Vocalization, seem to have intermediate status with respect to deletion, as discussed in section 4.2.

is attached to anything else, which, following Borsley and Rivero (1994) and Franks (1988), we analyze as a phrasal host, the PN does not display any properties of inflection. In this section we review various inflectional diagnostics applied to phrasal hosts.

2.3.1.1. Jer Vocalization

Recall that according to Booij and Rubach (1987) the PN triggers vocalization of a jer present in the stem to which it attaches. This is not true, however, for phrasal hosts, as shown in (11):

(11) palec 'finger-NOM.SG'   ~   palc-a 'finger-GEN.SG'

(12) a.   palc-a-ś   b.   *pal(e)c-e̦-ś
           'finger-GEN.SG-2SG'   'finger-NOM.SG-2SG'

The alternation in (11) shows that the word *palec* 'finger' has a jer, because adding the nominative ending, which also contains a jer, triggers its vocalization. On the other hand, when the case ending is a vowel other than a jer, the stem jer does not surface, as in the genitive *palca*. Take a look now at (12). Here we see that the 2sg PN can attach to the vocalic stem *palca* in (12a), as expected. The unacceptable (12b) shows however that when the PN is attached to the nominative form, which ends in a jer, Jer Vocalization does not take place. In this regard phrasal hosts are unlike verbal ones, since attaching -*ś* to a verb does feed stem Jer Vocalization. On the basis of the diagnostics noted in section 2.1, attachment of the PN to *palec* should result in (12b), but this form does not exist.[5]

2.3.1.2. Raising

The examples in (13) and (14) show that the rule of Raising, which as we saw in (2) treats "verb + PN" as a phonological word, also fails to apply to "phrase + PN" units:

(13) kr[u]w 'cows-GEN.PL'   ~   kr[o]wy 'cow-GEN.SG'

(14) a.   *kr[o]w-ście   b.   %kr[u]w-ście

---

[5] The variant **palec-ś* is ruled out by "Friendliness", discussed in section 2.3.2.

The alternation in (13) shows that the stem vowel of *krowa* 'cow' is one which can undergo Raising. The vocalic case ending in (13b), however, prevents the rule from applying; recall the discussion in section 2.1. The same pattern should be expected of a PN if attached lexically. However, as (14) shows, this prediction is not borne out and (14b) occurs instead, with the stem vowel raised to [u]. We conclude that when attached to a phrasal host the PN does not count as part of the stem for the purposes of lexical phonological rules.

2.3.1.3. Stress Assignment

In sections 2.1 and 2.2 we noted the variation of stress assignment which exists when a plural PN is attached to a verbal participle. It turns out, however, that this only pertains to "verb + PN" con-structions. When the host to which the PN attaches is anything other than a verb, as shown in (15) and (16), the only possibility is to stress the host in isolation:

(15) a.   dlaczEgo-śmy 'why-1PL'   b.   *dlaczegO-śmy

(16) a.   zmęczEni-śmy 'tired-1PL'   b.   *zmęczenI-śmy

Since Stress Assignment in (15) and (16) necessarily ignores the PN, we conclude that the PN here must be a clitic and is only attached to *dlaczego* 'why' and *zmęczeni* 'tired' postlexically. Any analysis which requires the positing of lexical items *zmęczeniśmy* or *dlaczegośmy* is not viable.

2.3.1.4. Ellipsis

In section 2.2 we showed that singular PNs may not be elided, a fact which we took as evidence for their necessarily suffixal status. Thus, in example (10) we saw that ellipsis was blocked when the 1sg PN was attached to a verbal host. Interestingly, this same PN *can* be elided when attached to nonverbal hosts, as in (17).

(17)   Zmęczony-m   i   głodny-ᵐ.
       tired-1SG   and   hungry-1SG

       'I'm tired and hungry'

The acceptability of (17) in contrast to (10) reveals that the 1sg PN *-m* can behave like a true clitic when attached to a phrasal host, although it is

always an inflection when on a verb. Note that this difference corresponds to the stress contrast just observed.

To recapitulate, singular PNs fail to delete only when they attach to an *l*-participle. In example (17), they attach to a phrase and thus do not resist ellipsis. We take this as a manifestation of their clitic properties. In sum, according to the evidence presented in sections 2.1 and 2.2, when PNs attach to phrasal constituents they consistently behave like clitics rather than suffixes. This important observation will prove useful in our subsequent discussion of previous approaches to PNs in Polish.

2.3.2. 'Friendliness' and *że*-Support

Recall that sometimes Jer Vocalization and Raising fail to apply:

(18) a. *palec-ś   c. %kr[u]w-ście   (= 14b)
      b. *palec-ę-ś   (= 12b)   d. *krow-ę-ście

In this sort of example—when the host for the PN is phrasal—Jer Vocalization is generally impossible, although (18c) with no vocalized jer is marginally acceptable; example (18a), on the other hand, involves the presumably impossible cluster [cś]. Consider now (19):

(19) a. *palec-ę-śmy   b. %palec-śmy

While we expect (19a) to be impossible since Jer Vocalization cannot apply, the variant in (19b), without the [e], is not grammatical either. This is a curious fact, since (19b) appears to be phonologically well-formed, with a syllable break possible between the [c] and the [ś]. This array of data is due to a descriptive generalization that Bański (1997, 1998) dubs "friendliness", having to do with receptivity of different stem final segments to clitics. Friendliness simply means that when PNs attach to hosts whose last segment is not vocalic, the result has diminished acceptability, with variation depending both on the host and on individual speakers.

An alternative way to deal with unfriendly hosts is to support the PN with a pleonastic *że*. This is an element homophonous with the indicative complementizer *że* 'that'; we gloss dummy *że* simply as "X". *Że*-support gives rise to the improved versions of (18) in (20):

(20) a.   palec   że-ś   b.   krów   że-ście
           finger X-2SG   cows   X-2PL

Że-support has a Last Resort character, in that it can be inserted only to support the PN, as shown in (21):

(21) a.   *Wczoraj że   tam   poszli-śmy.
           yesterday X   there   went-1PL
           'We went there yesterday.'

       b.   *Powiedział, że   że   już   poszli-ście.
           said   that   X   already   went-2PL
           'He said that you had already gone.'

The ungrammaticality of (21) demonstrates that spurious *że*-support is disallowed; it occurs only when motivated. Notice, however, that the mere presence of a PN constitutes sufficient and appropriate motivation. Thus, although there is no alternative to *że*-support in (20a), we saw that there is at least a marginal alternative available for (20b), namely (18c). Consequently, despite the Last Resort flavor of *że*-support illustrated by (21), there must be more to the phenomenon than simply saving an otherwise unpronounceable structure. Indeed, *że*-support applies freely even in contexts in which it does not seem to be independently necessary, as in (22):

(22) a.   Wczoraj   (że)-śmy tam   poszli.
           yesterday X-1PL   there   went
           'We went there yesterday.'

       b.   Powiedział, że   (że)-ście już   poszli.
           said   that   X-2PL   already   went
           'He said that you had already gone.'

These examples show additionally that the *że* used to support PNs is not the same as the complementizer *że*. For one thing, the latter never appears in matrix clauses like (22a), and it cannot be optionally omitted in subordinate clauses like (22b).

3. Previous Analyses

In this section we overview selected analyses of PNs, divided into lexical approaches, clitic approaches, and mixed approaches.

3.1. Lexical Approaches

The fundamental problem faced by lexical approaches is to account for the clitic properties of PN, especially the possibility of displacement. As we shall see, lexical approaches have addressed this problem in a variety of imaginative ways.

3.1.1. PNs as Participle Inflections: Gussmann, Sussex

Gussmann (1980:93) and Sussex (1980) treat PNs as inflections on verbal participles, which is where they claim that PNs are generated. Getting PNs to appear on different hosts in the clause is achieved by moving them syntactically. One empirical advantage is that this ensures that PNs will always appear to the left of the verb (unless attached to the verb itself). Since the movement is syntactic, these analyses also have the potential to discriminate between possible and impossible landing sites. This general idea however comes up against the obvious conceptual problem that syntactic operations cannot target word-internal entities. It was therefore opposed by Dogil (1987), among others, who invoked the principle of lexical integrity to argue against syntactic movement applying to the PN as an inflectional ending. As Dogil observed, the kind of movement analysis put forward by Gussmann and Sussex encounters diffi-culties accommodating the Jer Vocalization and Raising facts.

3.1.2. PNs as Unselective Suffixes: Booij and Rubach

In their theory of Lexical Cliticization, Booij and Rubach (1987) enable various items in the clause to be potential bearers of a PN by literally endowing them with optional PNs in the Lexicon. As a result of their system, all elements can leave the Lexicon with PNs attached to them by morphological redundancy rules. Possible multiple occurrences of the given PN are then filtered out at PF. Because in Booij and Rubach's account PNs attach to their hosts by morphological rules, they are capable of conditioning phonological processes such Jer Vocalization, Raising and Stress Assignment.

Booij and Rubach's model posits indiscriminate multiplication of PNs to potentially every element of the clause, supplemented by a mechanism which allows for only one clitic to remain intact. This system requires massive overproduction, proliferating PNs only to eliminate them later in the derivation. More specifically, as Aguado and Dogil (1989) point out, Booij and Rubach's approach postulates verbal inflectional paradigms for practically all lexical elements. Furthermore, the relation between the specific PNs and the features of the clause is virtually arbitrary in Booij and Rubach's model.

Although Booij and Rubach's PF filter could presumably be adapted to handle problems such as these, many additional extensions would be necessary to handle other empirical problems. For instance, as noted by Borsley and Rivero (1994), Booij and Rubach's account is not able to handle certain distributional facts, namely that the PN can appear only on preverbal hosts or attached to the verb itself. For Booij and Rubach, the inability of PNs to occur postverbally is essentially inexplicable. We take this to be a serious problem with their account. A related difficulty for Booij and Rubach is that modal *by* always appears with a PN attached to it. This is again a coincidence under the approach in question. Another issue has to do with cases where Lexical Cliticization overgenerates by predicting "host + PN" structures which do not exist. We have already encountered two such cases: one is the failure of Jer Vocalization in "phrasal host + PN" constructions, and the other is the failure of PNs to block Raising in the same structural context.

Summing up, Booij and Rubach's theory of Lexical Cliticization ties in with their proposal for phonological rules understood as belonging to particular components. This results in a tighter explanatory apparatus, capable of subsuming the suffixal behavior of PNs under a restricted theory of lexical phonology. However, the price which needs to be paid for additional and otherwise unwarranted theoretical mechanisms, as well as the existence of problematic empirical data, strongly suggest that an alternative to the Lexical Cliticization framework must be sought.

3.1.3. PNs as Auxiliary Inflections: Embick

Embick (1995) develops the ingenious proposal that the Polish person markers are always inflectional on auxiliaries, and that when not on present tense auxiliary stem *jest* or modal auxiliary stem *by*, they are

actually inflections on a phonologically null auxiliary stem. Embick's point of departure is the assumption that *by* is an irrealis stem which takes the PNs as inflectional endings. He is led to this conclusion primarily because whenever *by* appears in the clause, the PN is always attached to it. Embick interprets the changes in the table in (23), which is his (25), to indicate that *by* once took its own set of person/number endings but subsequently switched over to a special indicative set of markers. For, Embick thse are the PNs.

(23)

Person/Number	Old Polish	Modern Polish
1sg	bych	bym
2sg	by	byś
3sg	by	by
1pl	bychom	byśmy
2pl	byście	byście
3pl	bychą	by

Embick then considers the structural realizations of PNs in past tense clauses. In order to avoid the conclusion that PNs are heads of their own projections only in past tense clauses, he proposes that PNs in Polish are *never* themselves auxiliaries. Instead, according to Embick, they are always suffixes on auxiliaries. In past tense clauses they are affixed to a phonologically null auxiliary, as in (24):

(24) a.   My [∅ + śmy]$_{AgrS}$ poszli
      b.   My [poszli [∅ + śmy]$_{AgrS}$]$_{AgrS}$

Embick examines when the rule of Raising applies and observes that there is an asymmetry between "verb + PN" structures and all others. Exploiting Borsley and Rivero's incorporation analysis, Embick postulates that in incorporation contexts the null auxiliary is either invisible to the rules of phonology or literally pruned away by the rules of morphology, so that the PN is treated as part of the participle. However, this can only actually take place when the verbal participle has incorporated into the auxiliary. In all other cases, the null auxiliary head prevents the PN from being "suffixed" onto the host. In this way, non-participle hosts (except for inflected modal *by* and copula *jest*) are processed separately from the PN by rules of phonology.

To demonstrate this difference, Embick considers the hypothetical minimal pair in (25):[6]

(25) a. [grod-em] 'castle-INST'
      b. [gród]$_{DP}$ [∅-em]$_{Aux}$ 'castle-1SG'

In this example, the word *gród* 'castle' inflected for the instrumental case is contrasted with the same word with the 1sg PN encliticized onto it. Since the instrumental case ending *-em* is directly suffixed onto the noun, it is able to block the rule of Raising. The 1sg PN *(e)m,* however, is suffixed onto the null indicative auxiliary, and therefore is not part of the noun when the rule of Raising applies.

Some advantages of the approach in Embick (1995) are that it handles (i) the displacement facts, (ii) the strong connection of the PN to *by*, and (iii) the opposition between "verb + PN" combinations and all the rest of the cases. Similarly, the lexical effects are explained by postulating that PF effectively treats the PN as a suffix on the verbal participle. There are, however, some problematic Polish PN data which Embick does not discuss. For example, in order to handle the fact that the copula *być* 'to be' need not host the PNs, it is necessary to claim that in copular clauses with *być* there is a null auxiliary whenever the PN is not attached to *jest* 'is'. This is shown in (26). This null auxiliary must be different in feature content from the one postulated by Embick for preterite clauses, because *jest* is the present tense form of the copula *być*. Thus, in order to handle the distributional facts, Embick would have to postulate two distinct null auxiliaries, which additionally can take a null third person inflection in some cases:

(26) a. Głupi-ś   jest.   =   Głupi jeste-ś.
          stupid-2SG   is   stupid is-2SG

          'You are stupid.'

      b. Głupi ∅-ś jest.

With *jest,* PNs exhibit mixed behavior, although a bit differently from verbal participles. All PNs attached to *jest* are clearly suffixal in nature. This can be seen in the facts that stress can only fall on the penultimate

---

[6] Embick's (25b) is actually unacceptable for Bański, although for Friendliness reasons.

syllable and that Jer Vocalization operates to create a linking [e]. However, apart from that and unlike when they attach to *by*, PNs can also float to pre-verbal positions. This fact fails to be properly captured by Embick's analysis.

Furthermore, the changes in (23) can just as easily be interpreted as showing that *by* simply lost its old aorist inflections and became a frozen form. If so, expressions such as *byśmy* '(we) would' can be treated as sequences of two clitics, *by* and *śmy*. Note also that from Embick's perspective one would expect modal *by* to be a full-fledged word. However, *by* displays clear enclitic properties, so that examples where it stands sentence-initially are at best marginal.

Another inconsistency is that Embick relies on the rule of Raising as a diagnostic for inflection, ignoring the rule of Stress Assignment. Stress Assignment, however, is both far more regular and has a clearly defined set of exceptions. Embick essentially ignores the stress variation noted in (5b) vs. (7), probably because his analysis predicts only the colloquial forms with stress on the penultimate syllable.

We conclude that Embick's approach, whereby all PNs are inflectional and their clitic properties are derivative, faces some serious obstacles. In the next section we therefore consider analyses which regard PNs as clitics and which attempt to derive their inflectional properties in some special way.

3.2. PNs as Clitics

Given that PNs have some obvious clitic properties as well as inflectional ones, the next approach to explore is treating PNs as clitics. In this section we survey two such approaches to PNs.

3.2.1. Proliferation and Annihilation of PNs: Aguado and Dogil

Aguado and Dogil (1989) suggest that Polish PNs are generated in the Infl node and then copied by special rules onto all other elements inside their clause. Various houskeeping rules subsequently apply to delete all but one instance of the given PN. The lexical effects that PNs induce are handled by Aguado and Dogil by postulating that the components of phonology (cyclic, postcyclic and postlexical) are treated as domains of rule application, and that the relevant lexical rules simply reapply to the newly formed "host + PN" complexes in the postlexical domain.

Notice that this "proliferate and annihilate" approach is reminiscent of Booij and Rubach's "PF filter". However, by not placing PN attachment in the lexicon, Aguado and Dogil have the advantage of assuring that the PNs indeed relate to the features of the clause, while in Booij and Rubach's system the relation between the two is arbitrary. On the other hand, Aguado and Dogil's model creates difficulties for a constrained system of phonology, by allowing lexical rules to reapply in the postlexical domain.

Although Aguado and Dogil notice the shortcomings of Booij and Rubach's model, their own proposal also means massive overproduction by means of copying the PN features to every constituent in the sentence, only to delete all but one of them in the next step. In this case, the Housekeeping rules must have comparable power to the PF filter proposed by Booij and Rubach to handle the same empirical distributional facts.[7]

3.2.2. Clitics by Nature, Suffixes by Nurture: Bański

On the basis of asymmetries in the behavior of PNs discussed in section 2.3.1, Bański (1997, 1998) limits the range of cases in which PNs display constant suffixal properties as follows:

(27) i.   participle + PN_{Sg} complexes

 ii. participle + PN_{Pl} complexes (colloquially)

 iii. *by* + PN and *że* + PN complexes

---

[7] One might regard Aguado and Dogil's system from the perspective of Chomsky's proposal that syntactic movement be broken down into the elementary processes of Copy and Delete. Copying takes place in the syntax, but deletion is a PF operation. It is thus imaginable that the PN could be copied from Infl to all potential host sites, and then in PF be deleted on all but one of those sites. There are two immediate problems with trying to adapt Aguado and Dogil's analysis. First, an explanation would need to be sought for why the PN which is actually pronounced can be any one, not just the highest one. Second, it would have to be shown that the extent of copying required to make this work is syntactically motivated. And, while Aguado and Dogil might at least have a ready explanation for why PNs cannot be lower than the verb in that copying is always *up* the tree, syntactic movement does not seem to be translatable into the virtually unlimited upwards copying that would be required.

It is striking that suffixal properties emerge precisely when the host is a head, as in (27iii). Bański exploits this observation, claiming that PNs, although they enter the syntactic computation uniformly as clitics, display an inherent tendency to prefer hosts which are $X°$ elements over hosts which are part of syntactic phrases.

Bański borrows from Distributed Morphology the concept of two passes of lexical insertion, with all phonological features being inserted post Spell-Out. He can then account for all the suffixal properties of PNs within the general framework of Booij and Rubach (1987) by arguing that PNs merge with their hosts if they are both contained under the same $X°$. This merger is obligatory for all the categories listed in (27i) and (27iii); plural PNs attached to participles are assumed to head in this direction as well, although they still have the option of not merging. Failure to merge results in the more 'formal' stress pattern in (7).

While we feel that the approach in Bański (1998) has much to recommend it, since it capitalizes on the independent contrast between $X°$ and XP hosts, it leaves the optional antepenultimate stress of "verb + PN" units stipulated as optional merger. We therefore turn to one last possibility, namely that the mixed behavior of PNs in fact reflects a mixed system.

4 . Living with Schizophrenia

Both lexical and clitic models attack the mixed nature of Polish PNs with a unique solution. Here we explore a third logical option, one that simply admits that the person agreement markers are clitics when they behave like clitics and verbal inflections when they behave like suffixes. This kind of solution has an admittedly "schizophrenic" flavor, in that the Polish PN has two competing personalities, each of which shows itself in different contexts.

4.1. Speculations about a Dual Analysis: Franks

Our basic contention is that, following ideas laid out in Franks (1998), Polish PNs can be either suffixes or clitics.[8] While positing *both* analyses

---

[8] Dornisch (1998) makes similar suggestions; she claims that whenever PNs attach to past participles they are suffixes and, whenever they do not, they are clitics.

lacks the elegance of a unique solution, the facts of Polish may make a schizophrenic solution inevitable. Each alternative we have examined has a certain cost, one which is measured by the need to finesse the nature of the PN in those constructions which deviate from its basic characterization as either a clitic or a suffix. The cost of a dual analysis is different in quality, since it amounts to recognizing the need for the grammar to accomodate both possible interpretations of PNs at once. What it lacks in extra phenomeon-specific machinery, it compensates for by requiring two general mechanisms of morphosyntactic analysis. And while applying both clitic and suffix mechanisms to a single entity might seem unduly heavy-handed, the truth is that we are just admitting what alternative approaches strive to obscure: Polish PNs can in principle be either suffixes or clitics.

If one thinks about the nature of historical change, one realizes the need to posit two distinct analyses of what in a more elegant world would be a single element is simply inescapable. That is, following ideas due to Kroch (1989), historical change involves competing analyses of some linguistic phenomenon, with one analysis eventually replacing the other. Put this way, we see that competition must exist in individual grammars: one analysis exists in the mind of the individual and is gradually supplanted by another. Since grammar is information stored in the brain and accessed as such, it cannot just disappear when a new analysis is similarly formed. For the case at hand, all we are saying is that Polish PNs can be person-number feature sets introduced either as independent syntactic heads or together with verbal participles.

This approach to the mixed properties of the Polish person-number markers is in line with claims in Rappaport (1988) that their status is in flux. It raises, however, some serious questions:

(28) i. Why are ambiguous instances analyzed as suffixes?
      ii. Why is this situation so diachronically stable?
      iii. Why is there no clean dialect split?

While we do not have definitive answers to these questions, we offer some speculations about how they might be approached.

4.2. On Obligatory Suffixes

The questions listed in (28) have to do with how the set of instances where person-number agreement is called for are actually carved up by the two competing analyses of Polish PNs. The first is probably the most troublesome. Although we assume that the direction of development of PNs is from clitics, as they were in older Polish, to true inflectional suffixes, we need to assume that this process manifests itself most strongly in the behavior of singular PNs, since these by most diagnostics have already completed the process.[9] The reason, it seems to us, is because the singular PNs are nonsyllabic, and hence prefer to be suffixal if possible; this correlates with the fact that they can have no effect on stress. Moreover, given that Jer Vocalization takes place with masculine singular forms, the *only* analysis of "verb + PN" when the PN is masculine singular is that the PN is a suffix. This is why ellipsis is impossible when the singular would-be licensing PN is on the participle, but not when it is on some phrasal host.

   Notice, however, that the same reasoning does not apply so readily to PNs on feminine singular verbal participles. While the PN is also monosyllabic, the phonological facts are ambiguous. Unlike (5a) masculine *czytałem*, feminine (29) could in principle be analyzed as host *czytała* plus a clitic *-m*:

(29)   CzytAła-**m**.
        read.FEM-1SG
        'I (fem) read.'

---

[9] Another set of relevant facts concerns the masculine singular PNs and the effect they have on nasal vowels. There is a tendency in Polish for nasalized [õ] to turn into nasalized [ê] in an open syllable. As observed by Rappaport (1988), constructions involving masculine singular PNs need not show this pattern—the prescriptive form of *wziąć* 'take' is *wziąłem*, despite the fact that the syllable containing the vowel is made open by the addition of the PN. However, Rappaport notes also that the colloquial form is most often the regular *wzięłem*, which patterns with the rest of the paradigm, e.g. feminine *wzięłam* and virile *wzięliśmy*. We take this as support for our claim about the direction in which the diachronic changes progress.

In the absence of cues to the contrary, therefore, "verb + PN" combinations strongly tend to be interpreted as single lexical items.

The reason we mitigate this effect to a "strong tendency" is because feminine participles plus PNs offer less resistance to ellipsis than do masculine ones. Although the resulting sentences are still degraded, ellipsis of the PN in (30) is not as bad as in (31):

(30)   a.   ?*Poszł-a-**m**   i   zobaczył-a-m.
            went.FEM-1SG   and   saw.FEM-1SG

            'I (fem) went and saw.'

       b.   ?*Poszł-a-ś   i   zobaczył-a-ś.
            went.FEM-2SG   and   saw.FEM-2SG

            'You (fem) went and saw.'

(31)   a.   *Poszedł-e-**m**   i   zobaczył-e-m.
            went-MASC-1SG   and   saw.MASC-1SG

            'I (masc) went and saw.'

       b.   *Poszedł-e-ś   i   zobaczył-e-ś.
            went.MASC-2SG   and   saw.MASC-2SG

            'You (masc) went and saw.'

The fact nonetheless remains that "verb + PN" units are analyzed as single lexical items whenever possible. If the two analyses were really competing synchronically, we would expect the competition to be clearest precisely here. Note also that in other instances, such as when it is attached to a phrasal host, the PN must be analyzed as a clitic. Thus, even though the grammar indeed provides two analyses for PNs, they no longer compete: in any given instance the person-number features are either introduced on the participle or, following Borsley and Rivero (1994), in Infl/AgrS. This makes sense to us: the change is close to being complete, with the contrast in (31) versus (30) perhaps a residue of this change. Even though the system provides a choice, there is in practice virtually none.

4.3. On Stability

This suggests an answer to the second and third questions in (28). Our response to the general problem of why there seem to be no speakers who place PNs only on *l*-participles (and stress them on the penult), is that all speakers can generate clitics in Infl/AgrS. This possibility persists, and does not really compete with "verb + PN" combinations: hence, it is not supplanted by it.[10]

Let us finally explore a slightly different perspective on stability, inspired by the phenomenon of *że*-support. Recall that *że*-support seems to be on the rise in colloquial Polish. This fact in and of itself should contradict any claim that the clitic analysis of PNs is giving way to a suffixal one, since *że*-support is at first blush predicated on the PN as being a clitic. By way of conclusion, there are two ways one might resolve this paradox that we would like to consider.

First, recall Bański's (1997) idea that the fundamental division should be between XP and X° hosts. Viewed in this way, one can ask what *że*-support and attaching a PN to a verbal participle have in common. The answer, it seems to us, is that both avoid attaching a PN,

---

[10] The phenomenon of "clitic multiplication", described by Booij and Rubach (1987), support this general idea. Clitic multiplication is exemplified in (i):

  (i) ??Ale-śmy   zrobiII-śmy.
        but-1PL   did-1PL

    'But we did it.'

Although this kind of example is regarded as "substandard" and not present in Bański's dialect, his judgments are that clitic multiplication is possible, if at all, only as in (i), with one PN on the participle and the other on some phrasal host. This is precisely what our approach would predict if person-number features were accidentally introduced in two places in a single sentence, on the verbal participle *and* in Infl/AgrS. The former set of features would be morphologically realized as inflection on the verb, the latter as a clitic which attaches to whatever is to its left. Note, moreover, that our system, which could conceivably tolerate simultaneous application of both strategies in a single sentence, further predicts that more than one instance of a true *clitic* PN should be impossible. Hence a second PN can appear only on the participle, and the participle, as an inflected word, must receive penultimate stress, as we have indicated in (i). This seems to be correct, although investigation with speakers of this variety of Polish is clearly called for.

which is itself a head, to a phrasal host. Since *że* is a head, *że*-support is a strategy to avoid putting a PN on something that is not also a head. *Że*-support and attaching a PN to the *l*-participle thus both conspire to avoid a configuration in which the head PN is forced to adjoin to an XP rather than another head.

Second, one could claim that inflected forms of *że* are simply drawn from the Lexicon as such, as follows:

(32)   a.   że-**m**   b.   że-**ś**   c.   że-**śmy**   d.   że-**ście**

        X-1SG   X-2SG   X-1PL   X-2PL

This would connect the spreading of *że*-support to the hypothesized spreading of PNs as inflectional.

In conclusion, one might wonder what all this implies for the future of Polish. One thing we might expect is the continuing loss of "phrase + PN" structures, predicting that they will tend to be mediated by *że*-support. Whether Polish will shift to a uniform penultimate stress pattern in all "participle + PN" constructions, accompanied by a concomitant loss of PN ellipsis, may depend on which analysis of *że*-support turns out to be correct, since *że*-support to avoid "phrase + PN" structures does not preclude antepenultimate stress on the verb. The stability of the current schizophrenia situation suggests that it may endure for some time.

References

Aguado M. and G. Dogil. 1989. "Clitics in Lexical Phonology: alleged counterevidence?" *Linguistische Berichte* 120: 99-116.

Bański, P. 1997. "Polish auxiliary clitics: morphology or syntax?", in *ZAS Papers in Linguistics*, Vol. 6, 17-27. Berlin: Zentrum für Allgemeine Sprachwissenschaft.

Bański, P. 1998. "Structural conditions on auxiliary clitic attach-ment in Polish", Ms. University of Warsaw/Indiana University.

Booij, G. and J. Rubach. 1987. "Postcyclic versus postlexical rules in Lexical Phonology" *Linguistic Inquiry* 18: 1-44.

Borsley, R. and M.-L. Rivero. 1994. "Clitic auxiliaries and incorporation in Polish" *Natural Language and Linguistic Theory* 12: 373-422.

Dogil, G. 1987. "Lexical Phonology and floating inflection in Polish", in W. U. Dressler (ed.), *Phonologica 1984*. Cambridge: Cambridge University Press.

Dornisch, E. 1998. *Multiple-wh-questions in Polish: The interactions between wh-phrases and clitics*. Unpublished Ph.D. dissertation, Cornell University.

Embick, D. 1995. "Unifying morphosyntax and phonology: The 'mobile inflections' in Polish", in *Proceedings of NELS 25*, pp. 127-142.

Franks, S. 1998. "Clitics in Slavic". Workshop on Comparative Slavic Morphosyntax, Spencer, Indiana. (downloadable at http://www.indiana.edu/~slavconf/linguistics/index.html)

Gussmann, E. 1980. *Studies in abstract phonology*. Cambridge, Mass: MIT Press.

Kroch, A. 1989. "Function and grammar in the history of English periphrastic *do*", in R. Fasold and D. Shiffrin (eds.), *Language change and variation*. Philadelphia: Benjamins.

Mikoś, M. and E. Moravcsik .1986. "Moving clitics in Polish and some cross linguistic generalizations" *Studia Slavica*, pp. 327-336.

Pruska, B. 1991. "Polish mobile inflection", Ms., UCSD.

Rappaport, G. 1988. "On the relationship between prosodic and syntactic properties of the pronouns in the Slavonic languages", in A. Schenker (ed.) *American contributions to the 10th International Congress of Slavists*, pp. 301-327. Columbus, Ohio: Slavica.

Rubach, J. 1984. *Cyclic and Lexical Phonology: The structure of Polish*. Dordrecht: Foris.

Sussex, R. 1980. "On agreement, affixation and enclitics in Polish", in C. Chvany and R. Brecht (eds.), *Morphosyntax in Slavic*. Columbus, Ohio: Slavica.

Dept. of Slavic Languages
Ballantine 502
Indiana University
Bloomington, IN 47405–7103
franks@indiana.edu

Instytut Filologii Angielskiej
Uniwersytet Warszawski
Nowy Świat 4
00–496 Warszawa POLAND
bansp@plearn.edu.pl

The "Free" Datives in Czech as a Linking Problem

Mirjam Fried
University of California, Berkeley

1. Introduction

It is a well-known fact that dative-marked nominals serve a variety of functions in Czech. Traditional descriptions suggest a great deal of uncertainty about how to analyze the different uses, since there seems to be some overlap in their meaning and/or function. The goal of this paper is to make the rich and seemingly unwieldy material less amorphous by applying well-defined syntactic, semantic, and pragmatic criteria, all of which will yield a relatively transparent network of related, yet distinct, grammatical patterns.

My primary focus will be on the so-called 'free' datives – datives that are added as extra-syntactic elements, not projected by the head predicate. The crucial data can be exemplified by the sentences in (1)–(2), covering the usual range of interpretations associated with the free datives. The first example involves a single dative with three possible readings, while the second one shows three datives in a single clause, with only one possible interpretation:

(1) (V)on   ti   vzal   i   chleba.
    he:NOM 2SG:DAT:CL take:PPL:SG:M also bread:ACC:SG:M[1]
    (i) 'He also picked up some bread *for you*.
    (ii) 'He took away *your* bread, too.'
    (iii) '*Just imagine*, he accepted bread as well.'

(2) Tak   ti₁   mi₂   jim₃   vodmítli   dát
    so   2SG:DAT   1SG:DAT   3PL:DAT   refuse:PPL:PL give:INF
    povolení!
    permit:ACC
    'Well, imagine₁, they₃ were refused a permit, [which just gets] me₂.'

---

[1] The less obvious abbreviations used in glosses: CL 'clitic', NCL 'nonclitic', PPL 'past participle', DM 'discourse marker', PF 'perfective', RF 'reflexive'.

Patterns such as these raise several questions. Minimally, we may ask what allows the multiple readings of a single constituent, as in (1), and what regulates the combinatorial possibilities in case of multiple datives, as in (2). But these questions are also related to the broader issue of establishing general patterns in the distribution of the Czech datives.

Most of the previous work on this topic has concentrated on cataloguing the differences in meaning, generally based on interpreting individual instances of dative marking (Grepl & Karlík 1986, *Mluvnice češtiny* 1987, Janda 1993). Although some very valuable observations have been made in the process (Poldauf's 1962 work strikes me as particularly useful), the classifications themselves are not very satisfying since they give no answers to the more general questions posed above.

Shifting the focus away from the semantic nuances of individual sentences, I will take a more 'global' view and try to answer the following question: what do speakers of Czech have to know in order to successfully produce and interpret the structures shown in (1)–(2). Toward that end I will attempt (i) to clearly identify the main types of the free dative, focusing on their relationship to thematic datives,[2] (ii) to determine how free they really are, and (iii) to apply a representational model that can deal successfully with all the relevant information.[3] My analysis will be based on the hypothesis that the shifts in function and differences in distribution can be best treated as manipulations and extensions of regular linking relationships that operate elsewhere in the grammar of Czech; by 'linking' I mean the alignment between event participants, generalized as semantic roles, and their surface expression. For representational tools I will rely on Construction Grammar, a cognitively oriented, unification-based, monotonic framework in which basic units of linguistic structure are complex meaning-form pairs called grammatical constructions (Fillmore 1988, Fillmore & Kay 1995, Kay & Fillmore 1997, Fried in prep.).

---

[2] The term 'thematic' refers to nominals that must be listed in the predicate's valence.

[3] The syntactic status of comparable phenomena in Polish has received attention in Dziwirek's work (1994 and elsewhere) but her Relational Grammar-based treatment cannot be easily transferred to the Czech patterns. Her analysis works with certain theory-internal assumptions that are incompatible both with the Czech facts and the theoretical approach taken in this paper.

2. Arguments vs. Non-Arguments

Let us start by noting that some of the free datives are integrated with the rest of the sentence better than others. Intuitively, there is a difference between the datives in (3) and those in (4), depending on whether the datives figure in the question of 'who does what to whom':

(3) a. Vyrobil   mi   nové   kolo.
       make:PPL:SG:M 1SG:DAT new:ACC bicycle:ACC:SG:N
       'He built a new bicycle for me.'

   b. Spadla   mi   do   talíře   moucha.
      fall:PPL:SG:F 1SG:DAT into plate:GEN   fly:NOM:SG:F
      'A fly fell into my plate.'

(4) a. Von   ti   ani   nepozdravil!
       he:NOM   2SG:DAT   not:even   NEG:greet:PPL:SG
       '[Can] you [believe it?], he didn't even say hello!'

   b. No to   sou   mi   věci!
      DM that be:3PL   1SG:DAT things:NOM
      'Some goings-on, [what] I['m hearing]!'

The datives in (3) bear some resemblance to thematic datives in that their referents are cast as direct participants in the events described by the head predicate, either as a new owner in (3a), mimicking verbs of giving, or as an entity affected in some other way (3b), mimicking other types of dative-taking predicates. The same cannot be said about the datives in (4). Their relationship to the event of greeting in (4a) or the existence in (4b) is only that of a potential witness whose interest comes from being a participant in the discourse. This kind of dative is not a semantically motivated relation, but a discourse-level relation, representing an attitudinal use. Its function in (4a) is to get the listener's attention and, ideally, to elicit an empathetic reaction; in (4b), the speaker draws attention to his own emotional state in that piece of discourse.

   The free datives thus come in two main varieties: some look like arguments, while some do not. Poldauf 1962 makes the same observation, calling the discourse-related uses illustrated in (4) 'ethical' datives. However, this has been a rather controversial category in the literature; it is far from clear what exactly constitutes 'ethical' datives and whether or not they are viewed as distinct from other types of datives

(Berman 1982, Borer & Grodzinsky 1986, Authier & Reed 1992). In the next section, I will examine what morphosyntactic differences may follow from the proposed argument/non-argument distinction. I will refer to the discourse-level category as 'dative of empathy' (DE).

2.1. Morphosyntactic Patterning

It follows from the discourse nature of DE that it is limited to the 1st and 2nd person pronouns; DE can only refer to participants in a conversation. Notice in the examples in (5) that an attempt to substitute the pronoun *ti* used in (4a) or *mi* used in (4b) with a 3rd pers. pronoun fails:

(5) a. *(V)on   mu   ani   nepozdravil!
         he:NOM 3SG:M:DAT not:even   NEG:greet:PPL:SG

         ???

     b. *No   to   sou   jim   věci!
         DM   that be:3PL 3PL:DAT   things:NOM

         'Some goings-on, [what] they['re hearing]!'

Moreover, the pronoun can only be in its clitic form, as evidenced by (6), where the pronouns appear in their full form (*tobě* '2SG:DAT:NCL', *mně* '1SG:DAT:NCL'); the result is ungrammatical:[4]

(6) a. *Von tobě ani nepozdravil!   b. *Mně sou to věci!

No such restrictions apply to other datives, free or otherwise; non-DE nominals can always appear as independent NPs. The examples in (7) are just as well-formed as their counterparts in (3):

(7) a. Vyrobil   Petrovi   nové   kolo.
         make:PPL:SG.M Peter:DAT new:ACC   bicycle:ACC:SG:N

         'He built Peter a new bicycle.'

     b. Evě   spadla   do   talíře   moucha.
         Eve:DAT fall:PPL:SG:F into   plate:GEN fly:NOM:SG:F

         'A fly fell into Eve's plate.'

---

[4] The placement of the clitics is fixed in the second-position (defined, roughly, as following the first major constituent), while the independent forms can occur anywhere in the sentence. The word order shown in (6) thus represents only two possibilities out of many; what is crucial for the issue at hand is the fact that changes in word order will have no effect on the ungrammaticality shown in (6).

Another piece of evidence for the argument/non-argument distinction comes from the relative order of clitics in the second-position clitic cluster. It is a well-established fact that in Czech the dative must precede the accusative, while neither of these can precede the reflexive; (8) illustrates the only possible ordering (the cluster is enclosed in square brackets):

(8) Konečně [se mi   ho]   podařilo   najít.
     finally   RF   1SG:DAT 3SG:ACC:M succeed:PPL:SG:N find:INF
     'I finally managed to find him.'

If there are multiple datives in the cluster, however, their relative order appears to be sensitive to the argument/non-argument distinction. The sentences in (9) show a combination of a DE *ti* and a non-DE pronoun *mu* immediately next to each other. The linear arrangement is not free:

(9) a. Celou dobu [ti   mu]   lilo.
         whole time   2SG:DAT 3SG:DAT rain:PPL:SG:N
         '[Can] you [believe this], it was pouring the whole time he [was there].'
     b. *Celou dobu [mu ti] lilo.

As (9) shows, DE must come first for the sentence to be well-formed. This constraint is further corroborated by the examples in (10), where the two dative slots are separated by a reflexive clitic, with DE again preceding the rest (10a):

(10) a. Hrozně [ti   se mi]   točí   hlava.
         terribly   2SG:DAT RF   1SG:DAT spin:PRES:3SG head:NOM:SG:F
         'You [know what], I'm really dizzy.'
     b. *Hrozně [mi se ti] točí hlava.

We must conclude that the cluster has two distinct slots for dative pronouns, one dedicated to the pragmatically motivated dative and the other reserved for all other uses; notice that the second dative slot does not differentiate between datives that are introduced by the valence of the head predicate, illustrated by *mi* in (10), and those that are not, such as *mu* in (9). The relative order of the pronouns inside the cluster is thus as follows: [... DE Refl Dat Acc ...]. This ordering makes pragmatic sense,

of course; if the purpose of DE is to secure the listener's attention, we can expect it to come as early in the sentence as possible.

The argument/non-argument distinction can be further tested with respect to extraction possibilities in information questions or in relativization. The examples in (11) show an instance of DE: the pronoun *ti* represents an appeal to the listener and as we see in (11b), it cannot be questioned. In contrast, other free datives in the same discourse situation, exemplified in (12), pattern after thematic datives, shown in (13); in both (12) and (13), questioning of the dative referent is possible:

(11) a. Pani Nováková ti už zase nastydla!
Mrs. N. 2SG:DAT already again catch:cold:PPL:SG: F
'Imagine, Mrs. Nováková has caught a cold again!'

b. *Komu že nastydla?
who:DAT QUOT catch:cold:PPL:SG:F
'Who did you say she caught a cold on?'

(12) a. Děti mu už zase nastydly.
children:NOM 3SG:M:DAT already again catch:cold:PPL:PL
'His$_i$ kids have come down with a cold on him$_i$ again.'

b. Komu (že) nastydly (děti)?
who:DAT (QUOT) catch:cold:PPL:PL (children:NOM)
'Whose [children] (did you say) caught a cold?'

(13) a. Dali dětem obě knížky.
give:PPL:PL children:DAT both:ACC:F book:ACC:PL:F
'They gave the children both books.'

b. Komu dali obě knížky?
who:DAT give:PPL:PL:M both:ACC:F book:ACC:PL:F
'To who did they give both books?'

The difference between the datives in (11) and (12) has to do with their participant status. In (12), the dative refers to an entity ('he') that is integrated into the event as one of its participants, by virtue of being in a possessor relationship to a participant (*děti* 'children') that is directly affected by the event. Such a reading is not readily available in (11), in which the referent of *ti* has nothing whatsoever to do with Mrs. N. and

need not even know her personally. The sentence is uttered only because the speaker wants to elicit a reaction from the listener, who is not integrated into the syntactic and semantic structure of the sentence.[5]

2.2. Stylistic Restrictions

There is also stylistic evidence that the free datives do not all hold equal grammatical status. The DE variety is restricted to spoken and fairly emotional registers; found usually in exclamations, it is most naturally used in co-occurrence with features of substandard speech. This is indicated by the prothetic *v-* inserted before a word-initial *o-*, dropping the initial *j-* in the present tense forms of *být* 'be' (e.g. *'sou*, *'sme*), the adjectival endings characteristic for highly informal speech (*-ej* for nom. masc. sg.), etc., as we see in (14a), to take just one example.

A stylistically neutral version of that sentence, in (14b), sounds bizarre because of a severe clash between the pragmatic characteristics introduced by DE (highly informal) and the stylistic register indicated by the choice of lexical and morphological means (highly formal):

(14) a. Von je   ti   ten kluk   tak
          he   be:PRES:3SG 2SG:DAT that boy:NOM:SG so

          zdvořilej!
          polite:NOM:SG:M
          'That kid is so polite you [wouldn't believe it]!'

     b. Ten hoch   je   ti   tak zdvořilý!
         that boy:NOM:SG be:PRES:3SG 2SG:DAT so   polite:NOM:SG:M

The overall effect of (14b) is either a highly affected speech that is clearly out of place, or suggests a learner who has not yet mastered the intricacies of the diglossia. No such incompatibilities in register surface with the other datives.

---

[5] The sentence in (11a) can, in principle, have another interpretation: Mrs. N. can be in-terpreted as being in a relationship to the referent of *ti* 'you', for example in a situation where 'you' is a doctor and 'Mrs. N' his/her patient. By uttering (11a), then, the speaker presents their relationship as one of (loosely understood) possession, and the sentence can be read along the lines of 'Mrs. N., that patient of yours, got sick on you again, [and you'll have your hands full]'. On this reading, parallel to (12), extraction is possible.

2.3. Semantic Restrictions on Head Predicates

As a discourse-level category, DE can occur with any kind of predi-cate:
its semantically independent status cannot clash with the semantics of the
rest of the clause. But the non-DE datives are excluded from ap-pearing
in certain semantic contexts. The most striking example of this
distributional difference is provided by experiential and certain nominal
predicates, illustrated in (15) and (16), respectively, by comparing 2nd
and 3rd pers. pronouns in otherwise identical structures. Either sentence
is grammatical only if the dative can be interpreted as DE (2nd pers.):

(15) Viděli   sme   vám/*mu   i   slony!
      see:PPL:PL AUX:1PL 2PL/*3SG:M:DAT also   elephants:ACC

      (i) 'Imagine, we even saw some elephants!'
      (ii) *'We even saw some/his elephants on him!'

(16) Ten kluk   je   ti/*jim   tak zdvořilej!
      that boy:NOM:SG be:PRES:3SG 2SG/3PL:DAT   so   polite

      (i) '[I'm telling] you, that kid is so polite!'
      (ii) *'That kid of theirs is so polite!'

In contrast, other clauses, structurally the same as (15), permit either type
of extra dative, leading to multiple interpretations:

(17) Krmili   sme   vám/mu   i   slony.
      feed:PPL:PL AUX:1PL 2PL/3SG:M:DAT also   elephants:ACC

      (i) 'Imagine, we even fed some elephants!'   (DE)
      (ii) 'We even fed some elephants on/for you/him!'   (non-DE)
      (iii) 'We even fed your/his elephants on/for you/him!' (non-DE)

As I have argued in detail elsewhere (Fried in press), the distribution of
the non-DE datives is sensitive to the meaning of the head predicate.
Without presenting all the supporting arguments, I will summarize only
those parts of the analysis that are relevant to the issues pursued here.

The heart of the problem can be illustrated by the set of examples in
(18), all based on the verb *hořet* 'burn', an intransitive predicate of the
non-agentive variety. Its valence does not contain any dative-marked
argument, as shown in (18a); the sentences in (18b-c) contain an extra
dative neither of which can be classified as DE. Instead, they refer to an
event participant that is somehow involved in the event of burning:

(18) a. Hoří   to?
          burn:PRES:3SG   it:NOM
          'Is it burning?'

      b. Hoří   mu   to?
          burn:PRES:3SG   3SG:DAT   it:NOM
          'Does he have the fire going?' (lit. 'is it burning on/for him?')

      c. Shořela   jim   knihovna.
          PF:burn:PPL:SG:F   3PL:DAT   library:NOM:SG:F
          'Their library burned down on them.'

Both of the datives in (18) are semantically related to the thematic datives of verbs that introduce datives as their core arguments:

(19) a. Verbs of giving and belonging;

      b. Experiential predicates, such as *ulevilo se, otrnulo* 'a relief came', *líbit se* 'be appealing', or the idiomatic expression in (10), based on the verb *točit se* 'spin';

      c. 2-place predicates that express an action performed for someone's benefit or to someone's detriment, such as *pomoci* 'help', *ublížit* 'harm', *vládnout* 'rule', *věřit* 'trust', *překážet* 'be in the way'.

The dative is interpreted as a 'recipient/owner' in (19a) and an 'experiencer' in (19b), both of which are commonly treated as types of goals. In (19c) the role of the dative hints at a special kind of affectedness ('indirect' or 'mental', perhaps), reminiscent of the traditional notion of *dativus (in)commodi*. This semantic property is also consistent with broadly understood goals, and distinct from the affectedness associated with patients (those must be marked by the accusative in Czech). Whatever theoretical apparatus we choose to employ to define the semantic distinctions necessary for the predicates in (19), it is safe to claim that the grammar of Czech makes use of a basic linking relationship that associates general goal-ness with the dative form. Using a very simplified version of the Construction Grammar formalism, we can represent this relationship in the form of a linking construction (Figure 1). The job of this construction is to link a valence element that is semantically of the GOAL variety to the dative case, whenever such an

element is encountered (the small caps indicate that the semantic role is only broadly defined, covering various possible readings of goal-ness, including the 'affected dative' reading, which is central to my analysis).[6]
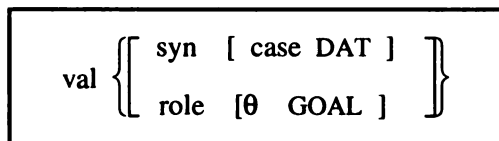
$$
val \left\{ \begin{bmatrix} syn & [\ case \ DAT \ ] \\ role & [\theta \quad GOAL \ ] \end{bmatrix} \right\}
$$

Figure 1. Dative Linking Construction.

The dative in (18b) represents a special modification of this general linking relationship (and, specifically, its 'affected' instantiation) that can be used on its own, independently of any lexical predicate; I label it provisionally a 'dative of interest' (DI), following Poldauf 1962. It is used when an extra participant – an interested party – is introduced, one that is affected by the end result of whatever situation the head predicate describes. It is simply added as an adjunct to the valence of the head predicate (cf. Kay & Fillmore 1997) and then behaves like any other argument or adjunct, fully integrated into the sentence, semantically and syntactically. It is important to note, however, that DI is not simply identical with the affected reading of the thematic dative subsumed under the relationship in Figure 1. Among other things, the referent of DI must be animate, while thematic datives need not be. It is possible to say *pomoci městu* 'help the city:DAT', *vzdorovat nepřízni osudu* 'act in defiance of one's fate:DAT', *důvěřovat zprávám* 'trust the news:DAT', *ublížit obrazům* 'cause damage to [the] paintings:DAT', etc., but it is not possible to say the following,

(20) *Praze   už   zase   prší!
       Prague:DAT   already   again   rain:PRES:3SG
      'Prague has rain yet again!'

---

[6] The following abbreviations and symbols will be used in the diagrams: val 'valence', prg 'pragmatics', sem 'semantics', cat 'lexical category', Part. 'event participant', θ 'thematic', the symbol # is a unification index, a set of brackets [] encloses attribute-value pairs, a set of curly brackets {} encloses valence elements (arguments and adjuncts), and the downward arrow indicates that the semantics of the construction as a whole incorporates the semantics of the constituent marked by the upward arrow.

even though it is structurally the same as (21):

(21) Už   nám   zase   prší!
     already   1PL:DAT   again   rain:PRES:3SG
     'We have rain yet again!'

In effect, DI narrows down the scope of the basic linking relationship by specifying this idiosyncratic constraint, in addition to listing its other properties (pragmatic and semantic) that set it apart from the regular linking construction. All of this is shown in Figure 2.

prg	['introduce an interested party']
sem	['circumstances described by the predicate have significant consequences for the interested party, whose referent is not in control of the event']
val	{ [syn [case DAT]] [sem [animate +]] [role [θ 'interest']] }

Figure 2. Dative of Interest Construction.

The example in (18c) adds another twist, namely a possessive relationship between the dative (the possessor) and another entity in the sentence (possessum); (18c) cannot be read as 'Somebody else's library burned down on them'. Thus, while the dative in (18b) represents plain affectedness (or 'interest'), (18c) represents affectedness overlaid with possession; I will refer to this dative as 'affected possessor' (AP). DI and AP clearly share a number of properties – in fact, everything that is true about DI as represented in Figure 2 also holds for AP, but AP adds specifications of its own that cannot be inferred from anything in the DI construction. In particular, the relationship between the dative possessor and the possessum is constrained in several ways.

(i) Structurally, AP cannot be in a possessive relationship with transitive subjects and only rarely works with unergative subjects. This patterning is consistent with crosslinguistically observed constraints on

APs (cf. a number of papers in Payne & Barshi in press). (ii) The possessum must be construable as an affected entity. Hence, predicates that do not supply an affected argument, such as verbs of perception exemplified in (15) or unergative verbs, tend to be excluded from the AP use, while semantically transitive verbs, such as *krmit* 'feed' in (17), or intransitive verbs with clearly affected subjects, such as *hořet* 'burn' in (18c), welcome APs. (iii) If there are multiple nominals that satisfy the structural and semantic restrictions, possessive construal is determined by the potential possessum's relative place on the possessive hierarchy, regardless of the grammatical relation of that nominal. Body parts rank the highest and non-possessible entities the lowest; an example of this situation is in (3b), where a dish (optional locative oblique) presumably ranks higher in possessibility than an insect (subject).

In order to ensure that these constraints are satisfied, a special construction must be posited, shown in Figure 3 below. AP's relationship to DI is expressed through an inheritance link, while the rest of the representation addresses properties specific to AP: it adds to its overall semantics a possessive frame with the participants Possessor and Possessum, thus adding a possessor dimension to the interpretation of the dative, and it specifies the mapping possibilities for the argument that will be supplied by the head predicate (in the inner box) and will serve as the possessum; the mapping is indicated by the unification indexes (#). The informal label 'non-agentive' in the valence of this construction indicates that the prospective possessum is semantically constrained: it can be anything except an agent[7].

2.4 Summary

All the structural, semantic, and pragmatic differences confirm that there are indeed several distinct instantiations of the free datives and that they form a network of related grammatical constructions. In the center is a canonical association between a special kind of affectedness (subsumed

---

[7] This is different from the analysis advocated within Relational Grammar, suggested by a reviewer, that the possessum can only be an unaccusative object; on that view, sentences such as (3b), among others, would be ruled out, unless we resort to circular definitions of the relevant grammatical entities. The diverse Czech patterns require relatively fine *semantic* distinctions to capture the generalization accurately.

under goal-like roles) and the dative form, which represents a very salient linking relationship in Czech. This meaning-form pair has apparently developed into two modifications that function independently as specialized linking constructions, DI and AP; they can be added to valences that do not inherently contain any dative argument. Both of them share morphosyntactic properties with thematic datives, but differ in their semantics and/or in their interaction with the rest of the sentence in which they appear. The third type, DE, is the result of an extension from the thematic domain into the discourse domain, in which the semantic dimension of the original meaning-form relationship is re-analyzed in discourse terms. By retaining the form, DE still carries with it, at least implicitly, a conceptual link to its canonical 'affectedness' in-terpretation, but has acquired a new grammatical status shaped by other meaning-form associations. In the next two sections, I will examine how this analysis applies to the introductory examples in (1) and (2).

inherit DI

syn   [head [cat V]]

sem ↓4   ⎡ frame   POSSESSION   ⎤
             ⎢   ⎥
             ⎢ Possessor   #1 [ ]   ⎥
             ⎢   ⎥
             ⎣ Possessum   #2 [ ] & #3 [ ]   ⎦

val   { #3 [role [θ 'non-agentive']] }

             ┌───┐
             │ syn   [head [cat V]]   │
             │   │
             │   ⎡   frame   X ⎤   │
             │ sem ↑4   ⎢   ⎥   │
             │   ⎣   Part. #3 [ ] ⎦   │
             │   │
             │ val   {… #3 [ ] …}   │
             └───┘
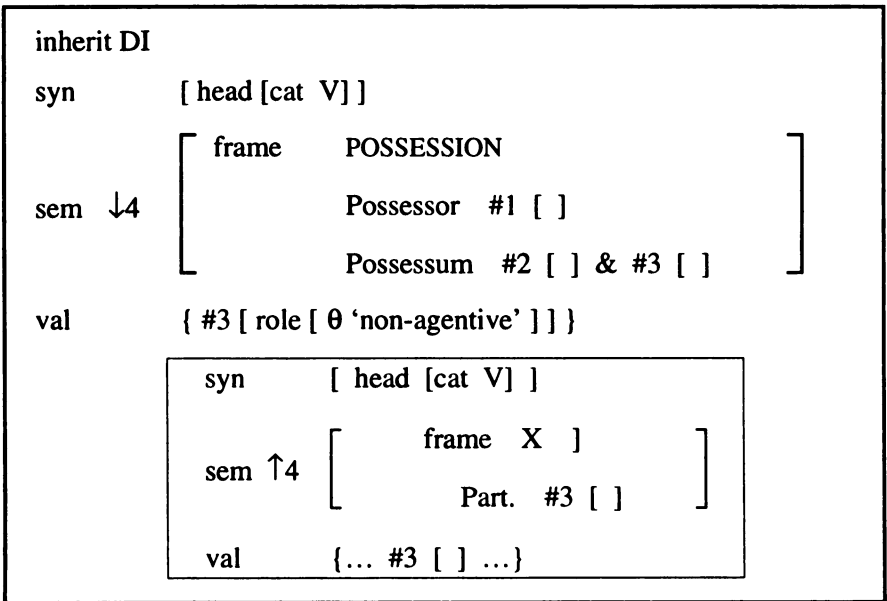
Figure 3. Affected Possessor Construction.

3. Constructional Ambiguity

The sentence in (1), with its three possible readings, illustrates some of
the reasons why the traditional descriptions emphasize the classificatory
difficulties. One of the readings (1-iii) is clearly distinct from the rest
along the distinction between DE vs. non-DE. Addressing the remaining
two readings is somewhat trickier.

It is fairly common for the DI and AP interpretations to apply to the
same sentence containing a free dative. Consider the following example:

(22) Obě   knížky   jsem   mu   přeložila.
      both:ACC:F book:ACC:PL:F AUX:1SG 3SG:M:DAT translate:PPL:SG: F

      (i) 'I translated both books for him.'   (DI)
      (ii) 'I translated both of his books for him.'   (AP)

On the basis of sentences such as (22), the issue might be, perhaps, dis-
missed as a case of semantic vagueness: in both interpretations the
referent of the dative is a beneficiary of the event and the only difference
concerns the question whether we choose to add a possessive dimension
or not, as a pragmatically motivated inference. Valuable evidence to the
contrary is provided by other examples, including the sentence in (1),
here repeated as (23a):

(23) a. (V)on   ti   vzal   i   chleba.
          1SG:NOM 2SG:DAT take:PPL:SG:M also   bread:ACC:SG:M

          (i)'He also picked up some bread for you. (DI)
          (ii)'He took away your bread, too.'   (AP)

      b. Tu   motorku   mu   nikdo
          that:ACC:SG:F motorcycle:ACC:SG:F 3SG:M:DAT nobody:NOM

          nekoupí.
          NEG:buy:FUT:3SG

          (i) 'Nobody will buy him that motorcycle.   (DI)
          (ii) 'Nobody will buy his motorcycle. (AP)

Here the dative acquires a distinctly different flavor between the DI and
AP readings. As a DI, the dative is a beneficiary that may (23a-i) or may
not (23b-i) be coming into possession as a result of the event, thus
mimicking either verbs of giving or *dativus* (*in*)*commodi*, respectively.

Thus, DI itself would seem to fluctuate between possessive and non-possessive reading, which clearly contributes to the traditional impression of hopelessly tangled overlaps in the uses of free datives. However, since this indeterminacy follows from the fact that possessive relationships are commonly left to context in Czech, it is only incidental and does not interfere with the basic character of the DI construction.

The AP reading represents a distinctly different configuration, in which the dative *is* the possessor a priori, and the event expressed by the head predicate in some way affects that possessor. The effect may be a loss of possession, as in (23), but not necessarily, as in (17) or (22); that will depend on the lexical meaning of the head predicate. Thus, the effect of differentiating between DI and AP is just subtler in (22) than in (23), but not fundamentally different: in its DI reading, the beneficiary of the translating event is not necessarily the owner of the translated material, whereas in the AP reading, he necessarily is.

Moreover, DI and AP differ sharply in the availability of prepositional paraphrases. DI can be sometimes paraphrased by a phrase headed by the preposition *pro* 'for' (as an explicit expression of the possessive construal) or *za* 'instead of' (as an explicit expression of the non-possessive construal). In contrast, a prepositional paraphrase of AP is usually impossible; that is the case in (17) and (22). But even when the AP dative can be substituted by a prepositional phrase headed by *od* 'from', it cannot be done without affecting the meaning, contrary to Janda's 1993 assessment. For example, *vzal ti chleba* is not equivalent to *vzal od tebe chleba*: the former entails harm to the possessor ('he stole your bread'), while the latter unequivocally implies that an offer was involved ('he accepted bread from you').[8]

Thus, our initial example in (1) and other such sentences can have ultimately more than two readings in the non-DE category, but only two of them represent distinct grammatical constructions, namely DI and AP. Unlike the potential vagueness associated with the DI pattern, as

---

[8] NP-internally marked possessors (whether pronominally or nominally) are not truly paraphrases of APs since they lack the affectedness feature and cannot, therefore, be used as adequate substitues of APs. The opposition between APs and internally expressed possessors in Czech is consistent with the pattern that has been reported for other languages as well (Croft 1985, O'Connor 1994, Shibatani 1994, Frajzyngier 1997).

discussed above, the DI vs. AP distinction represents a case of genuine ambiguity, as further evidenced by the following utterance (pragmatically cumbersome and unlikely, as such 'test' examples must be, but semantically coherent):

(24) Vzal   jí_i   sušenky   a   nevzal
      take:PPL:SG:M 3SG:F:DAT cookie:ACC:PL:F and NEG:take: PPL:SG:M

      jí_i   je.
      3SG:F:DAT 3PL:ACC

      'He picked up [some] cookies for her_i and he didn't take them away from her_i.'

The question is how to classify this kind of ambiguity. It cannot be structural since both readings involve the same structural pattern: an extra dative added to a transitive verb. But it is not straightforwardly semantic either, or at least not in the commonly understood sense, as this is evidently not a case of two different meanings associated with a single lexical item. Rather, it is a case of two different meanings that follow from two different configurations of a particular linking relationship. The problem cannot be reduced to simply treating the linking as having a vague semantic specification (say, 'affectedness') which would then allow multiple interpretations depending on context. We must take into account the fact that one of the interpretations is necessarily co-construed possessively, while the other is not. I propose that the way out of this complication is through positing 'constructional' ambiguity, as a specific combination of certain semantic and structural properties. Put differently, the ambiguity here has its source in two instantiations of a mapping relation: one that is idiosyncratically tied in with a specific configuration of other sentence elements (AP) vs. one that does not impose any further alignment constraints (DI).

In comparison, the difference between DE and non-DE readings could be treated as a straightforward case of structural ambiguity, since DE clearly holds a different syntactic status. But since its structural representation in Construction Grammar (which, moreover, cannot be divorced from its pragmatic specification) constitutes a construction as well, it makes little difference in this framework whether we refer to this particular ambiguity as 'structural' or 'constructional'.

To summarize, we can find at most three-way ambiguities in case of 1st and 2nd pers. clitics (DE vs. DI vs. AP), otherwise only a two-way ambiguity between interest (DI) and ownership (AP).

4. Constraints on Multiple Datives

The factors that regulate the use of multiple datives in a sentence also follow from the semantic/pragmatic properties of each dative construction, corroborated by the morphosyntactic tests discussed earlier. DI, AP, and thematic datives associated with the verb classes in (19) all represent subtle variations on the same underlying semantic relation and are, therefore, mutually exclusive. The examples in (25) illustrate the impossibility of combining either a thematic dative (of the 'recipient' kind) with a free dative in (25a) or two free datives of the non-DE variety in (25b); it is, in fact, very difficult to construct any interpretation for these sentences, even hypothetically:

(25) a. *Ivan   jim   dal   Aleně

       Ivan:NOM 3PL:DAT give:PPL:SG:M Alena:DAT:SG

       peníze.

       money:ACC:PL:M

       (i) *'On their behalf, Ivan gave Alena some money.'

       (ii) *'Ivan gave them some money on Alena's behalf.'

    b. *Ivan   jim   zryl   Aleně

       Ivan:NOM 3PL:DAT dig:up:PPL:SG:M Alena:DAT:SG

       zahradu.

       yard:ACC:SG:F

       (i) *'Ivan dug up Alena's yard for them.'

       (ii) *'Ivan dug up their yard for Alena.'

The ungrammaticality of such combinations offers additional evidence that the affectedness manifested by DI and AP must be related to thematic datives, rather than to transitive patients, since the datives cannot appear in the same sentence without violating the bi-uniqueness condition. In contrast, datives co-occur freely with affected patients.

Evidently, the same restriction does not play a role in the distribution of DE, since DE is independent of the valence of the head predicate. As a result, both types of DE can co-occur and both can, of course, appear in

combination with any of the non-DE datives, whether core or free. This
means that there can be up to three dative nominals in a single sentence,
two of which must be of the DE variety. That is the case of the example
in (2), where the first two datives can only be interpreted as referring to
the listener and to the speaker, respectively, while the third one is a core
argument of the verb *dát* 'give'. The following example shows the same
pattern but with AP as the third dative:

(26) Nakonec ti   mi   eště   dětem   spravil
      at:the:end 2SG:DAT 1SG:DAT still children:DAT fix:PPL:SG:M
      hračky!
      toy:ACC:PL:F
      'And on top of that, he even fixed the kids' toys – my [goodness,
      can] you [believe it]?'

There are, however, some limits to combining DE with non-DE
nominals. Notice that in the examples (2) or (26) each of the datives has
a distinct referent. However, non-DE datives can also refer to 1st and 2nd
person and appear in the clitic form, which raises the question of what
happens when we combine a DE and a non-DE both referring to the same
entity. It is, perhaps, possible to imagine a context in which a (highly
emotional) exclamation such as the one in (27), accompanied by a
particular intonation contour and other prosodic features, would be
plausible; the first dative is DE and the second is a core argument of the
verb *povést se* 'turn out well':

(27) ²Ten   ti₁   se   ti₂   ale   poved!
      that:NOM:SG:M 2SG:DAT RF 2SG:DAT DM come:out:PPL:SG:M
      '[Look₁ at this] – you₂ did a *great job* on that one!'
      (lit. '[Let me tell] you₁, that one turned out so well on you₂')

But such combinations are marginal at best, even more so with the 1st
pers. pronoun. The question is whether the awkwardness follows simply
from repeating the same clitic form, or from pointing to the same referent
that is necessarily cast in two different roles, thus giving the appearance
of coreference where coreference is in fact impossible.

    Taken superficially, the former would seem a plausible explanation,
especially in the light of the following patterns. The example in (28) is

structurally the same as (27) but happens to have a non-reflexive verb. As a result, the two 2nd pers. clitics are placed next to each other, rendering the sentence considerably less defensible than the already questionable one in (27):

(28) *Ten   ti   ti   pomoh!
       that:NOM:SG:M   2SG:DAT   2SG:DAT   help:PPL:SG:M

      '[Look at that], he really helped you, didn't he?'

On the other hand, if the non-DE pronoun is in the non-clitic form, as in (29), the fact that we have two 2nd pers. datives in a sentence seems suddenly much less of a problem:

(29) No tam ti   by   byla   zima i   tobě!
       DM there 2SG:DAT:CL COND   be:PPL:SG:F cold also SG:DAT:NCL

      '[What can I tell] you, even *you* would've been cold there.'

It would be tempting to conclude that it is indeed the repetition of the form that causes the conflict and that (27) is somewhat better than (28) only because the sequence *ti ti* is broken up by another clitic in (27). Nonetheless, given that neither (27) nor (29) is likely to be equally acceptable to all speakers and that similar patterns are extremely rare to begin with, I suspect that the conflict does go deeper and has to do with casting a single referent simultaneously in two very different, and yet partially related, roles.[9] I leave this question open for now.

5. Conclusions

The purpose of this paper was to identify properties that are crucial for establishing tractable relationships among the various types of free

---

[9] Especially considering the fact that repetition of phonetically identical material does not create problems elsewhere, e.g.

(i) On   se   se   mnou   neporadil.
     SG:NOM   RF   with   1SG:INS NEG:consult:PPL:SG:M

     'He didn't consult with me.'

(ii) Proč   by   ti   ti   chlapci nepomohli?
     why   COND   2SG:DAT   those:NOM boys:NOM
          NEG:help:PPL:PL

     'Why wouldn't the boys help you?'

datives in Czech. On the basis of semantic, pragmatic, and syntactic criteria, such as cliticization, stylistic variation, and predicate valence, I conclude that there is a clear distinction between two major types, each type being 'free' only in a limited sense: DE is semantically free but pragmatically and morphosyntactically restricted (in its shape and placement), while DI and AP are pragmatically and morphosyntactically free but semantically restricted (in their sensitivity to the valence of the head predicate). The former behaves as a non-argument, while the latter two display the behavior of regular arguments.

In identifying these three basic types, my analysis does not deviate significantly from most of the standard classifications of possible dative uses. However, through the systematic comparison of their behavior we can better address the more elusive question of what exactly they share and where they differ, so that we can better understand and make a more precise statement about the overlaps and uncertain boundaries that have plagued the traditional approaches. The fact that the boundaries are somewhat fluid is not in dispute, of course, but this alone does not invalidate the hypothesis central to cognitively oriented approaches that speakers rely on prototypical specifications of grammatical patterns as a kind of 'blueprint'. The constructions discussed here are to be understood as such 'blueprints' and it is in the nature of the constructional approach that specific uses of any construction can be stretched, to some degree, beyond their prototypical instantiations. Evidently, when there are properties shared across constructions, the possibility of crossing over from one pattern to another is relatively great, leading to fuzziness along the edges. But that is very different from concluding that tangible boundaries cannot be established.

The proposed analysis also speaks to at least two issues of more general interest, namely the character of 'linking' as a tool of grammar and the kind of theory in which the patterns discussed here can be adequately represented.

(i) I based my analysis on the assumption that there is a canonical relationship between semantic roles and their syntactic expression; this alignment is represented in the form of 'linking constructions' that mediate between the predicate valence and sentence structure. This canonical relationship can crystallize into an independent grammatical pattern, creating a 'free-floating' linking construction that can become

specialized (i.e. restrict its application) and even spawn other modifications of itself. Linking constructions thus may come in different shapes and serve various functions beyond just mapping lexically specified argument structures to their surface expression.

(ii) The analysis makes a case for a framework that can accommodate instances in which sentential structure is not just a projection of the head predicate but may integrate features supplied by a variety of sources (predicate valence, constructional requirements, pragmatic conditions, discourse structure[10]), all serving as equal contributors in building up larger grammatical units. The layered architecture of Construction Grammar, with its built-in mechanism for capturing in a principled way the features in which individual constructions differ and in which they converge, proves to be particularly suitable for addressing data known for overlaps, shifts, and reinterpretations.

References:

Authier, J-M. and L. Reed. 1992. "Case Theory, Theta Theory, and the distribution of French affected datives." *West Coast Conference on Formal Linguistics* 10, 27-39.

Berman, R.A. 1982. "Dative marking of the affectee role: data from Modern Hebrew." *Hebrew Annual Review* 6, 35-59.

Borer, H. amd Y. Grodzinsky. 1986. "Syntactic cliticization and lexical cliticization: the case of Hebrew dative clitics." In H. Borer (ed.), *Syntax and Semantics* 19, 175-217. New York: Academic Press.

Croft, W. 1985. "Indirect object 'lowering'." *Berkeley Linguistic So-ciety* 11, 39-51.

Dziwirek, K. 1994. *Polish Subjects*. Garland Publishing.

Fillmore, C.J. 1988. "Mechanisms of construction grammar." *Berkeley Linguistic Society* 14, 35-55.

Fillmore, C.J. and P. Kay. 1995. *Construction Grammar*. Ms. University of California at Berkeley.

---

[10] The discourse dimension of what I label AP has been recently discussed by King (1998) who also argues for a theoretical approach that can incorporate discourse and pragmatic consideration. It has been shown repeatedly in the work of others (most recently Michaelis & Lambrecht 1996) that a constructional approach can serve that purpose well.

Frajzyngier, Z. 1997. "EP and NI as coding means: a system inter-actional approach." Paper presented at the Oregon Conference on External Possession and Related Noun Incorporation, Eugene, OR.

Fried, M. In press. "From interest to ownership: a constructional view of external possessors." In D. Payne & I. Barshi (eds.).

Fried, M. In prep. *Construction Grammar and the Syntax-Semantics Interface*.

Grepl, M. and P. Karlík. 1986. *Skladba spisovné češtiny*. Praha: SPN.

Janda, L.A. 1993. *A Geography of Case Ssemantics: the Czech Dative and the Russian Instrumental*. Mouton de Gruyter.

Kay, P. and C.J. Fillmore. 1997. "Grammatical constructions and lin-guistic generalizations: the *What's X doing Y* construction." Ms. University of California at Berkeley.

King, K. 1998. "Discourse vs. pragmatics: the hierarchical organization of possession". Paper presented at the annual meeting of AATSEEL in San Francisco.

Michaelis, L. and K. Lambrecht. 1996. "Toward a construction-based theory of language function." *Language* 72, 215-247.

Mluvnice češtiny III (The Czech Grammar). 1987. Praha: Academia.

O'Connor, M.C. 1994. "The marking of possession in Northern Pomo." *Berkeley Linguistic Society* 20, 387-401.

Payne, D.L. and I. Barshi (eds.). In press. *External Possession Con-structions*. Amsterdam: John Benjamins.

Poldauf, I. 1962. "Místo dativu ve výstavbě věty." *Acta Universitatis Carolinae, Slavica Pragensia* IV, 335-345.

Shibatani, M. 1994. An integrational approach to possessor raising, ethical datives, and adversative passives." *Berkeley Linguistic Society* 20, 461-486.

Dept. of Linguistics
2337 Dwinelle Hall
University of California, Berkeley
Berkeley, CA 94720
mirjam@pacbell.net

Opaque Insertion Sites in Bulgarian

Ben Hermans
Tilburg University

1. Introduction

In Bulgarian syllabic consonants do not exist. Whenever a morpheme consists only of consonants at the underlying level a schwa is inserted enabling the syllabification of all consonants. Under certain conditions the position of this epenthetic schwa is opaque. Scatton (1975, 1984) has suggested that this type of opacity is caused by a following 'front' jer (phonetically realized as [e]), or by a following 'back' jer (phonetically realized as [ə]).[1] Evidence for the latter, however, is extremely scarce. I propose, therefore, that the position of epenthetic schwa is opaque only before a front jer. I then demonstrate that the opaque position of epenthetic schwa before a front jer provides evidence for Sympathy Theory developed in McCarthy (1997).

In the second section I briefly sketch the essential aspects of schwa epenthesis. Also in the second section I suggest that the position of epenthetic schwa is opaque before a syllable containing a front jer. In the third section I demonstrate that the commonly accepted ways to explain opacity in Optimality Theory (henceforth OT) are not satisfactory. These are accounts based on Uniform Exponence and Output-Output-Faithfulness. In the fourth section I will briefly present an analysis of Bulgarian jers. This is necessary in order to pave the way for the fifth section, where I show that an account in terms of Sympathy Theory captures all aspects of this particular opacity effect in Bulgarian.

2. The Variable Position of Schwa

In Bulgarian a schwa and an adjacent liquid can exchange their position. The following examples are illustrative.[2]

---

[1] The term 'jer' as used and defined in this paper is not intended necessarily to bear any relationship to the historical Slavic jers (reduced vowels), or to rules governing the reflexes of the historical jers in modern Slavic languages.

[2] All Bulgarian data in this paper are taken from Scatton (1974) or (1984).

(1)   **Masculine nouns**

Indef. sg.		Indef. pl.	Def. sg.
vrəx	'top'	vərxove	vərxət
grək	'Greek'	gərci	gərkət
grəb	'back'	gərbove	gərbət
grəm	'thunder'	gərmove	gərmət

Feminine nouns

Indef. sg.		Indef. pl.	Def. sg.
vrəv	'string'	vərvi	vrəvta
grəd	'bosom'	gərdi	grədta
krəv	'blood'	kərvi	krəvta
skrəb	'sorrow'	skərbi	skrəbta

Forms like those in (1), where the position of schwa varies in the paradigm, contrast with forms where schwa has a fixed position. Examples of this type are given in (2). Notice that in these forms the linear order of the schwa and the liquid as it occurs in the indefinite singular is identical to the order of these segments in the other morphological categories.

(2)   **Masculine nouns**

Indef. sg.		Indef. pl.	Def. sg.
prəč	'male goat'	prəčove	prəčət
vəlk	'wolf'	vəlci	vəlkət
sərp	sickle'	sərpove	sərpət
xəlm	'hill'	xəlmove	xəlmət

Traditional analyses claim that schwa is already present at the underlying level in morphemes of type (2). Morphemes of type (1), on the other hand, lack a schwa at this level. To enable the construction of a syllable a schwa is inserted. The position where it is inserted is determined by the environment. As the examples in the second column in (1) demonstrate, schwa is inserted *before* the liquid if no other consonant follows the liquid in the same syllable. In other cases it is inserted *after* the liquid. Descriptions of this nature can be found already in Kostov (1939), Andrejčin (1944), Stojanov (1964) and Aronson (1968).

The position of the epenthetic schwa can easily be accounted for in OT. It is clear that schwa insertion avoids a complex onset; it is better to syllabify an underlying form like *vrxove*, given in (1), as *vərxove* than as *vrəxove*. This means that the constraint NOCOMPLEXONSET must rank higher than the constraint which avoids codas. The following tableau demonstrates this:

(3) NOCOMPLEXONSET » NOCODA

vrxove	NOCOMON	NOCOD
☞ vərxove		*
vrəxove	*!	

The candidate that does not violate NOCOMON is the one that is realized (the optimal candidate, marked with a pointing finger).[3] This, then, proves that NOCOD must be ranked lower than NOCOMON. It is also evident that a consonant cluster in coda position is avoided even if this leads to a complex onset. We thus postulate that the constraint NOCOMCOD is ranked higher than the constraint NOCOMON. This is shown in the following tableau:

(4) NOCOMPLEXCODA » NOCOMPLEXONSET

vrx	NOCOMCOD	NOCOMON
☞ vrəx		*
vərx	*!	

For morphemes like those in (2), where the position of schwa is fixed, the constraint LINEARITY is important. This constraint penalizes representations where segments leave their underlying position. LIN must be

---

[3] Here are other aspects of the tableau that perhaps need to be made clear. A constraint, that is ranked higher is written to the left of a constraint that is ranked lower, and an unbroken line separates them. The underlying form is presented in the leftmost upper cell. Below it the surface candidates are given. A fatal violation is marked with an exclamation mark. Once a candidate receives an exclamation mark for a given constraint all the lower constraints are irrelevant. This is indicated by the shaded cells.

ranked higher than the constraint NOCOMCOD. This is shown in the
following tableau:

(5)   LINEARITY Ĺ NOCOMPLEXCODA

vlk	LIN	NOCOMCOD
☞ vəlk		*
vlək	*!	

Although the candidate *vəlk* violates NOCOMCOD, it is nonetheless
optimal, because its rival *vlək* violates LIN.

So far we have seen that the four constraints regulating the distri-
bution of schwa are ranked as follows.

(6)   LIN » NOCOMCOD » NOCOMON » NOCOD

This hierarchy accounts for the *transparent* position of epenthetic schwa.
However, under certain conditions the epenthetic schwa appears in an
opaque position. To see this, consider the following examples:

(7) **Masculine nouns**   **Derived adjectives**

Sg.	**Pl.**		**Masc. sg.**	**Fem.sg.**
vrəx	vərxove	'summit'	vrəxen	vrəxna
grəd	gərdi	'bosom'	grəden	grədna
krəv	kərvi	'blood'	krəven	krəvna
skrəb	skərbi	'sorrow'	skrəben	skrəbna

In these forms schwa is not underlying, because its position is variable.
On the basis of the nouns in (7) it is possible to form adjectives by
adding -*(e)n* (cf. the two columns on the right in (7)). When this happens,
schwa appears at the end of the syllable in the masc. sg. (cf. the third
column in (7)). This is rather surprising. We would expect it to appear
before the liquid, because that avoids a complex onset.

Scatton claims that this type of opacity is attested if a suffix
containing a jer follows the morpheme which contains the liquid. A jer is
a vowel that alternates with zero. In Bulgarian there are two jers: a
'front' jer and a 'back' jer. A front jer is an *e* that alternates with zero; a
back jer is a schwa that alternates with zero. The forms in the third and
fourth columns in (7) are examples of a front jer. These forms contain the

suffix -*(e)n*. The vowel of this suffix must be a front jer, because it is realized as the front mid vowel in the nom. sg., whereas it is not realized at all in the fem. sg.

It must be mentioned that, apart from -*(e)n*, there are very few jer-containing suffixes that occur in an environment in which all the conditions relevant for opacity are met; in other words, one hardly finds suffixes containing a jer which follow a purely consonantal base. One of the rare cases is -*(ə)k*, which is only in a very few cases combined with a consonantal base. Notice that the vowel of this suffix must be a back jer, because here it is a schwa that alternates with zero. In section 4 I will come back to the distinction between the two jers. In (8) I give an example where -*(ə)k* indeed triggers opaque schwa epenthesis:

(8) **Masculine noun**   **Derived adjective**

Sg.	**Pl.**		**Masc. sg.**	**Fem.sg.**
grəm	gərmove	'thunder'	grəmək	grəmka

Another case is *dərzək* ('sharp, masc. sg.'), where -*(ə)k* is added to the root *drz*. Here schwa is in the regular, transparent position.

Among the clitics, however, one does find a morpheme that is quite frequently combined with a consonantal base. This is the definite article -*(ə)t*. Its vowel must be a jer, because it alternates with zero. Relevant examples have already been given in (1), where the forms in the third column show that the schwa of the clitic disappears in the feminine. Below I demonstrate what happens when -*(ə)t* is added to a masculine singular noun ending in a consonant:

(9) **Indef. sg.**   **Indef. pl.**   **Def. sg.**

vrəx	vərxove	'summit'	vərxət
grəb	gərbove	'back'	gərbət
grək	gərci	'Greek'	gərkət
grəm	gərmove	'thunder'	gərmət

These examples clearly demonstrate that the clitic -*(ə)t* does not trigger opaque schwa insertion in the preceding syllable. Rather than opaque *vrəxət*, for instance, we get transparent *vərxət*.

So far we have seen that there is only one jer suffix, -*(e)n*, that is relatively frequently attested in the relevant environment. Scatton inter-

prets this in the maximal general way and claims that *all* jer suffixes trigger opaque schwa insertion.[4] In Scatton's view the morpheme *-(ə)t* does not trigger opacity because it is a clitic. My interpretation differs from Scatton's. I claim that all and only morphemes with a *front* jer trigger opaque schwa epenthesis in the preceding syllable. In effect this entails that only *-(e)n* triggers it, because *-(e)n* is the only morpheme which occurs with some frequency in the relevant environment (i.e. after a purely consonantal base) and which also contains a front jer. In this view *-()t* does not trigger opacity, not because it is a clitic, but because it contains a *back* jer (i.e. a schwa alternating with zero). An isolated example like gr*ə*m*ə*k (cf. (8)) must be treated as an exception. On the other hand, the second example containing the suffix *-()k*, viz. *dərzək* ('sharp, masc. sg.'), is regular in this view.

In this section I have proposed a system of constraints that regulates schwa epenthesis. We have seen that these constraints only account for the transparent position of epenthetic schwa. Under certain conditions, however, schwa's insertion site is opaque. In our view this happens whenever the syllable within which schwa is inserted is followed by a morpheme containing a front jer (i.e. an *e* which alternates with zero). Accordingly, the definite article does not create an opaque insertion site, because it contains a back jer. Let us now see whether the mechanisms that are more or less commonly accepted by OT theoreticians to deal with opacity can capture these facts.

3. Two Ways to Deal with Opacity

One of the central ideas of OT is that constraints evaluate output representations. In this respect OT strongly differs from the classical version

---

[4]   In Scatton's analysis there is a rule, related to the historical Havlik's Law, which deletes an underlying jer, unless it is followed by another jer. This rule precedes a rule which inserts schwa (in a transparent position). The nice effect of these rules is that a BACK jer in an opaque position can maintain this position only before a suffix containing a jer. However, Scatton's approach suffers from a major drawback. It cannot explain why a FRONT jer cannot behave in the same way as a 'back' jer in modern Bulgarian. In other words, Scatton cannot explain why there are no morphemes containing an *e* in an opaque position before a suffix containing a jer, where *e* alternates with in a transparent position before a suffix containing a 'normal' vowel.

of generative phonology, where underlying representations are mapped onto surface representations by a series of *ordered* rules. In a model with ordered rules it is very easy to account for opacity. In particular counterbleeding and counterfeeding ordering can create opacity effects (cf. for instance Kiparsky 1973). To the extent that in OT ordering is not recognized opacity effects are problematic, at least in principle.

There are at least two mechanisms in OT that have been developed to explain opacity without invoking derivational devices like ordering. These are Output-Output-Faithfulness and Uniform Exponence.

The first attempt to account for the fact that a morpheme containing a front jer triggers an opaque insertion site in the preceding syllable is in terms of Output-Output-Faithfulness (OO-Faith). The theory of OO-Faith has been developed in great detail in Benua 1995 & 1997. Benua demonstrates that there are many cases where an independently existing word determines the phonological structure of some other word that is morphologically related to it. This phenomenon, she argues, can be captured by a set of constraints that establish a correspondence relation between the two output forms. In addition, a family of identity constraints requires that the output forms which are in a correspondence relation are identical. This identity requirement can lead to an opacity effect.

The most important drawback of this account is that it cannot characterize the trigger of opacity in purely phonological terms. It has to stipulate that one of the forms in the OO-correspondence relation contains *-(e)n*. That this suffix has a front jer is a mere coincidence. It could just as well be any other vowel. This entails that the OO-Faith account cannot explain one of the basic properties of this type of opacity.

The second approach is based on Uniform Exponence (Kenstowicz 1996). UE requires that the differences in the realization of a morpheme be minimized. Although this analysis describes the facts, it suffers from the same drawback as the OO-Faith account. It has to stipulate that only in paradigms in which *-(e)n* participates schwa's position is uniform. That this suffix has a front jer is taken to be a mere coincidence. Again this means that this account cannot explain the essential property of this type of opacity.

I now turn to the question how the jer is represented, because in order to understand why it triggers opaque schwa insertion we have to know what its structure is.

4. The Structure of Jers

Following essentially Yearly (1995), I assume that jers are vowels with-
out a mora at the underlying level.[5] True vowels do have a mora at this
level. I furthermore assume that a schwa does not have place features.
Accordingly, the four segments that are relevant to us are distinguished
as follows:

(10)	Back jer	Front jer	Stable schwa	Stable *e*
			Realized back jer	Realized front jer
Moras			μ	μ
			|	|
Root nodes	●	●	●	●
		|		|
Place features		e		e

In Bulgarian a coda cluster with falling sonority is possible, as is shown
by the following examples:

(11) film   'film'   sərp   'sickle'

      kəln   'germ'   štərk   'stork'

This indicates that NoComCod must be ranked lower than DEP-V, the
constraint that penalizes the creation of a new vowel. In other words, it is
worse to insert a new vowel than to have a cluster in the coda.[6] I show
this in the tableau in (12):

---

[5] Yearley bases her proposal on Russian. I adopt her proposal with minor revi-
sions. They are a consequence of the fact that Yearley writes in a pre-correspon-
dence model of Optimality Theory. I also point out here that the application of
Yearley's proposal to Bulgarian is safe, since the two languages are very similar
in the relevant respect: both have two jers (*e* and *o* in Russian; *e* and *ə* in
Bulgarian). In terms of (10) the difference is that in Bulgarian the 'back' jer does
not have place features. Hence, its root node is empty (at the level of the place
features). In Russian, on the other hand, the back jer has a root node that is filled
with the place features that define the vowel *o*.

[6] Coda clusters with rising sonority are not possible in Bulgarian (with rare
exceptions). I will return to this in the next section.

(12)

film	DEP-V	NoComCod
☞ film		*
film	*!	

Now consider the forms *orel* ('eagle') and *gorək* ('bitter'). The vowels in the last syllable are jers; they alternate with zero, witness *orli* (plur.) and *gorka* (fem. sg.). These jers must be present underlyingly, because we have just seen that a cluster with falling sonority is not broken up. To account for the realization of jers we rank NoComCod above IDENT(μ), the constraint that penalizes the association of a new mora to a vowel that is present at the underlying level. Consider now why *gorək* is optimal, rather than *gork*. In the tableaux a jer in the underlying structure is represented with a capital letter:

(13)

gorək	DEP- V	NOCOMCOD	IDENT(μ)
gork		*!	
☞ gorək			*

The realization of a jer entails a violation of IDENT(μ), because a jer does not have a mora at the underlying level (cf. 10). Since this constraint is ranked below NoComCod, the realized jer is preferred over the consonant cluster, even though it has a falling sonority cline. It is very important to realize that no *new* vowel is inserted to avoid the cluster. The jer is already present at the underlying level. Hence, its realization does not constitute a violation of DEP-V. In this analysis, then, a consonant cluster of falling sonority cannot be broken up, unless this is done by a jer, which is already present at the underlying level.

The example *orel* has a front jer at the underlying level. The only difference from the previous example, therefore, is that there is a place node linked to the jer's root node (cf. 10).

The next question we have to answer is why the jer is not realized in inflected forms. Following Yearley (1995), I argue that in these cases the jer is superfluous; it is not needed anymore to avoid a consonant cluster, because this task can be performed by the vowel of the following morpheme. In a constraint-based analysis we say that MAX-V, the constraint that penalizes deletion of an underlying vowel, is ranked lower

than IDENT(μ). This analysis of the non-realization of jers is clarified in the following tableau, where the two most relevant candidates corresponding to the underlying representation *gor(ə)ka* are evaluated.

(14)

gorəka	DEP-V	NOCOMCOD	IDENT(μ)	MAX-V
gorəka			*!	
☞ gorka				*

In the first candidate the underlying jer is realized. This violates IDENT(μ). In the second candidate the jer is removed, which constitutes a violation of MAX-V. Neither of the candidates violates NOCOMCOD. This is a consequence of the fact that the final consonant of the intervocalic cluster is located in the onset, due to the presence of the vowel in the inflectional ending. Since neither of the two candidates violates NOCOMCOD, the decision is made by the lower ranked IDENT(μ) and MAX-V. Since the former is ranked higher than the latter, the candidate with the realized jer cannot be optimal.

The same form also proves that IDENT(μ) is ranked higher than NOCOD. This is shown in the following tableau:

(15)

gorəka	DEP-V	NOCOMCOD	IDENT(μ)	NOCOD
gorəka			*!	
☞ gorka				*

The first candidate violates IDENT(μ), whereas the second candidate violates NOCOD. Since the former constraint is ranked higher than the latter, the candidate *gorka*, which does not realize its underlying jer, is optimal.

The relation between NOCOD and MAX-V cannot be determined, because there is no conflict between the two.

In this section I have demonstrated that a jer is realized only if that avoids a consonant cluster in coda position. In those cases where a coda cluster can be avoided by means of a vowel initial suffix, the jer is eliminated. The hierarchy I have proposed is as follows:

(16)   DEP-V » NOCOMCOD » IDENT(μ) Ľ MAX-V, NOCOD

Let us now return to the opacity effect triggered by a front jer.

5. Sympathy Theory

In McCarthy (1997) the problem of opacity is approached in yet another way. McCarthy proposes that a non-optimal candidate can be one of the elements in a correspondence relation. This non-optimal candidate, the so called sympathetic candidate, or the ❀-candidate, can determine the structure of some other form with which it is in correspondence. This faithfulness to a non-optimal candidate can create opacity effects, at least in principle. The sympathetic candidate is selected by a specific constraint, called the selector. It is a fundamental property of the sympathetic candidate that, within the overall constraint system of the language, it is the most harmonic member of the set of candidates that satisfy the selector. The selector is subject to the restriction that it must be a faithfulness constraint. Let us now return to the form *vraxen* to see how this system works.

Notice first that within the constraint system proposed so far *vraxen* can never be optimal, because it is always worse than **varxen*. I demonstrate this in the tableau in (17). I have placed IDENT(μ) immediately to the right of NOCOMON. It is hard to find decisive arguments on the basis of which the relation between these two constraints can be determined. They are therefore separated by a broken line. Notice, though, that NOCOMCOD crucially dominates IDENT(μ). The proof has been given in (13). NOCODand MAX-V are also separated by a broken line.

(17)

vrxen	DEP-V	NOCOM COD	NOCOM ON	IDENT (μ)	NO COD	MAX -V
vərxen	*			*	**	
☞ vrəxen	*		*!	*	*	

The two candidates given in the tableau behave differently only with respect to the two constraints NOCOMON and NOCOD. The first candidate does not violate NOCOMON, whereas the second candidate does.

Furthermore, the first candidate violates NOCOD twice, whereas the second candidate violates it once. Since NOCOMON dominates NOCOD, the first candidate is the expected winner, which is expressed by the reversed pointing finger. However, the second candidate is the actual winner, the optimal candidate. In terms of Sympathy Theory this indicates that the second candidate is faithful to some non-optimal candidate.

In order to find this sympathetic candidate, we have to know which constraint acts as the selector. I propose that the selector is a member of the family HEAD-IDENT(F). The members of this family require that the features of a headed segment in the output be identical to the features of the corresponding segment in the input, and conversely, that the features of a headed segment in the input be identical to the features of the corresponding segment in the output. This family has been proposed to account for the fact that a segment in a stressed syllable (which is headed at the foot level) is not reduced, whereas a segment in an unstressed syllable can be reduced (cf. Alderete (1995).

A further claim that is relevant to us can be found in Itô and Mester (1993). These authors claim that the head of a segment is the *place node.* Now recall from (10) that schwa differs from other vowels in that it does not have a place node. Hence, schwa is a headless segment, whereas *e* is a headed segment.

Let us now say that the selector is an instance of HEAD-IDENT, viz. HEAD-IDENT(μ). Its meaning is as follows: a headed segment in the output must be identical in terms of mora structure to the corresponding segment in the input, and conversely, a headed segment in the input must be identical in terms of mora structure to the corresponding segment in the output. Notice now that this constraint penalizes the insertion of a new mora, but only if that mora is linked to a headed segment, i.e., a segment which contains a place node. Consequently, association of a new mora to an underlying schwa does not violate this constraint, because schwa is not a headed segment, since it does not have a place node. In (18) I illustrate the effect of this constraint. In the tableau in (18) I have replaced IDENT(μ) by HEAD-IDENT(μ). This is only done in order to save space. I emphasize that it should not be taken to mean that IDENT(μ) is eliminated from the analysis. We still need it, of course, to account for the deletion of an underlying back jer (cf. the tableaux in (14) and (15)).

(18)

vrxen	DEP-V	NOCOM COD	NOCOM ON	HEAD-IDENT(μ)	NO COD	MAX-V
1 vərxen	*			*	**	
2 ☞ vrəxen	*		*!	*	*	
3 vərxən	**!				**	*
4 ☀vrəx	*		*!		*	*
5 vərx	*	*!			*	*

The first two candidates violate HEAD-IDENT(μ), because the place node of the vowel in the second syllable is linked to a mora, whereas its correspondent in the input is not. The remaining candidates do not violate this constraint, because the underlying front jer does not have a correspondent in the output. This is also true for the third candidate. Here the underlying jer is not in a correspondence relation with the schwa in the second syllable. Hence, this candidate violates MAX-V. In addition to this it violates DEP-V twice. This is because neither schwa has a correspondent in the input. If IDENT-HEAD(μ) is the selector, then the most harmonic member of the set of candidates 3-5 is the sympathetic candidate. Apparently, this is the fourth candidate. Notice, though, that in this candidate the underlying consonant of the suffix -(e)n does not have a correspondent in the output. It therefore violates the constraint MAX-C, which requires that an underlying consonant be realized in the output. In Bulgarian, this constraint must be higher ranked than the constraint DEP-V. This becomes clear when we take into account consonant clusters in coda position with a rising sonority cline. With rare exceptions clusters of this type are not allowed in Bulgarian; they are broken up by an epenthetic schwa. Examples are given in (19).

(19) bistər   'clear'
     filtər   'filter'
     teatər   'theatre'
     komunizəm   'communism'

It is clear that in Bulgarian, it is worse to leave such a cluster intact, than to break it up with a schwa. It is also clear, and this is important at this point, that a cluster of this type is avoided by means of epenthesis, rather than deletion of a consonant. This indicates that, in Bulgarian, DEP-V is dominated by MAX-C; it is worse to delete a consonant than to insert a vowel. If we now would insert MAX-C in the tableau in (18) in the correct position (to the left of DEP-V), then the third candidate would become the most harmonic member of the set of candidates that satisfy HEAD-IDENT(μ). Obviously, this is not of much help. In the third candidate the position of the epenthetic schwa is transparent. Hence, it is impossible to account for the opaque position of schwa in the (second) optimal candidate by means of faithfulness to the third candidate.

The third candidate heavily violates Vowel-Faithfulness. Not only does it violate MAX-V, it also violates DEP-V twice. I would like to propose that this double violation of DEP-V is the reason why the third candidate is not the most harmonic member of the set of candidates 3-5. Some OT theoreticians assume that the conjunction of a constraint with itself (self-conjunction) creates a separate constraint which occupies its own position in the overall constraint hierarchy. One of the interesting aspects of self- conjunction is that it can replace the OCP (cf. in particular Itô and Mester 1998 on self-conjunction).

Let us now say that in Bulgarian the constraint DEP-V DEP-V, henceforth abbreviated as DEP-V², is ranked higher than MAX-C. We thus get the following ranking:

(20)   DEP-V² » MAX-C» DEP-V

As a consequence of this ranking it is better to insert a vowel than to delete a consonant. Inserting two vowels, however, is worse than deleting a consonant.

Due to the ranking proposed in (20) the third candidate in (18) is no longer the most harmonic member of the set of candidates that satisfy HEAD-IDENT(μ). Now the fourth candidate becomes the most harmonic member of this set. We can say, then, that, if we take HEAD-IDENT(μ) as the selector, then the fourth candidate becomes the sympathetic candidate, the ✿-candidate. In Sympathy Theory this entails that there is a correspondence relation between this (sympathetic) candidate and the remaining candidates.

If there is a correspondence relation between the candidate *vrx* and the remaining candidates, then this relation is regulated by LINEARITY, just as in input-output correspondence (cf. the tableau in (5) and the ranking in (6) for a demonstration of the effects of input-output-LINEARITY). Let us call the instance of LIN that regulates the relation between the ✤-candidate and the remaining candidates ✤LIN$_{Head-Ident(\mu)}$. This constraint evaluates to what extent a candidate imitates the linear order of the segments in the ✤-candidate. If we rank this constraint above NOCOMON, we get the opacity effect. This is demonstrated in the following tableau:

(21)   ✤LINEARITY$_{Head-Ident(\mu)}$ Ľ NOCOMPLEXONSET

UR vrxen ✤ vrəx	✤LIN$_{Head-Ident(\mu)}$	NOCOMON
vərxen	*!	
☞ vrəxen		*

Notice that now the optimal candidate is the one with schwa after the liquid. ✤LIN$_{Head-Ident(\mu)}$ must be ranked above NOCOMON, but it must also be ranked below the constraint LIN, the faithfulness constraint that controls the correspondence relation between input and output. This is necessary in order to ensure that a vowel which is already present at the underlying level can never leave its original position, as I have shown in (5).

We have seen in section 3 that the accounts based on UE and OO-Faith cannot explain why the opacity effect we are studying here can only occur before a front jer. Does our analysis fare better in this respect? Consider the following tableau, where the underlying form is *vrxət*, which is realized as is *vərxət* (cf. (9)):

(22)

vrxət	DEP-V	NOCOM COD	NOCOM ON	HEAD-IDENT (μ)	NO COD	MAX -V
☞ vərxət	*				**	
vrəxət	*		*!		*	

Now the situation changes radically. The two relevant candidates both satisfy HEAD-IDENT(μ). This is a consequence of the fact that the back jer does not have a place node. It is therefore not a headed segment. This again means that it cannot violate HEAD-IDENT(μ). This being the case the ❀-candidate is the same as the optimal candidate. Therefore no opacity effect can occur.

We can conclude, then, that Sympathy Theory is able to explain why only a front jer can create the opacity effect under investigation. Only a front jer can have this effect, because, as a placeless segment, a back jer is irrelevant for HEAD-IDENT(μ) Therefore, ❀LIN$_{\text{Head-Ident}(\mu)}$ cannot have any effect.

References

Alderete, John. 1995. Faithfulness to Prosodic Heads. Ms., University of Massachusetts, Amherst.

Andrejčin, Ljubomir. 1944. *Osnovna bŭlgarska gramatika.* Xemus, Sofia.

Aronson, Howard I. 1968. *Bulgarian Inflectional Morphophonology.* Mouton, The Hague-Paris.

Benua, Laura. 1995. 'Identity Effects in Morphological Truncation'. In *University of Massachusetts Occasional Papers in Linguistics 18: Papers in Optimality Theory*, 77-136. GLSA, University of Massachusetts, Amherst.

Benua, Laura. 1997. Transderivational Identity: Phonological Relations between Words. Doctoral dissertation, University of Massachusetts, Amherst.

Itô, Junko and Armin Mester. 1993. 'Licensed Segments and Safe Paths'. In C. Paradis, D. LaCharité and E. Nikiema, eds., *Constraints, Violations, and Repairs in Phonology.* Special issue of the Canadian Journal of Linguistics.

Itô, Junko and Armin Mester. 1998. Markedness and Word Structure: OCP Effects in Japanese. Ms., University of California, Santa Cruz.

Kenstowicz, Michael. 1996. 'Base-Identity and Uniform Exponence: Alternatives to Cyclicity'. In J. Durand and B. Laks, eds., *Current Trends in Phonology: Models and Methods*, 363-393. Manchester, England: European Studies Research Institute, University of Salford.

Kiparsky, Paul 1973. 'Phonological Representations'. In O. Fujimura, ed., *Three Dimensions of Linguistic Theory*, 1-136. Tokyo, Taikusha.

Kostov, Nikola. 1939. *Bŭlgarska gramatika*. Kazanlŭška Dolina, Sofia.

McCarthy, John. 1997. Sympathy and Phonological Opacity. Ms., University of Massachusetts, Amherst.

McCarthy, John and Alan Prince. 1995. 'Faithfulness and Reduplicative Identity'. In *University of Massachusetts Occasional Papers in Linguistics 18: Papers in Optimality Theory*, 249-384. GLSA, University of Massachusetts, Amherst.

Scatton, E.A. 1975. *Bulgarian Phonology*. Cambridge, Massachusetts, Slavica Publishers.

Scatton, E.A. 1984. *A Reference Grammar of Modern Bulgarian*. Cambridge, Massachusetts, Slavica Publishers.

Stojanov, Stojan. 1964. *Gramatika na bŭlgarski knižoven ezik*. Nauka i izkustvo, Sofia.

Yearley, J. 1995, 'Jer Vowels in Russian'. In *University of Massachusetts Occasional Papers in Linguistics 18: Papers in Optimality Theory*, 77-136. GLSA, University of Massachusetts, Amherst

Tilburg University
Grammatical Models Group, CLS
P.O. Box 90153
NL–5000 LE–TILBURG
The Netherlands
b.j.h.hermans@kub.nl

Overlapping Feet in Polish

Brett Hyde
Rutgers University

1. Proposal and Phenomena

Polish stress offers an example of ternary patterns occurring in a basically binary alternating system. This type of phenomenon poses the difficult structural question of how a grammar obtains ternary stress patterns from binary feet. The current answer is that it does not. Rather, these patterns are produced by combinations of binary feet and unfooted syllables (see McCarthy and Prince 1993, Crowhurst and Hewitt 1995, Kenstowicz 1995a). This paper proposes an alternative account where the footing of syllables is exhaustive but feet are allowed to overlap, as in (1), under certain conditions.

(1)   Overlapping foot configuration

$$\ldots\ \sigma\quad\sigma\quad\sigma\ \ldots$$

In this paper, I will focus on the structural analysis, outlining and justifying the proposed structure and exploring the differences between this approach and one involving unfooted syllables.

The difficulty posed by the Polish stress pattern for the non-footing approach is illustrated by the following forms, several of which include one or more ternary patterns (throughout the paper, underlining indicates the location of ternary patterns):[1]

---

[1] Rubach and Booij 1985 and Idsardi 1994 are the main sources cited in Kenstowicz 1995a, but there are many other valuable sources and accounts of Polish stress in the literature, including but not limited to Comrie 1976, Franks 1985, 1991, Halle and Vergnaud 1987, Hammond 1989, and Bethin 1998.

(2) Polish forms (Rubach and Booij 1985, Idsardi 1994, Kenstowicz 1995a)

    a. σ̀σσ̀σσ́σ   rèwolùcjonísta

    b. σ̀ # σσσ̀σσ́σ   tèn rèwolùcjonísta

    c. σ̀σσ̀σσ̀σσ́σ   kònstantỳnopòlitańczýka

    d. σ̀ # σσσ̀σσ̀σσ́σ òd konstantỳnopòlitańczýka

    e. σ̀σσ́σ   pròtestówał

    f. σ̀σσ # σ̀σσ́σ   jàk on by pròtestówał

    g σ̀σσσ́σ   òprotestówał

    h. σ̀σσ # σ̀σσ σ́σ   jàk by on òprotestówał

The odd-parity base[2] forms, (2c, g), exhibit a single dactyl prior to the main stress. This is not problematic for the non-footing approach. The difficulty arises in (2b, d, f, h), where a dactyl occurs in forms with odd-parity proclitic strings.

In the *Generalized Alignment* account of McCarthy and Prince (1993), obtaining the base forms is a fairly simple matter. Even-parity base forms are exhaustively parsed into disyllabic feet. In odd-parity forms, the dactyl prior to the main stress is the result of a single unfooted syllable preceding the final foot:

(3) Non-footing approach to base forms

    Even-Parity   **Odd-Parity**

    (σ́σ)   σ(σ́σ)

    (σ̀σ)(σ́σ)   (σ̀σ)σ(σ́σ)

    (σ̀σ)(σ̀σ)(σ́σ)   (σ̀σ)(σ̀σ)σ(σ́σ)

These configurations are obtained by the interaction of several con-straints: Ft-Bin, Parse Syll, Align (PrWd, R, Ft, R), and Align (Ft, L PrWd, L).

Ft-Bin asks that all feet be disyllabic[3], and Parse Syll asks that all syllables be parsed into feet. Ranking Ft-Bin over Parse Syll means that

---

[2] I use the term *base* to mean either a form with no proclitics or the part of a form to which proclitics are added.

[3] This, at least, is the effect for Polish. McCarthy and Prince's constraint actually asks that feet be binary under either a syllabic or moraic analysis.

all syllables will be parsed into binary feet in even-parity forms and that all but one syllable will be footed in odd-parity forms.

The two alignment constraints determine the location of the unparsed syllable. Align (PrWd, R, Ft, R) asks that the right edge of a prosodic word be aligned with the right edge of a foot, and Align (Ft, L PrWd, L) asks that all feet be aligned to the left edge of a prosodic word. The ranking Align (PrWd, R, Ft, R) >> Align (Ft, L PrWd, L) dictates that there will be one foot at the right edge of a form with all other feet aligned to the left. In odd-parity forms, this means that one unfooted syllable will precede the final foot, as we saw in (3).

As Kenstowicz (1995a) points out, however, the unfooted syllable approach cannot obtain the base+proclitic patterns using alignment constraints alone. As illustrated in (4), forms with odd-parity proclitic strings and even-parity bases would exhibit basically rightward alignment with a dactyl at the left edge, contrary to the basically leftward alignment obtained from the ranking discussed above.

(4)   Odd-parity proclitic strings with even-parity bases

    a.   (ὸ # σ)σ(όσ)(όσ)   tèn rewolùcjonísta

    b.   (ὸσ)σ # (όσ)(όσ)   jàk on by pròtestówał

Even more telling, forms with odd-parity proclitic strings and odd-parity bases would have to have *two* unfooted syllables and would exhibit neither optimal rightward nor leftward alignment:

(5)   Odd-parity proclitic strings with odd-parity bases

    a.   (ὸ # σ)σ(όσ)(ὸσ)σ(όσ)   òd konstant̂ynopòlitańczýka

    b.   (ὸσ)σ # (ὸσ)σ(όσ)   jàk by on òprotestówał

Although there have been proposals that deal with this type problem through adjustments in Optimality Theory's derivational machinery—for example, the cyclic approach of Kenstowicz 1995a or the output-output correspondence approach of Kenstowicz 1995b—this proposal obtains the desired results by modifying not the machinery, but the basic structural assumptions.

2. Overlapping Feet

As illustrated in (1), the overlapping configuration I am primarily concerned with is one where a single syllable is a member of two different feet. There are several precedents for this type of structure. Ambisyllabicity, where a single segment is a member of two different syllables, is a familiar proposal. Overlapping rhythmic patterns in music have been noted by Cooper and Meyer (1971), Liberman (1979), and Lerdahl and Jackendoff (1983). Kenstowicz (1995a) briefly explored and rejected an inadequate proposal of overlapping feet to explain the stress patterns of Polish, Carib, and Shanghai Chinese.

Kenstowicz's rejection of the approach was based on the idea that the heads of feet must correspond to stress, limiting consideration to the following two patterns:

(6)   Stress patterns of overlap configuration
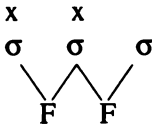
    a.   Trochees   b.   Iambs
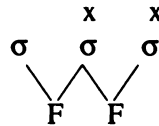
Although he grants that (6b) could be used for the ternary patterns in Carib, he points out that neither (6a) nor (6b) could account for the ternary patterns of Polish. We shall see, however, that there are significant reasons for allowing the (6) patterns in the theory of prosodic structure and, further, that these patterns are not the only ones that should be considered in a discussion of overlapping feet.

3. Minimal Foot in Maithili

The stress pattern of Maithili (Hayes 1995, Jha 1940–44, 1958) is important because it is a clear case illustrating the necessity of allowing feet to overlap. The basics of the Maithili stress pattern are given in (7) and (8).

(7)   Main Stress in Maithili

    a.   Main stress falls on a heavy syllable as far back as the antepenult.

    b.   If none of the final three syllables are heavy, main stress falls on the penult.

(8) Secondary Stress in Maithili

   a. If there is an even count of (light) syllables preceding the main stress, stress occurs on the initial syllable and alternates[4] thereafter.

   b. If there is an odd count of (light) syllables preceding the main stress, stress occurs on the first two syllables and alternates thereafter.

The (9a–c) forms below are the crucial cases, exhibiting an initial antibacchius configuration, with two light, stressed syllables followed by an unstressed syllable. Since these have an odd number of light syllables preceding the main stress, they illustrate the (8b) option for secondary stress. The (9d–f) forms have an even number of syllables preceding the main stress, so they exhibit the (8a) option for secondary stress.

(9) Maithili Forms (Jha 1940–44, 1958; Hayes 1995)

```
            x
      x   x              pàtítə̆
 a.  L   L   L

                x
      x   x     x         dàhinə̆báːn̆
 b.  L   L   L   H   L

                x
      x   x     x         kùṭilə̆táː
 c.  L   L   L   H

            x
      x   x              dʰànə̆hórə̆
 d.  L   L   L   L

            x
      x   x              àdʰə̆láːhə̆
 e.  L   L   H   L

                    x
      x     x     x       pʰùlə̆kumə̆ríː
 f.  L   L   L   L   H
```

----

[4] Non-initial secondary stresses are inferred by phonological process: the absence of vowel reduction (see Hayes 1995).

There are essentially two structural possibilities that might account for the antibacchius configurations of (9a–c):

(10)   Two structural options

$$
\begin{array}{cc}
\text{x} \quad \text{x} & \qquad\qquad \text{x} \quad \text{x} \\
\text{a.} \ \text{L} \quad \text{L} \quad \text{L} & \qquad \text{b.} \ \text{L} \quad \text{L} \quad \text{L} \\
\ \big| \quad \diagdown\!\diagup & \qquad\qquad \diagdown\!\diagup\!\diagdown\!\diagup \\
\ \text{F} \quad\ \text{F} & \qquad\qquad\quad \text{F} \quad \text{F}
\end{array}
$$

Option (10a) is a light monosyllabic foot followed by a disyllabic trochee. This is essentially the analysis of Hayes 1995. Option (10b) is two overlapping disyllabic trochees, the analysis proposed here.

The factor deciding between these options is the strict condition for minimal words in Maithili. Maithili does not allow light monosyllabic words, indicating that it does not allow light monosyllabic feet (see Hayes 1995 for the connection between minimal word phenomena and the ban on degenerate feet).

(11)   Minimal Word in Maithili

Allowed	**Not Allowed**
a. PrWd	b. PrWd
$\big|$	$\big|$
F	F
$\big|$	$\big|$
σ	σ
$\diagup\diagdown$	$\big|$
μ μ	μ
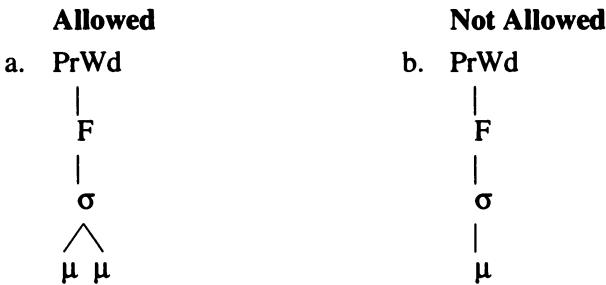
The idea is that lexical items must be prosodic words and that prosodic words must contain at least one foot. The minimal size of a foot in a language dictates the minimal size of a word. The structural option of (10a), then, which has a light monosyllabic foot, is ruled out by the restriction on foot size. Option (10b) resolves the problem by extending the initial foot to include the second syllable. This results in overlap of the two feet but respects the ban on degenerate feet. The structural possibility, then, of allowing feet to overlap is crucial to obtaining the stress pattern of Maithili.

4. Boundaries in Carib

As mentioned above, a phenomenon that incorporates the (6b) configuration is the ternary pattern induced by odd-parity Carib prefixes. Carib (see Hoff 1968, Kenstowicz 1995a) is interesting because its ternary patterns derive from a boundary situation similar to that of Polish. Unprefixed forms and forms with two-syllable prefixes exhibit a straightforward iambic pattern with iambic lengthening and nonfinality of stress. This can be seen in (12a, c, d) below.

(12)   Carib forms (Hoff 1968, Kenstowicz 1995a)

             x
    a.   L H L   kuraama

               x   x
    b.   L̲ _ H̲ H̲ L _ L   kï-kuuraama-ko

           x   x
    c.   L H _ L H L _ L   kïsii-kuraama-ko

           x
    d.   L H L   poroopï

             x   x
    e.   L̲ _ H̲ H̲ L _ L   a-pooroopï-i

Forms with monosyllabic prefixes, however, show a perturbation of the regular alternation. Stress occurs on both the second and third syllables, as illustrated in (12b, e). Where Polish has a dactyl at the boundary, Carib has a bacchius.

An overlapping foot analysis would account for the (12b, e) pattern with the type of structure illustrated for *kï-kuuraama-ko* in (13), below.

(13)   Proposed structure

           F   F   F
          ⁀   ⁀   ⁀
    kï +   kuu   raa ma   ko
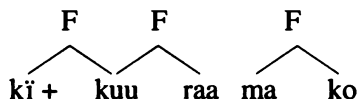
In (13), the second syllable is simultaneously a member of both the first and second foot, each of which are stressed, as evidenced by iambic

lengthening. The form exhibits exhaustive footing of the syllables with the final foot[5] stressless, as a result of nonfinality.

The overlapping foot as a structural configuration, then, is consistent with the ternary patterns of Carib and crucial for those of Maithili. Still, as Kenstowicz noted, neither of the patterns used in these two languages could account for the pattern of Polish. Extending the overlapping approach to Polish will require a reevaluation of the assumptions concerning the correlation of feet and stress.

5. Overlapping Feet and Polish

Recall that Kenstowicz' objections to an overlapping approach were based on the idea that heads of feet must correspond to gridmarks, meaning that there could only be two possible stress patterns associated with an overlapping configuration, the one for trochees illustrated in (6a) and the one for iambs illustrated in (6b). There have been several proposals in the literature, however, arguing that feet do not always correspond to stress. The foot typology of Hayes (1987) contains stressless monosylabbic feet. Hung (1993) notes that unparsed feet are headless, and therefore stressless. And Crowhurst and Hewitt (1995) posit stressless feet both in surface forms and during the course of a derivation.

We can loosen slightly the demand that feet be stressed by incorporating stress realization into a violable constraint, Realize Gridmark:

(14) Realize Gridmark
      Definition: The heads of feet correspond to gridmarks.
      a. Satisfy Realize Gridmark   b. Violate Realize Gridmark

$$
\begin{array}{ccc}
\text{x} & \text{x} & \text{x} \\
(\,\sigma\,\sigma\,)\,(\,\sigma\,\sigma\,)\,(\,\sigma\,) & & (\,\sigma\,\sigma\,)\,(\,\sigma\,)
\end{array}
$$

Incorporating gridmark realization into a violable constraint has two effects. First, the constraint will not always be satisfied, making it possible to have stressless feet in surface forms. Second, allowing

---

[5] This is slightly different than the overlapping proposal that Kenstowicz (1995a) considers. The final stressless foot is absent in his discussion. It is present here due to the assumption of exhaustive footing.

overlapping and stressless feet permits exhaustive footing, meaning that it is prominence that is relative, not the existence of prosodic structure.

The violability of the foot-to-stress relationship, then, makes possible the additional patterns for trochaic systems seen in (15) and the additional patterns for iambic systems seen in (16).

(15)   Additional trochaic patterns

x	x	
a. σ σ σ	b. σ σ σ	c. σ σ σ
\/\/	\/\/	\/\/
F F	F F	F F
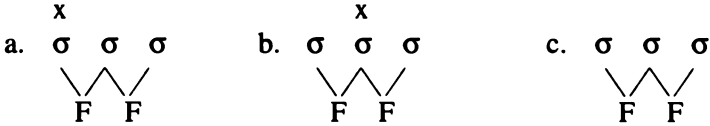
(16)   Additional iambic patterns

x	x	
a. σ σ σ	b. σ σ σ	c. σ σ σ
\/\/	\/\/	\/\/
F F	F F	F F
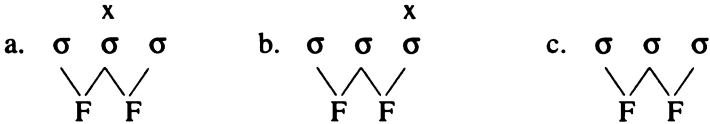
In the (6) patterns above, gridmarks were realized on the heads of both feet in an overlap configuration. In the (a, b) patterns of (15) and (16), however, only one of the two possible gridmarks is realized. In the (c) pattern of (15) and (16), neither of the possible gridmarks are realized. It is the (15a, b) patterns that are important for Polish.

For the most part, the position of overlapping structure, as well as the choice of possible gridmark realizations, is determined by alignment constraints. Just as they determine the placement of unfooted syllables in the *Generalized Alignment* approach, foot alignment constraints determine the placement of overlapping feet in the proposed approach. For example, a simple even-parity form, such as *rèwolùcjonísta*, would be exhaustively parsed into disyllabic feet with no overlaps. Overlap would only increase the number of feet involved and add to the number of alignment violations:
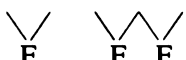
(17)   Restricting overlap

σσσσσσ	Align (Ft, R)	Align (Ft, L)
a. σ σ σ σ σ σ \/ \/ \/ F F F	six violations	six violations
b. σ σ σ σ σ σ \/\/ \/\/ F F F F	eight violations	eight violations

The table in (17) illustrates that the optimal parse for an even-parity form, with respect to alignment in either direction, is one in which every syllable is parsed into disyllabic feet with no occurrence of overlap. This option is illustrated in (17a). When overlap is introduced, as in (17b), an extra foot is added causing additional alignment violations.

In a simple odd-parity form, such as *òprotestówał*, only one instance of overlap is needed to exhaustively parse the form into disyllabic feet. Just as a single unfooted syllable was the key to odd-parity forms in the *Generalized Alignment* approach, a single instance of overlap is the key to odd-parity forms in the proposed account. Additional occurrences of overlap would only add to the number of feet involved and increase the number of alignment violations. Also, as in the *Generalized Alignment* approach—where the directionality of foot alignment determines the position of the unparsed syllable—in the proposed account, the same type of alignment constraints determine at what edge an overlap will occur. This is illustrated using a five-syllable form below:

(18)   Position of overlap

σσσσσ	Align (Ft, R)	Align (Ft, L)
a. σ σ σ σ σ \/ \/\/ F F F	four violations	five violations
b. σ σ σ σ σ \/\/ \/ F F F	five violations	four violations

If feet are aligned to the right, by ranking Align (Ft, R, PrWd, R) over Align (Ft, L, PrWd, L), the overlap will occur at the right edge. This is

the option illustrated by (18a), which has the least rightward alignment violations. If feet are aligned to the left, by reversing the ranking, the overlap will occur at the left edge. This option is illustrated by (18b), which has the least leftward alignment violations.

In Polish, feet are aligned to the right, so odd-parity base forms exhibit the following foot patterns (circles indicate the positions of dactyls):

(19)   Footing and stress patterns for odd-parity forms

a.   3 syllables

b.   5 syllables

c.   7 syllables

d.   9 syllables
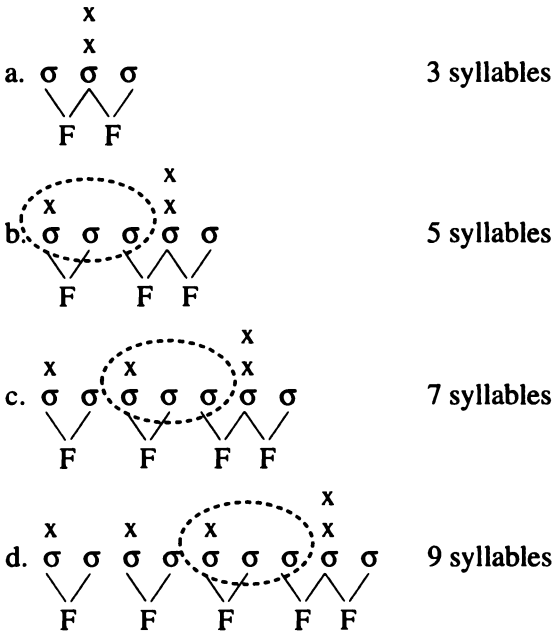
As in indicated above, a trochee followed by two overlapped feet with the (15b) pattern produces the effect of a dactyl preceding the main stress. How the gridmark patterns are determined, however, must still be explained.

Gridmark placement is obtained by the ranking of Realize Gridmark, discussed above; *Clash, a constraint against gridmarks on two adjacent syllables; and alignment constraints on gridmarks.

When Realize Gridmark ranks above *Clash and the alignment constraints, both gridmarks will be realized on the overlapping feet, as in

the (6a) pattern, exhibited by Maithili, or the (6b) pattern, exhibited by Carib. When *Clash ranks over Realize Gridmark and Realize Gridmark ranks over the alignment constraints, one of the two possible gridmarks will not be realized, as in (15a, b) and (16a, b).[6] This is the situation with Polish, and the appropriate ranking is illustrated in the tableau below:

(20) Non-realization of gridmarks

	*Clash	Realize Gridmark

a. x   x
   σ σ σ
    \/\/
    F   F
	*!	

☞ x
b. σ σ σ
    \/\/
    F   F
		*

☞   x
c. σ σ σ
    \/\/
    F   F
		*

In the tableau in (20), the (a) candidate has both gridmarks realized, resulting in a violation of *Clash. The (b, c) candidates realize only one of the two possible gridmarks and do not violate *Clash. Given the ranking *Clash >> Realize Gridmark, then, the (b, c) candidates are optimal.

Deciding between (20b) and (20c) is a function of the directionality of the highest ranked gridmark alignment constraint. In Polish, gridmarks are aligned to the right of the prosodic word, so the rightmost of two adjacent possible gridmarks is realized, and odd-parity base forms

---

[6] The third possibility, realizing neither of the gridmarks, could be obtained by ranking one of the gridmark alignment constraints over Realize Gridmark. As this pattern is not involved in the phenomena examined here, I will not discuss it in any detail. Note, however, that it is an effect similar to the ranking Align (Ft, PrWd) >> Parse Syll in McCarthy and Prince 1993. The result is non-parsing or non-realization of structure in either case.

exhibit the (20c) pattern, as was illustrated in (19). Aligning gridmarks to the left would result in the (20b) pattern.

Like Carib, Polish has boundary-induced intersections. In both cases, and as illustrated for Polish below, I am taking this to be the result of a recursive prosodic word structure induced by exhaustive parsing and Align (Base, L, PrWd, L), a constraint aligning the left edge of every base with the left edge of some prosodic word. In base+proclitic forms, an additional intersection at the base/proclitic boundary may occur due to the ranking of Align (Base, L, PrWd, L) over Align (Ft, R, PrWd, R). Exhaustive parsing forces the recursion of the prosodic word in all forms with proclitics. Since each foot must be included in some prosodic word, the prosodic word has to be recursive to accommodate any foot that is either wholly or partially to the left of the base, as illustrated in (21) on the following page. Rightward foot alignment forces the rightmost foot in an odd-parity proclitic string to extend across the lower prosodic word boundary and into the base. This creates an intersection at the boundary, as illustrated in (21a, c).

Unlike the patterns of odd-parity base forms, the gridmark pattern at the boundary cannot occur simply as the result of rightward gridmark alignment within the prosodic word, since in (21a) it is the leftmost of the two possible gridmarks that must be realized. An additional component, a constraint aligning the left edge of the higher prosodic word with a gridmark, is needed. This constraint must be ranked over Align (GM, R, PrWd, R), so that in cases like *tèn rewolùcjonísta* rightward gridmark alignment is overridden when it would result in an initial stressless syllable. This is illustrated in (22) on the following page.[7]

---

[7] Note that this will not work with a three-syllable form, since only the middle syllable is stressed, as in *Warszáwa*. This is a case, however, where demands on placement of the main stress are overriding. Main Stress must always be associated with the final foot. Ranking the constraint positioning the head of the prosodic word above the constraint demanding initial stress will accomplish the desired result. Since it is not central to the structural analysis, I will not pursue the issue further.

(21) Foot patterns in forms with proclitic strings

a.

```
              PrWd
             /  \
            /    PrWd
           /    /  |  \
          F    F   F   F
         / \  / \ / \ / \
       ten # re wo luc jo ni sta
```

b.

```
              PrWd
             /  \
            /    PrWd
           /      |
          F       F
         / \     / \
       by  to  # zro bił
```

c.

```
              PrWd
             / | \
            /  |  \
           /   |   PrWd
          /    |   /  \
         F     F  F    F
        / \   / \/ \  / \
      jak on by # pro te sto wał
```
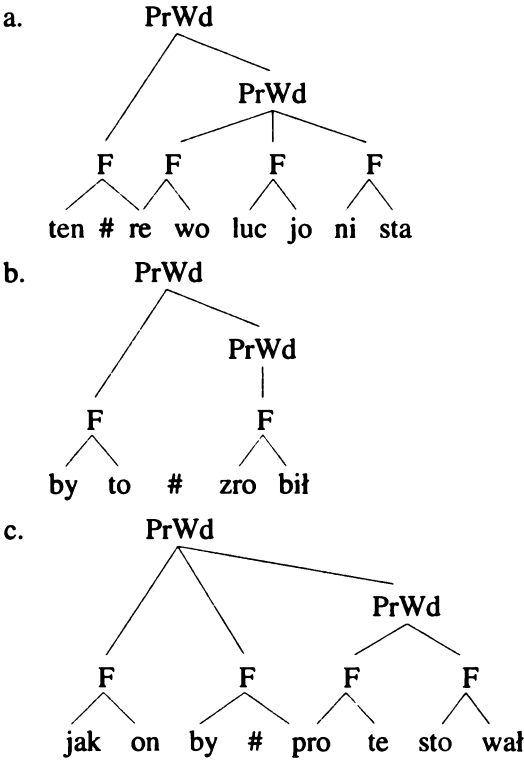
(22) Initial syllable must be stressed

σ#σσσσσσ	Align (PrWd, GM)	Align (GM, PrWd)

☞
 a. σ # σ σ σ σ σ σ
      x   x   x
             x
		* ***
		 ******

b. σ # σ σ σ σ σ σ
    x   x   x
           x
	*!	* **
		 *****

In the tableau in (22), the (a) candidate better satisfies Align (PrWd, GM) than the (b) candidate, since it has an initial stressed syllable. Although (b) does better with respect to rightward gridmark alignment, (a) is the winner because Align (PrWd, GM) is the higher ranked constraint.

The ranking as it stands, then, gives the complete foot patterns and stress correlations as seen in (23).

(23) Stress patterns in forms with odd-parity proclitic strings

    a. tèn rewolùcjonísta
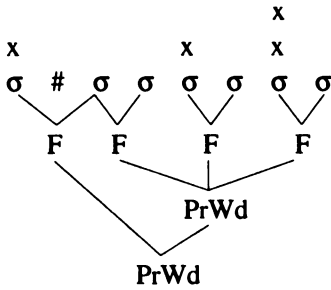
    b. òd konstantỳnopòlitańczýka
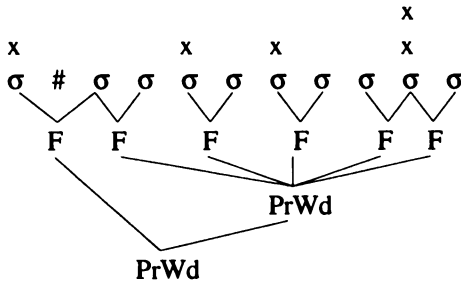
    c. jàk on by pròtestówał
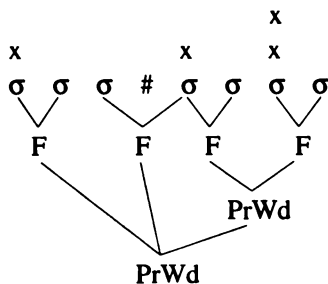
In both the (23a) and (23b) patterns, the proclitic string is monosyllabic, and an overlap configuration occurs at the left edge of the form. The initial syllable is stressed, reflecting the need to align the left edge of the higher prosodic word with a gridmark despite the tendency of rightward gridmark alignment. In the (23a) pattern, the base is even-parity so no overlap occurs at the right edge. In the (23b) pattern, an overlap occurs at the right edge because the base is odd-parity. In the (23c) pattern, the proclitic string contains three syllables, and the overlap configuration is one foot removed from the left edge. Since the stress of the initial syllable is not in question, the rightmost possible gridmark in the overlap configuration is realized. Also, since the base is even-parity, no overlap occurs at the right edge.

An interesting form not predicted by the ranking discussed so far is one for which this ranking would produce a sequence where three adjacent syllables, or two adjacent feet, are unstressed. Example (24b) is one such form, having an odd-parity proclitic string and an odd-parity base yet exhibiting the basic alternating pattern.

(24) Additional forms

    a. σ́σσσ́σ́σ   sàksofonísta

    b. σ́ # σσ̀σσ́σ   tèn saksòfonísta

Some notion of lapse avoidance is needed to obtain these forms. In terms of locality, discriminating against a sequence of two unstressed feet seems preferable to discriminating against a sequence of three unstressed syllables. Therefore the Frequency[8] constraint is defined as follows:

(25) Frequency constraint

Definition: In a sequence of two feet, at least one must have a gridmark

Examples of Violations

a. σ   σ   σ   σ   b. σ   σ   σ

    \ /   \ /   \ /\ /

    F   F   F   F

---

[8] This constraint has similar, but not identical, effects to the Lapse constraint of Green 1995 and Green and Kenstowicz 1995. I have avoided use of the term *Lapse constraint* to prevent confusion.

With Freq. ranked above Align (Base, L, PrWd, L) we can obtain the correct pattern through misalignment of the base and prosodic word whenever an aligned structure would result in two sequential unstressed feet:

(26) Avoiding Lapse

σ # σσσσσ	Freq.	Align (Base, L)
☞ a. (candidate with feet structure, PrWd)		*
b. (candidate with feet structure, PrWd, PrWd)	*!	

In the tableau in (26), the (a) candidate violates the constraint aligning the base and the prosodic word, but it satisfies Freq. The (b) candidate satisfies the alignment constraint, but violates Freq., as the second and third feet are both stressless. Candidate (a) is the winner, since Freq. is the higher ranked constraint.

6. Conclusion

By modifying current structural assumptions, then, in such a way that feet are allowed to overlap, we can obtain the stress patterns of Polish that could not be obtained in a non-footing *Generalized Alignment* approach, and we can do it without recourse to manipulations of basic OT mechanics. This does not mean that cyclic or output-output

correspondence approaches have been demonstrated to be unnecessary, but they are certainly less motivated for the types of phenomena that we have seen in Polish and Carib. Also, it does not mean that an overlapping foot analysis is incompatible with a cyclic or output-output correspondence approach. The overlapping structures could easily be obtained under either, perhaps even much more easily than structures involving non-footing. At any rate, whatever the mechanisms involved, the overlapping foot approach must be allowed in order to account for phenomena such as the pattern illustrated by Maithili.

References

Bethin, Christina. (1998) *Slavic Prosody: Language Change and Phonological Theory*, Cambridge University Press: Cambridge.

Comrie, Bernard. (1976) "Irregular Stress in Polish and Macedonian," *International Review of Slavic Linguistics* 1, 227–40.

Cooper, G. and Meyer, L. (1971) *The Rhythmic Structures of Music*, University of Chicago Press: Chicago

Crowhurst, Megan and Mark Hewitt. (1995) "Prosodic overlay and headless feet in YidiN," *Phonology* 12: 39–84.

Franks, Steven L. (1991) "Diacritic Extrametricality vs. Diacritic Accent: a Reply to Hammond," *Phonology* 8: 145–61.

———. (1985) "Extrametricality and Stress in Polish," *Linguistic Inquiry* 16, 144–51.

Green, Tom. (1995). "The Stress Window in Piraha: A reanalysis of rhythm in Optimality Theory". Ms, MIT. ROA–45, Rutgers Optimality Archive, http://ruccs.rutgers.edu/roa.html.

Green, Thomas, and Michael Kenstowicz. (1995) "The Lapse Constraint". ROA-101, Rutgers Optimality Archive, http://ruccs.rutgers.edu/roa.html.

Halle, Morris and Jean-Roger Vergnaud. (1987) *An Essay on Stress*, MIT Press: Cambridge, Mass.

Hammond, Michael. (1989) "Lexical Stress in Macedonian and Polish," *Phonology* 6, 19–38.

Hayes, Bruce. (1987) "A Revised Parametric Metrical Theory", *Northeastern Linguistic Society* 17: 274–89

Hayes, Bruce. (1995) *Metrical Stress Theory*, University of Chicago Press: Chicago.

Hoff, B. (1968) *The Carib Language*. The Hague: Martinus Nijhoff.

Hung, Henrietta. (1993) "Iambicity, Rhythm, and Non-Parsing" ROA–9, Rutgers Optimality Archive, http://ruccs.rutgers.edu/ roa.html.

Idsardi, William. (1994) "Optimality, Alignment and Polish Stress", Paper presented at the 68th Annual Meeting of the Linguistic Society of America, Boston.

Jha, Subhadra. (1940–1944) "Maithili Phonetics", *Indian Linguistics* 8:435–59

———. (1958) *The Formation of the Maithili Language*, Luzac: London.

Kenstowicz, Michael. (1995a) "Base-Identity and Uniform Exponence: Alternatives to Cyclicity." ROA–103, Rutgers Optimality Archive, http://ruccs.rutgers.edu/roa.html.

———.(1995b) "Cyclic vs. Noncyclic Constraint Evaluation," *Phonology* 12:397–436.

Lerdahl, Fred and Ray Jackendoff. (1983) *A Generative Theory of Tonal Music*, MIT Press: Cambridge, Massachusetts.

Liberman, Mark. (1979) *The Intonational System of English*, Garland Publishing: New York. (Originally presented in 1975 as the author's Ph.D. dissertation, MIT.)

McCarthy, John, and Alan Prince. (1993) "Generalized Alignment," *Yearbook of Morphology* 1993: 79–153.

Prince, Alan. (1983a) "Relating to the Grid," *Linguistic Inquiry* 14: 19–100.

Rubach, Jerzy, and Geert Booij. (1985) "A Grid Theory of Stress in Polish," *Lingua* 66:281–319.

Dept. of Linguistics
Rutgers University
18 Seminary Place
New Brunswick, NJ 08901–1184
bhyde@eden.rutgers.edu

Is PRO Really Necessary? A Minimalist Approach to Infinitival and Subjunctive(-like) Constructions in Serbo-Croatian and Hungarian*

Edit Jakab
Princeton University

1. Introduction

In this paper I examine two synonymous constructions in Serbo-Croatian and Hungarian with the impersonal modal predicate 'must' (*treba/kell*), which always appears in 3sg. While both infinitival (1) and subjunctive (2) constructions are used in Hungarian, the subjunctive[1] is the only option in Serbian (4), and it is preferred in Croatian, though Colloquial Croatian (3a) allows also the dative + infinitive construction (but not for all speakers[2]).

(1) (nekem) el[3]   **kell**   olvas-n-**om**   (Hu)
     I-dat   PREF   **must**   read-inf-1sg-Poss

     a   könyv-et
     the   book-acc

     'I have to read the book.'

(2) (én)   el   **kell**   hogy   olvas-s-am   a   könyv-et   (Hu)
     I-nom   PREF   **must**   that   read-SUBJ-1-sg   the book-acc

[1] Even though there is no overt subjunctive (SUBJ) morphology in Se/Cr, the verb form in (4) has subjunctive-like properties as it will be shown later (also cf. Progovac (1993a) and (1993b)).

[2] Most Croatian speakers prefer using a relatively new construction, i.e. the conjugated forms of the verb *trebati* accompanied by the infinitive: *(ja) trebam pročitati knjigu*. It is a universal tendency to replace impersonal constructions with personal ones if possible.

[3] *El* is a perfectivizing verbal prefix; here it belongs to the infinitive.

(3) a. ?meni   **treba**   pročitati   knjigu   (Coll.Cr)
         I-dat   **must**   read-inf   book-acc

    b. *meni treba pročitati knjigu (Se)

(4) (ja)   **treba**   **da**   pročita-m   knjigu   (Se/Cr)
    I-nom   **must**   that   read-1sg   book-acc

Traditionally it has been assumed that the null subject of infinitives (Chomsky (1981)) and subjunctives (Terzi (1992)) is PRO, which is an inelegant consequence of the Theta Criterion.[4] My goal here is to look for an alternative for PRO, and find evidence that it is not necessary. By examining the two parallel (infinitive and subjunctive) structures in Hungarian and Serbo-Croatian (1–4), I will give a minimalist account of the agreeing infinitive in Hungarian and compare it with its counterpart in Croatian which shows no agreement. Making use of the independently-motivated conditions on movement and feature-checking of the Minimalist Program, I will demonstrate that PRO is superfluous and can be abandoned once D-structure and its syntactic applications, the Projection Principle and Theta Theory (i.e. the one-to-one match between arguments and theta positions), are eliminated.[5] Since the dismissal of these notions is one of the basic features of the Minimalist Program, the existence of PRO and the Control module becomes dubious (cf. O'Neil (1997) and Hornstein (1998) who also argue for their elimination[6]).

Another issue that I will look at throughout this paper is the so-called infinitive-subjunctive rivalry in obligatorily controlled complements,

---

[4] Within Government and Binding Theory PRO was postulated in the subject position of infinitival clauses; this necessitated the creation of a separate module, Control Theory, in order to identify PRO's matrix antecedent.

[5] Bošković (1994) brings convincing evidence against their existence.

[6] According to Bošković (1994), O'Neil (1997) and Hornstein (1998), the abandonment of the Theta Criterion and the Projection Principle makes movement into a theta position possible. This is the underlying assumption of this paper as well. The idea that theta roles are features that can therefore attract already merged arguments is also utilized in Manzini and Roussou (1997). Borer (1989), too, intends to eliminate the Control module by identifying the null subject of infinitivals and gerunds with *pro*, which is the same as the null element in the [NP, IP] position in tensed clauses.

which is connected to the notion of obviation.[7] This rivalry manifests itself in two options cross-linguistically (cf. Farkas (1992a)):

i.) The first option is when both the infinitive and the subjunctive are possible with the following constraint: if a language has infinitive, it will be used to express subject dependency[8] (subject dependent clauses are the complements of verbs like *try* or *convince*, whose subject arguments are necessarily dependent on the matrix clause). This is the typical case in Romance:

(5) a. Pierre$_i$ veut   qu'il$_{*i/j}$ parte   (Fr)
       Pierre   wants   that he   leave-SUBJ

       'Pierre wants that he leave. [P. wants him to leave.]'

   b. Pierre veut   partir
      Pierre wants   leave-inf

       'Pierre wants to leave.'   (Farkas 1992a: 86)

The interpretation of (5a) in which the subjects of the matrix and embedded clauses are coreferential is ruled out not because of the wrong binding relations but because a subjunctive complement has been used instead of an infinitival one. This is a corollary of a well-known semantic constraint which states that the existence of a more specific lexical item or construction blocks (disallows) the use of the more general one in cases where the choice is theoretically possible (Farkas 1992a); i.e. here the more specific complement form [the infinitival, which is able to mark subject dependency] prevents the less specific complement form [the subjunctive]. However, the use of the subjunctive, as (5a), shows results in subject obviation.

Hungarian also belongs to this group, but the constraint is stricter: in Hungarian the infinitive is used exclusively to denote subject dependency [subject control] (6a), whereas in case of non-subject control, the infinitive is impossible, and the subjunctive must be used (6b; 7a,b):[9]

---

[7] We speak of obviation when the subject of subordinate clauses must be disjoint in reference from certain NPs in the immediately higher clause.

[8] In other words, subject control.

[9] The situation in Se/Cr is the same. Infinitives are allowed only in subject control constructions:

(6) a. Péter   mozi-ba   akar   men-ni
         P-nom   movies-illat   want-3-sg   go-inf

         'Peter wants to go to the movies.'

     b. Péter$_i$ az-takar-ja,   hogye$_{*i/j}$ mozi-ba
         P-nom   it-acc want-3sg   that   movies-illat

         men-j-en
         go-SUBJ-3sg

         'Peter wants him to go to the movies.'

(7) a. Péter   megkér-t-e   Kati-t,   hogy
         Péter   ask-past-3sg   Katie-acc   that

         men-j-en   a   mozi-ba
         go-SUBJ-3sg   the   movies-illat

         'Peter asked Katie to go to the movies.'

     b. *Péter   megkér-te   Kati-t   men-ni
          Péter-nom   ask-past,3sg   Katie-acc   go-inf

          a   mozi-ba
          the   movies-illat

(6b) shows that the subjunctive complement fails to express subject
dependency, and must be obviative: the null pronoun in the subordinate
clause implied by the 3sg suffix on the verb cannot be coreferential with
the matrix subject, just like in the French example (5a). This state of
affairs leads us to think that subject and object control constructions are
of a different sort.[10]

ii.) The second option is when the subjunctive wins over the infinitive (in
most cases); this is characteristic of most South Slavic languages. In
Serbian, the subjunctive almost entirely replaced the infinitive (8a,b),[11]

(i) zna   igra-ti   košarki   (Bošković, p.c.)
     can   play-inf   basketball

     'He can play basketball.'

[10] See Martin (1996) for a discussion on the distinction between subject and
object control constructions.

[11] I will use the term 'subjunctive' despite the lack of overt subjunctive
morphology in Se/Cr (cf. fn.1).

though (8c) is grammatical in Colloquial Croatian. The lack of infinitives predicts that there will be no obviation effects, and this is in fact the case in (8a,b): the complement's subject must always be null when it refers to the matrix subject.

(8) a. Petar$_i$ je   pokušao   da$_2$[12] e$_{i/*j}$ dodje
         Petar   Aux   tried   that   come-3sg

         'Petar tried to come.'

     b. *Petar$_i$ je   pokušao   da$_2$ on$_i$ dodje
         Petar   Aux   tried   that   he   come-3sg

     c. *Petar   je   pokušao   doći
         Petar   Aux   tried   come-inf

2. Hungarian Agreeing Infinitives

In this section I examine under what circumstances Hungarian infinitives can be inflected and how they resemble possessive DPs in light of the feature checking theory of the Minimalist Program.

In Hungarian, the infinitive, when it is a complement of impersonal modal predicates (Mod) such as *kell* 'be necessary', *lehet* 'be possible', *fontos* 'be important' etc., can bear a possessive AGR marker, which agrees with the dative subject of the infinitive (1). Because of this agreement *pro*-drop is possible, i.e. the subject DP of the main clause can be omitted. Since the infinitive is inflected only as the complement of Mods, and since the subject is dative only with these predicates, it seems reasonable to assume that the infinitive and Mod are together responsible for these two phenomena (the dative subject and the inflected infinitive). This is further supported by the fact that when the infinitive is the complement of other verbs (such as *akar* 'want'), the main clause subject is always in the canonical nominative.
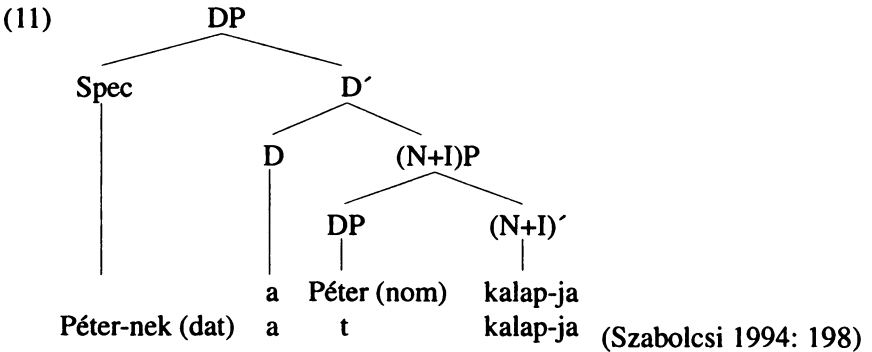
(9) (én)   el   **akar-om**   olvas-ni   a   könyv-et
     I-nom   PREF   want-1sg   read-inf   the   book-acc
     'I want to read the book.'

The fact that infinitives can be inflected in Hungarian reflects their hybrid nature: as the translation of the Hungarian term for infinitives,

---

[12] The subscripted 2 on *da* will be explained in section 2.3.

'nominal participle', suggests, they can have AGR markers in this construction, which are identical to the nominal possessive paradigm, and which are the overt realization of the feature [+poss agr]. Arguing that the Hungarian possessive NPs have a similar structure to that of the clause (they contain an Infl node), Szabolcsi's (1984, 1994) account of unique fact that in Hungarian the possessed NP exhibits agreement with the possessor, that can be either nominative (10a) or dative (10b) is illustrated in (11).

(10) a. a   Péter   kalap-ja
         the   Peter-nom   hat-3sgPoss
         'Peter's hat'

     b. Péter-nek   a   kalap-ja
         Peter-dat   the   hat-3sgPoss
         'Peter's hat'

(11)   DP
            ┌────────────┴──────┐
          Spec   D´
           │   ┌───────┴───────┐
           │   D   (N+I)P
           │   │   ┌──────┴──────┐
           │   DP   (N+I)´
           │   │   │
                        a Péter (nom)   kalap-ja
        Péter-nek (dat) a   t   kalap-ja   (Szabolcsi 1994: 198)
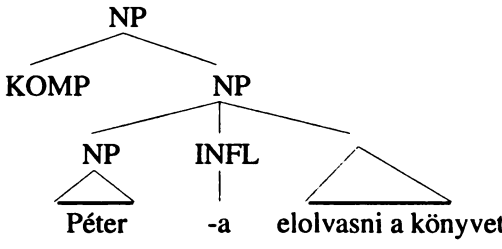
On the basis of the representation in (11) she argues that when the possessor (the subject of the DP/(N+I)P) moves into/through Spec-DP, which is the analogue of the sentential complementizer, it gets assigned dative Case there. This dative cannot be a lexical Case since it originates in the Spec-DP position, but rather it must be structural. In (10a), however, the nominative possessor is the structural analogue of the subject which bears the nominative Case.

     Kiss (1987) applied Szabolcsi's (1984) analysis of possessive nominals to agreeing infinitivals such as (12).

(12) Péter-nek   el   kell-ett   olvas-ni-a
      Peter-dat   PREF   must-past,3sg   read-inf-3sgPoss

      a   könyv-et
      the   book-acc

      'Peter had to read the book.'

Positing a structure similar to (11) for inflected infinitivals, Kiss argues
that the Hungarian agreeing infinitive is of the category NP, and as such,
has a nominal Infl node. If this Infl has a [+poss] value, the subject of the
infinitive (*Peter*, which is the equivalent of the possessor) will be marked
dative, and it gets assigned dative in the Spec position (Spec-
NP'=KOMP) on its way up to the matrix clause (13):

(13)   NP

      KOMP   NP

        NP   INFL

        Péter   -a   elolvasni a könyvet   (Kiss (1987: 218))

With this she renders the structure of Hungarian agreeing infinitives
identical to the structure of English gerunds (cf. Jackendoff (1977)),
where the topmost NP node dominates an NP subject and a VP:

(14) [NP NP VP]

The immediate problem with this structure is that it does not fit the X'-
schema since a V head cannot project a NP. Also, if Hungarian
infinitives have the same structure as English gerunds, they should be
able to appear in the same positions, and as NPs they should be able to
get Case in these positions: in subject position (15a) and (16a), as direct
objects of verbs (15b) and (16b) and as complements of prepositions
(postpositions in Hungarian) (15c) and (16c).[13]

(15) a.   her buying a castle surprised everyone

_____

[13] The distinction may not necessarily be structural; it could be simply that
gerunds can have Case, whereas infinitives are Caseless (Željko Bošković, p.c.).

(15) b.   the cats never liked her feeding them fake mice
      c.   there was a rumor about her leaving her boyfriend

(16) a.   sikerül-t   Péter-nek   el-olvas-ni-a   a
           succeed-past,3sg   Peter-dat   PREF-read-inf-3sgPoss   the
           könyv-et
           book-acc
           'Peter managed to read the book.'

      b.   *hall-ott-am   Péter-nek   énekel-ni-é-t
           hear-past-1sg   Peter-dat   sing-inf-3sgPoss-acc
           'I heard Peter sing.'

      c.   *összerogy-t-unk   a rokonok-nak   elutaz-ni-a   után
           collapse-past-1pl   the relatives-dat   leave-inf-3sgPoss   after
           'We collapsed after our relatives left.'

On the basis of examples (16b) and (16c) it appears that Hungarian
infinitives can get only the nominative Case. However, substituting
possessive derived nominals for the inflected infinitivals makes all three
sentences grammatical:

(17) a.   sikerül-t   Péter-nek a   könyv   elolvas-ás-a
           succeed-past3sg   Peter-dat   the book-nom   read-ing-3sgPoss
           'Peter managed to read the book.'

      b.   hall-ott-am   Péter-nek   az   ének-lés-ét
           hear-past-1sg   Peter-dat   the   sing-ing-3sgPoss
           'I heard Peter sing.'

      c.   összerogy-t-unk   a   rokonok-nak   az
           collapse-past-1pl   the   relatives-dat   the
           elutaz-ás-a   után
           leave-ing-3sgPoss   after
           'We collapsed after our relatives left.'

Since the possessive DPs with a dative-marked subject/possessor can get
Case-marked in (17), the ungrammaticality of sentences in (16) cannot be
attributed to the fact that they are not assigned Case. On the other hand,
the ill-formed sentences in (16) raise the question whether the infinitival
in (16a) is assigned nominative Case at all: since nominative is realized

as a zero morpheme in Hungarian, the infinitive *elolvasnia* may just as well be Caseless (Csúri, p.c.). All of this is sufficient to conclude that Hungarian infinitives have to get a different structural representation from that of English gerunds.

Another problem with Kiss' analysis is that it does not account for the ungrammaticality of sentences like (18) where the subject of the infinitive is in the nominative:

(18) *el   kell-ett   Péter   olvas-ni-a   a
     PREF   must-past3sg Peter-nom   read-inf-3sgPoss the
     könyv-et
     book-acc
     'Peter had to read the book.'

If Hungarian infinitives have a parallel structure with possessive NPs, it would be natural to assume that their subject (which is the equivalent of the possessor) behaves the same way, and so, it can appear in both the dative and the nominative (as the possessor in (10)). (18) shows that this is not the case. What can be the reason for this?

An explanation can be provided by the movement and feature checking theory of the Minimalist Program. I suggest that the infinitival complement of Hungarian impersonal modals must have its own projection, because it needs a position where it can check its [+poss agr] and Case features. Spec-AgrP, suggested by the Mod head, provides this position. Thus the subject first moves to Spec-AgrP to check the [+poss agr] and Case features along with the infinitive (V_{inf}) which raises at LF. This provides evidence for the initial intuition that the modal, which selects for an Agr projection, and the infinitive are together responsible for the subject's dative Case and the agreement on the infinitive. However, the subject cannot stop at Spec-AgrP because it is attracted by T's strong D-feature which needs to be checked. So (12), repeated here as (19) will have the representation seen in (20):

(19) Péter-nek el   kell-ett   olvas-ni-a
     Peter-dat PREF must-past,3sg read-inf-3sgPoss
     a   könyv-et
     the book-acc
     'Peter had to read the book.'

(20)   Péter-nek$_i$ el kellett t$_i$' t$_i$ olvasni-a a könyvet
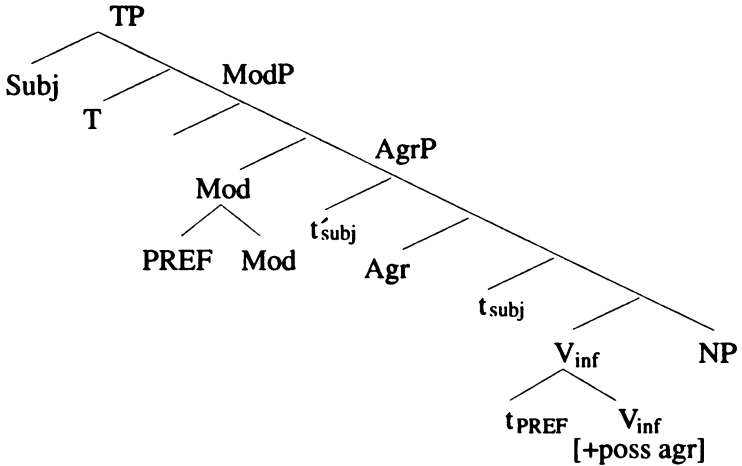
Thus on the basis of the structure in (20) we can rule out sentence (18), where the subject is in the nominative, since it will not be able to get its nominative Case checked in Spec-AgrP because of the Case mismatch, which, in turn, will cancel the derivation.

Colloquial Hungarian, however, has another possibility to express (19), when the infinitive bears no [+poss agr] marker, and still has a dative-marked subject (21):

(21) Péter-nek el   kell-ett   olvas-ni   a   könyv-et
      P-dat   PREF   must-past3sg read-inf   the   book-acc
      'Peter had to read the book.'

Kiss argues that the optionality of the [poss agr] on the infinitive results from phonetic rule which erases redundant information, just as in (22), where the accusative marking is optional after a [poss agr] marker:[14]

---

[14] A similar change occurs in Finnish possessive constructions: there is [poss agr] deletion on the possessed N when the possessor is a lexical NP (i), whereas the [poss agr] marker is obligatory with a pronominal possessor (ii) in the literary language. Colloquial Finnish allows for the [poss agr] to be dropped even with a pronominal possessor when it is overt (iii):
(i)   Peka-n   hattu-Ø (Fi)
      Peka-gen hat-nom
      'Peter's hat'

(22) keresem a kalap-om-Ø/ kalap-om-at
     seek-1sg the hat-1sgPoss-Ø/ hat-1sgPoss-acc
     'I'm looking for my hat-Ø/hat-acc.'

This reasoning, however, does not account for the fact that in the case of (22) both variants are equally "correct", i.e. neither is marked, whereas (21) is definitely marked in comparison with the standard (19). On the other hand, given the structural parallelism between Hungarian infinitives and possessed DPs and the evidence from Finnish (fn. 14), it is not unreasonable to claim that there is a diachronic change happening presently, in the process of which the [+poss agr] marker on Hungarian agreeing infinitives whose content is recoverable from other lexical material, such as the subject of the infinitive, is getting gradually deleted in spoken Hungarian.[15]

There is also a possible semantic difference (P. Csúri, p.c.) to be noted between sentences (19), which has an agreeing infinitive, and (21), which contains a nonagreeing infinitive: while (19) has both a deontic and an epistemic reading, (21) has only the latter.

(ii) (minun) hattu-ni
     I-gen hat-1sgPoss
     'my hat'

(iii) mun hattu (Coll. Fi)
     I-gen hat-nom
     'my hat'

[15] That Hu possessive DPs do not allow for the optionality of the [+poss agr] even with a nonpronominal possessor (11) appears to be surprising without knowing that they use a different strategy to avoid redundancy: when the possessor is 3rd plural, its plurality is marked only once in the construction, i.e. on the possessed N when the possessor is pronominal (and thus can be dropped) (ia), and on the possessor when it is lexical (ib):

(i) a. az ő kalap-juk
     the (s)he-nom hat-3plPoss
     'their hat'

   b. a lány-ok kalap-ja
     the girl-pl hat-3sgPoss
     'the girls' hat'

But what about the structure of (21)? Csúri (1990) argues that in (21)
the infinitival complement must have a PRO subject which is controlled
by the overt matrix NP *Péternek*, which, in turn, can license the deletion
of the [+poss agr] on the infinitive. I would like to propose that instead of
PRO, the Mod head simply selects for a bare VP without the AgrP (since
there is no agreement). This way the subject checks its dative Case and
T's strong D feature in Spec-TP, and (21) has the structure in (23).

(23) $[_{TP}$ DP$_{subj}$ $[_{ModP}$ Mod $[V_{inf}$ $[_{VP}$ t$_{subj}$ $^{t}V_{inf}$ [-poss agr] DP$_{obj}]$

Spec-TP is the topic position in Hungarian, into which a
referential/specific or generic subject, such as *Peter* in (21), moves. The
verbal prefix *el*, on the other hand, left-adjoins to the Mod head, which
can be viewed as the focus position here.[16] When, however, the infinitive
is prefixless, the infinitive itself will adjoin to the Mod head, since there
is no prefix to occupy that position (24), and the dative subject raises to
the usual topic position in Spec-TP:

(24) Péter-nek   tanul-ni-a   **kell**
      P-dat   study-inf-3sgPoss   must

      'Peter has to study.'

Thus (23) shows that there is no need to stipulate the mechanisms that
support PRO; the structure can be explained by independently motivated
movement and feature checking.

---

[16] The verbal prefix in Hu is an aspectual operator which indicates perfectivity,
and in (21) it has the option to raise and adjoin to ModP because the modal verb
is unmarked for aspect, hence the scope of a perfectivizing operator can be
extended over it. For the movement of an aspectual operator (the verbal prefix)
to be licensed, the V (=Mod) and the VP (=infinitive) must form a single
semantic domain/unit, which can only be affected by operators as a whole.
Hence the prefix does not have the option to move to a position between Mod
and the infinitive (i).
(i) (Péter-nek) kell-ett   el-   olvas-ni-a   a   könyv-et
     Peter-dat   must-past3sg PREF   read-inf-3sgPoss the   book-acc
     *'Peter had to read the book'
     [but OK: 'it was Peter who had to read the book (and not Tom)']

2.1. Treba + Infinitive in Croatian

Example (21) takes us to the Croatian sentence in (3a), repeated as (31), where we see a similar structure: an infinitive with a dative subject.

(25) ?meni   treba   pročitati   knjigu
     I-dat   must   read-inf   book-acc
     'I have to read the book.'

The structure that I assume for the Croatian example (25) also renders PRO superfluous: as opposed to Bošković (1997) who posits PRO in infinitival complements, I propose that the infinitive in (25) is a bare VP (see Babby (1998) for Russian, or O'Neil (1997) for English modals + bare VP complements). Since the infinitive has no special feature that needs to be licensed, the node Mod does not select for an Agr projection. Hence the subject NP raises to Spec-TP where it checks its Case and the strong D-feature of T. Thus (25) is assigned the same structural representation as the Hungarian example in (23).

3. The Subjunctive

Now let us turn to sentences containing the subjunctive. It is a well-known fact that Serbian lost its infinitives, and as a replacement it uses the *da* 'that' + finite (subjunctive-like) construction (4), repeated here as (26a).

(26) a. (ja)   **treba**   **da**   pročita-m   knjigu   (Se/Cr)
        I-nom   **must**   that   read-1sg   book-acc

     b. *(ja)   treba   da   ja   pročita-m   knjigu
         I   must   that   I-nom   read-1sg   book-acc

     c. *Petar$_i$ treba   da   on$_{*i/*j}$ pročita   knjigu
         P-nom   must   that he   read-3sg   book-acc
        'Peter has to read the book'

This same structure exists in Hungarian (2), repeated as (27a), as well (both are due to Balkan influence).

(27) a. (én)   el   kell   (hogy)   olvas-s-am   a   könyv-et
        I-nom   PREF   must   that   read-SUBJ-1sg   the   book-acc
        'I have to read the book'

(27) b. *el   kell (hogy) én   olvas-s-am   a   könyv-et
        PREF must   that   I-nom   read-SUBJ-1sg the book-acc

(28) ja   treba da t' t pročitam knjigu
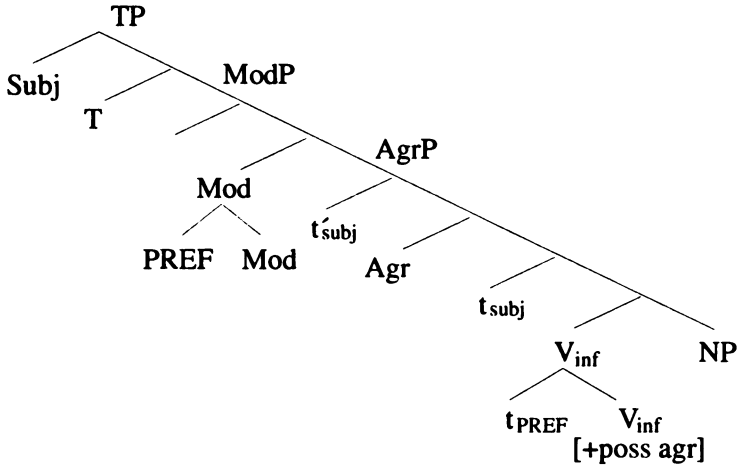
The sentences in (26) and (27) can be accounted for in the following way
(the structure is given in (28)): the subject moves from its VP-internal
position to Spec-AgrP to check its Case. This Agr projection is the
selectional property of the Mod head just like in the case of the
Hungarian inflected infinitives. Then the subject further raises to Spec-
TP to check its EPP features.[17] This subject cannot be *pro* because it is
not possible to have an overt subject between *da* and the verb (26b) and
(27b) – because the subject's trace occupies that position. It is not
necessary to equate the null subject of this finite construction with PRO
either, as Terzi (1992) does for Balkan languages, since the
independently-motivated movement theory accounts for it. I propose that
the subject can move across *da* because in this construction, *da* does not
function as a complementizer (Comp), but rather, it is part of the
complex head of ModP, *treba+da*, as (28) illustrates.

---

[17] A reviewer questioned the status of *ja* in (26a) and suggested that it is left
dislocated. It is difficult to test whether *ja* is really in an adjoined (A') position;
what is essential to my analysis is that it does not trigger agreement on the
modal, and this is represented in (28). The Mod head selects for a functional
projection to enable the appropriate checking relations.

This analysis contradicts the general view in the literature, e.g.
Progovac (1993) or Vrzić (1996), who consider *da* to be a comple-
mentizer,[18] and claim that two types of *da* complements are distin-
guished in Serbo-Croatian even though there are no formal differences
between the complementizers they use (it is *da* in both), or in the verbal
inflection. I will call these types *da₁* and *da₂* complements (following
Zec (1987) and Farkas' (1992a) terminology): *da₁* complements are used
only in indicative clauses (29), and *da₂* complements are used in
subjunctive-like clauses (30). *Da₂* complements differ from *da₁*
complements in two ways: (i) *da₂* complements obey tense restrictions
(30b) which *da₁* complements do not obey (29b), and (ii) *da₂*
complements have modal properties typical of the subjunctive (30a),
which *da₁* complements do not necessarily have (29a).[19]

(29) a. kaže   da₁ Petar   čita   ovu   knjigu
        say-3sg   that P-nom   read-3sg   this-acc   book-acc
        'He says that Peter is reading this book'.
     or: 'He says that Peter should read this book.'

     b. kaže   da₁ je   Petar   pročitao   ovu
        say-3sg   that Aux P-nom   read-past3sg   this-acc
        knjigu
        book-acc
     'He says that Peter has read this book.'

(30) a. želim   da₂ Petar   čita   ovu   knjigu
        wish-1sg   that P-nom   read-3sg   this-acc   book-acc
        'I wish for Peter to read this book.'

     b. *želim   da₂ Petar je   pročitao   ovu   knjigu
        wish-1sg   that P-nom Aux read-past3sg this-acc book-acc
        'I wish for Peter to have read this book.'

---

[18] It is interesting to note, however, that Rudin (1983) does not consider *da* in
Bulgarian to be a complementizer but rather to belong to the category AUX
similarly to verbs such as *trjabva* 'must/should'. The Bg structure is, however,
not identical to the Se/Cr one (e.g. *trjabva* and *da* can be separated by lexical
material in Bg (Rudin (1983: 17)), whereas they cannot be in Se/Cr).

[19] Following Farkas (1992a), by "accidental" I mean cases where the subject of
a complement happens to be referentially dependent on a matrix argument.

In case the subject of a *da$_2$* complement is "accidentally" dependent on an NP in the matrix clause, it must be null to achieve this dependency (31):[20]

(31) a. Petar$_i$ je   želeo   da$_2$ [e$_{i/j}$]   dodje
       Petar   Aux   wanted   that   come-3sg
       'Peter wanted to come'
       'Peter wanted him to come'

     b. Petar$_i$ je   želeo   da$_2$ on$_{*i/j}$[21]   dodje
       Petar   Aux   wanted   that   he   come-3sg
       'Peter wanted him to come'

(32) *Petar$_i$ treba   da   on$_{*i/*j}$ pročita   knjigu
      Petar-nom   must   that   he   read-3sg   book-acc

As (31b) shows, an overt pronoun in the *da$_2$* complement makes it obviative, i.e. the complement's subject cannot be coreferential with the matrix subject. Vrzić (1996), following Progovac (1993), explains the transparency of *da$_2$* clauses by virtue of their Infl being dependent on the matrix clause, and consequently by allowing the deletion of lower Infl and Comp at LF.

Notice, however, that the construction that I am examining, repeated as (32) differs from examples in (31) in that it cannot ever be obviative; the reason for this is that the null element, which I argued to be the trace of the subject, prevents a subject NP from appearing between *da* and the verb, and this is a natural consequence of the monoclausal structure that I proposed in (28).

Thus, while sentences in (30) and (31) are biclausal, containing a *da* complementizer, sentences in (26) have a monoclausal structure with a complex Mod-head, consisting of the modal and *da*, which allows the subject to move. In this way, the trace of the subject automatically excludes the possibility of an overt subject (as in (32)), so there is no need to posit either PRO or *pro* in this position.

---

[20] Following Farkas (1992a), by "accidental" I mean cases where the subject of a complement happens to be referentially dependent on a matrix argument.

[21] The sentence is grammatical if *on* has a contrastive stress on it.

Another piece of evidence in favor of the monoclausal structure that I am proposing is the tense restriction: we saw in (30b) that da_2 complements can contain only a present tense verb. The construction analyzed in this paper, as (33) shows, obeys the same constraint, and this naturally follows from its monoclausal structure.

It is well-known that clitics in Serbo-Croatian must occupy the second position in a clause (cf. Tomić (1996)). As we can see, the auxiliary *je* in (33a) is not in the second position, but rather in the third, which also contributes to the ungrammaticality of the sentence.

(33) a. *Petar   treba   da   je   pročitao
          Petar-nom   must-3sg   that   Aux   read-past3sg

          ovu   knjigu
          this-acc   book-acc

      b. Petar   je   trebalo   da   pročita   ovu   knjigu
          Petar-nom   Aux   must-pastN   that read-3sg this   book

On the other hand, (33b) is a well-formed sentence since the auxiliary clitic is in the canonical second place, higher in the clause, adjoining to T, which supports the monoclausal analysis.

Returning to the Hungarian example (27a), the same internal mechanism can be applied as in Serbo-Croatian (26a). The subject can cross over *hogy* 'that' because it is not a Comp, but rather it constitutes the complex head of ModP, *kell+hogy*. This claim can be supported by three pieces of evidence: (i) The prefix *el* can be separated from the main verb across an intervening "Comp", and adjoined to the matrix verb (=Mod here), a focus position, which is never possible across actual Comps. (ii) A phonological rule in Hungarian does not allow a pause before *hogy* in (27), whereas a pause before the real Comp is obligatory. This phonological rule manifests itself in a punctuational standard which requires that there always be a comma before a Comp, which is not possible before *hogy* in (27). (iii) In certain Hungarian dialects the "Comp" *hogy* can be deleted with this modal, whereas regular Comps are usually not omitted, or if they are, their trace requires a pause, which is not the case before the trace of *hogy* in (27). As (27b) indicates there cannot be an overt NP between *hogy* 'that' and the verb since that

position is occupied by the subject's trace (we have seen exactly the same situation in the Serbian example (26b)).

In (34), however, there can be an overt (emphatic) subject between *da* and the verb, which appears to be contradictory to the constraint on *da* and overt subjects. Yet (34) is a well-formed sentence, but it has a different, impersonal and epistemic, interpretation, and consequently a different, biclausal, structure. This accounts for the fact that the subject stays in the subordinate clause (it cannot move to the matrix), thereby providing the appropriate meaning. The emphatic subject in (34) is necessarily nonobviative, since it cannot be null.

(34) **treba**   da   **ja**   pročitam   ovu   knjigu
      must-3sg   that   I-nom   read-1sg   this-acc   book-acc
      'It is necessary that I read this book [and not my sister].'

The striking parallelism between Hungarian and Serbo-Croatian regarding this construction is further evidenced by the existence of sentences like (34) in Hungarian, illustrated in (35), which has the same impersonal and epistemic reading and the same structure as the Serbo-Croatian (34):

(35) **kell,**   hogy **én**   olvas-s-am   el   ez-t a   könyv-et
      must-3sg   that I-nom   read-SUBJ-1sg   PREF   this the   book-acc
      'It is necessary that I read this book [and not my sister].'

4. Conclusions

I compared two synonymous constructions in Hungarian and Serbo-Croatian. Utilizing the independently motivated movement and feature checking of the Minimalist Program, I demonstrated that PRO is not necessary to account for subject dependency in these infinitival and subjunctive sentences. I also gave a detailed analysis of the Hungarian agreeing infinitives, and their non-agreeing counterparts in Croatian.

References

Babby, L.H. 1998. Subject control as direct predication: Evidence from Russian. In Ž. Bošković, S. Franks & W. Snyder, eds., *Annual Workshop on Formal Approaches to Slavic Linguistics. The Connecticut Meeting 1997*, 17–37. Ann Arbor, Mich.: Michigan Slavic Publications.

Borer, H. 1989. Anaphoric AGR. In O. Jaeggli & K. Safir, eds., *The Null Subject Parameter*, 69–109. Kluwer Academic Publishers.

Bošković, Ž. 1994. D-structure, Theta Criterion, and movement into theta-positions. *Linguistic Analysis* 24, 247–286.

———. 1997. *The syntax of nonfinite complementation: An economy approach*. Cambridge, Mass.: The MIT Press.

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

———.1995. *The minimalist program*. Cambridge, Mass.: MIT Press.

Csúri, P. 1990. Structural dative and agreeing infinitivals in Hungarian. Brandeis University m.s.

É. Kiss, K. 1987. *Configurationality in Hungarian*. Studies in Natural Language and Linguistic Theory. Dordrecht: D. Reidel Publishing Company.

———. 1995. NP movement, operator movement, and scrambling in Hungarian. In K. É. Kiss, ed., *Discourse configurational languages*, 207–2 243. Oxford: Oxford University Press.

Farkas, D. 1992a. On obviation. In I. Sag & A. Szabolcsi, eds., *Lexical matters*, 85–109. CSLI Lecture Notes, 24.

———. 1992b. Mood choice in complement clauses. In I. Kenesei & Cs. Pléh, eds., *Approaches to Hungarian: The structure of Hungarian* 4, 207– 225. Szeged: JATE.

Hornstein, N. 1998. Movement and Control. To appear in *Linguistic Inquiry*.

Manzini, R. & A. Roussou. 1997. A minimalist theory of A-movement and control. m.s.

Martin, R. 1996. A minimalist theory of PRO and control. Doctoral dissertation, University of Connecticut, Storrs, Conn.

O'Neil, J. 1997. Means of control: Deriving the properties of PRO in the minimalist program. Doctoral dissertation, Harvard University, Cambridge, Mass.

Pranjković, I. 1993. *Hrvatska skladnja* [Croatian Syntax]. Zagreb: Hrvatska Sveučilišna Naklada.

Progovac, L. 1993a. Locality of subjunctive-like complements in Serbo-Croatian. In *Journal of Slavic Linguistics* 1, 116–144.

———. 1993b. Subjunctive: The (mis)behavior of anaphora and negative polarity. *The Linguistic Review* 10, 37–59.

Rudin, C. 1983. *DA* and the category *AUX* in Bulgarian. In F. Heny & B. Richards, eds., *Linguistic Categories: Auxiliaries and Related Puzzles* 1, 3–20.

Stowell, T. 1982. The tense of infinitives. *Linguistic Inquiry* 13, 561–570.

Szabolcsi, A. 1994. The noun phrase. In F. Kiefer & K. É . Kiss, eds., *Syntax and Semantics: The syntactic structure of Hungarian* 27, 179–274. Academic Press, Inc.

Terzi, A. 1992. PRO in finite clauses: A study of the inflectional heads of the Balkan languages. Doctoral dissertation, CUNY, New York City.

Tomić, O. M. 1996. The Balkan Slavic clausal clitics. *Natural Language and Linguistic Theory* 14, 811–872.

Vrzić, Z. 1996. Categorial status of the Serbo-Croatian "modal" *da*. In J. Toman, ed., *Annual Workshop on Formal Approaches to Slavic Linguistics: The College Park Meeting 1994*, 291–312. Ann Arbor, Mich.: Michigan Slavic Publications.

Zec, D. 1987. On obligatory control in clausal complements. In M. Iida, S. Wechsler & D. Zec, eds., *Working papers in grammatical theory and discourse structure: Interactions of morphology, syntax and discourse*, 139–168.

Dept. of Slavic Languages
028 E. Pyne
Princeton University
Princeton, NJ 08544
enjakab@phoenix.princeton.edu

Voicing Assimilation and the Schizophrenic Behavior of /v/ in Russian

Darya Kavitskaya
UC Berkeley

1. Introduction

The peculiar behavior of /v/ in Russian has attracted special attention since Jakobson (1968, 1978) noticed that this segment behaves "schizophrenically": /v/ patterns both with obstruents, being a target of Word-Final Devoicing (WFD) and regressive Voicing Assimilation (VA), and with sonorants, not acting as a trigger of VA.

There have been a number of attempts to analyze Russian VA, none of which accounts for the full variety of data. Traditionally, /v/ was treated as a sonorant underlyingly (Hayes 1984, Kiparsky 1985). This mirrors the historical phonology of Russian, since /v/ was a sonorant in Proto-Slavic, but this is no longer true of Russian. Among the Slavic languages, treating /v/ as a sonorant is well-motivated only for Serbo-Croatian, Ukrainian and Belorussian, where /v/ patterns with sonorants in all respects.

Considering data from Contemporary Standard Russian (CSR) in which sonorants are opaque to VA, I argue that the split behavior of /v/ (and of its palatalized counterpart /vʲ/) is a case of positional identity: /v/ is phonologically an obstruent when it is followed by an obstruent or word-finally, and a sonorant when it is followed by a sonorant.

I propose that, since a phonological obstruent and a sonorant /v/ are in complementary distribution, the data are best treated as a case of underspecification of /v/ for sonority. The need for underspecification is motivated by the data themselves: /v/ is not easily classified as either obstruent or sonorant. The fact that phonologically /v/ alternates between an obstruent and a sonorant suggests underspecification of this feature.

Following Rubach (1996), I also argue that Russian VA is not dependent on syllable structure, contrary to Lombardi's (1991) claim that all regressive VA must be syllable-driven. The domain of Russian VA is the consonant cluster, and the only constituent VA has to refer to is the

prosodic word. Also contra Lombardi (1991), I treat [voice] as a binary feature, since in the case of Russian data there is a need for [voice] to be licensed in the coda position.

To account for Russian VA formally, I use the basic framework of Optimality Theory (OT; Prince & Smolensky 1993, McCarthy & Prince 1994).

In Section 2, I present the data and discuss dialectal variations and controversies in the data. Section 3 presents the analysis of the basic facts of VA and WFD in Russian and the special status of /v/. Section 4 focuses on the mismatch of phonetics and phonology of /v/, illustrated by the phonetic data gathered for this paper. I conclude in Section 5.

2. Data[1]

2.1. Basic Facts

The following are the data which represent VA and WFD in Russian. The basic facts presented here are uncontroversial: there is no disagreement in the literature (Avanesov 1956, 1968, Bondarko 1977) or in the data gathered specifically for this paper from eight speakers of the Moscow and St. Petersburg dialects of CSR, except in the case of variation in (16), which will be addressed later.

---

[1] All transcriptions in this paper are in IPA. I do not show stress and vowel reduction since they are irrelevant for the purposes of this work.

Consonant Inventory of Russian

	Bilabial	Labio-dental	Dental	Alveolar	Post-alveolar	Velar
Plosive	p b pʲ bʲ		t d tʲ dʲ			k g kʲ gʲ
Nasal	m mʲ		n nʲ			
Fricative		f v fʲ vʲ		s z sʲ zʲ	ʃ ʒ ɕ	x xʲ
Affricate			ts		tʃ	
Trill				r rʲ		
Lateral			l lʲ			
Approx					j	

2.1.1. Voicing Assimilation

The following are examples of Voicing Assimilation in CSR. VA in Russian is exceptionless; it operates within prosodic phrase, and it is generally accepted that the domain of VA is an obstruent cluster. VA is regressive, and voicing in a cluster is determined by its last member.

Voicing before voiced obstruents:

Stem-internally:

(1) pod-bʲiratʲ   'to pick up'
     prozʲba   'request'

Across word boundaries:

(2) nad domom   'above the house'
     (cf. nat tomom   'above the volume')
     drug doma   'friend of the family'
     (cf. druk   'friend')

Devoicing before voiceless obstruents:

Stem-internally:

(3) zup-ki   'teeth' (dim.)
     bʲerʲos-ka   'birch' (dim.)

Across word boundaries:

(4) ot tʲotʲi   'from the aunt'
     brad ʒeni   'wife's brother'

/v/ patterns with obstruents in that it acts as a target of VA; it agrees in voicing with the last obstruent in a consonant cluster.

(5) a. korofka   'cow' (dim.)
         (cf. korova   'cow')

     b. f tomʲe   'in the volume'
         v domʲe   'in the house'

Sonorants do not trigger VA, as exemplified in (6). Prepositions 'from', 'above', and 'in' are underlyingly /ot/, /nad/, and /v/ respectively. /v/ patterns with sonorants (6b) in not triggering the spread of voicing.

(6) a. ot armʲii   'from the army'
         nad armʲ̍jej   'above the army'
         ot lʲesa   'from the forest'
         nad lʲesom   'above the forest'

     b. ot valʲi   'from Valja'
         nad valʲej   'above Valja'

     c. v moskvʲe   'in Moscow'
         v armʲ̍i   'in the army'

The following near-minimal pairs further exemplify the fact that in Russian /v/ is not a trigger of VA when it is the last member of a consonant cluster (both voiced and voiceless obstruents can occur before /v/):

(7) tvʲerʲ   'Tver' (city)   dvʲerʲ   'door'
     svat   'matchmaker'   zvan   'invited'
     k vam   'to you'   gvalt   'uproar'

Note that in (8) the prevocalic /v/ does not trigger VA, even though it is the last consonant in the cluster, but undergoes it when it is a preposition which is followed by an underlyingly voiceless obstruent.

(8) f skvaʐ̍nʲe   'in the chink'

2.1.2. Word-Final Devoicing

Russian and most Slavic languages (with the exception of Serbo-Croatian and Ukrainian) have Word Final Devoicing: underlyingly voiced obstruents (both palatalized and non-palatalized) become voiceless at the end of a word (or, in other words, voiced and voiceless obstruents are neutralized to voiceless word-finally):

(9) zup (nom.sg.)   zuba (gen.sg.)   'tooth'
     sup (nom.sg)   supa (gen.sg)   'soup'
     rok (nom.sg)   roga (gen.sg.)   'horn'
     sok (nom.sg)   soka (gen.sg)   'juice'
     moros (nom.sg.)   moroza (gen.sg.)   'frost'
     nos (nom.sg)   nosa (gen.sg)   'nose'

/v/ devoices word-finally as all other obstruents do and neutralizes with the voiceless labio-dental fricative [f]:

(10) lʲef (nom.sg.)   lʲva (gen.sg.)   'lion'

korof (gen.pl.)   korova (nom.sg.)   'cow'

kroɸ (nom.sg.)   krovʲi (gen.sg.)   'blood'

Obstruent clusters in word-final position do not allow voicing. The picture is the same when /v/ is not the rightmost consonant in the word-final cluster, as exemplified by the alternation in the Nominative Singular vs. Genitive Plural of the word 'truth'.

(11) prozʲba (nom.sg)   prosʲp (gen.pl.)   'request'

pravda (nom.sg.)   praft (gen.pl.)   'truth'

Sonorants /m/ and /n/ and their palatalized counterparts never devoice word-finally, and /r/ and /l/ don't devoice when they are preceded by a vowel:

(12) dom (nom.sg)   doma (gen.sg.)   'house'

son (nom.sg)   sna (gen.sg.)   'dream'

mʲel (nom.sg.)   mʲela (gen.sg.)   'chalk'

vor (nom.sg.)   vora (gen.sg.)   'thief'

/r/ and /l/ can be partially devoiced word-finally and in codas (optionally and gradiently) when they are preceded by an obstruent. They can also be optionally devoiced word-initially when followed by a voiceless obstruent. It should be noted that /b/ in [bobr̥] never devoices in CSR.

(13) bobr̥   'beaver'

r̥ta   'mouth' (gen.sg.)

kontr̥fors   'buttress'

mislʲ̥   'thought'

2.1.3. WFD and the Syllable Structure Approach

It has never been proposed that Russian VA is driven by syllable structure, but a number of accounts which rely on syllabic conditioning of voicing were developed for Polish VA (Lombardi 1991, Bethin 1992, Gussmann 1992), which is quite similar to Russian VA (especially the Warsaw Polish dialect) except that sonorants in Polish are transparent to the spread of voicing. Following Rubach (1996), I claim that VA in Russian (as in Polish) does not follow from any well-formedness conditions governing syllable structure; it is governed by strict adjacency of

segments where underlying voicing specification is preserved only in the released obstruent.[2] The domain of VA is a consonant cluster, independent of its position in the onset or coda of a syllable, its tauto- or disyllabicity, or even its belonging to one or several lexical words, as will be discussed below. The only prosodic constituent VA refers to is the prosodic word.

I treat [voice] as a binary feature for reasons orthogonal to this analysis, but nevertheless important for the general description of syllabification in Russian. Lombardi (1991) argues that cross-linguistically the feature [voice] is licensed only in syllable onsets, leading to regressive VA only. Lombardi's analysis accounts for the devoicing of /b/ in the word [bopr]'beaver' in Polish, but the problem comes from the Russian word for 'beaver', [bobr], where [b] is voiced even though it is not in the onset (Russian does not have syllabic [r]). In order to account for the Russian data of the [bobr]-type, Lombardi's analysis has to be restated not in terms of the onset and coda opposition but in terms of released vs. unreleased consonants.

In Russian, there can be variation in word-final consonant clusters which end in /v/. Word-final /v/ always devoices, but a voiced consonant which precedes it stays voiced in some pronunciations, but sometimes undergoes devoicing in the same dialect (even in the same person's speech). This peculiar fact was first noticed by Reformatskij (1975):

(14) a. trʲesf vs. trʲezf   'sober' (short adj.)
          (cf. trʲezvosʲtʲ   'sobriety' (nom.sg.))

      b. xorukfʲ vs. xorugʲ   'gonfalon' (nom.sg.)
          (cf. xorugvʲi   'gonfalon' (nom.pl.))

      c. ʲesf vs. rʲezf   'fast, playful' (short adj.)
          (cf. rʲezvɨj   'fast, playful' (long adj.))

      d. jasf vs. jazf   'ulcer' (gen.pl.)
          (cf. jazvɨ   'ulcer' (nom.pl.))

      e. bʲiʎingf vs. bʲiʎinkf   'bilingual person' (gen.pl.)
          (cf. bʲiʎingva   'bilingual person' (nom.sg.))

---

[2] See Rubach (1996, 1997) for an extensive argument against Lombardi's syllable structure approach to voicing assimilations. Rubach's argument is based solely on data from Polish.

The data in (14) present even a more difficult problem for Lombardi (1991) since, in order to account for the alternation, [voice] would have to be unpredictably licensed or not licensed in codas.

2.2. Controversy in the Data

The documentation of Russian VA has suffered from the mixture of synchronic and diachronic processes and also from dialect mixture which unnecessarily complicated the analyses. Of course, in any phonological analysis it is necessary to have complete and reliable data. This is particularly true in an analysis of Russian VA. A number of assumptions and claims about Russian VA has been made on the basis of data from different dialects, treated as if they were one dialect. For example, sonorants in Russian are generally considered to be transparent to VA (after Jakobson, this data is cited by many authors such as Hayes (1984), Kiparsky (1985), etc.), but it is almost always mentioned that they sometimes can be opaque. It is usually maintained that sonorants are opaque only optionally and probably in the very same dialects in which they are transparent, which does not seem to be correct. I am not familiar with any dialect of Russian in which opaqueness of sonorants is in free variation, and in which variation in this respect is a possibility in the pronunciation of a same speaker. It is not clear whether Hayes (1984) or Kiparsky (1985) are describing a single dialect or a mixture of dialects when they cite variants of the type given in (15).

(15)   is mtsenska / iz mtsenska   'from (the town of) Mcensk'
       ot lgunʲji / od lgunʲji sliʃal   'heard from a liar (fem.)'

On one hand, if a single dialect is discussed and the pronunciation is always [is mtsenska], [od lgunʲji] when the final obstruent of a preposition agrees in voicing with the following obstruent regardless of an intervening sonorant (as Jakobson (1978) claims of his own pronunciation), then the assumption should be that sonorants in Russian are either transparent to VA or they can spread voicing, so they can be triggers of VA themselves. On the other hand, it causes numerous problems if we assume the possibility of variation in the same dialect, because any analysis would have to account for sonorants being opaque to VA in some cases and transparent to it in others, rather randomly. In the examples considered by Jakobson, sonorants are always transparent to

VA, but Zaliznjak (1975) explicitly states that there cannot be any
assimilation across sonorants, and Shapiro (1993) agrees with him.

As there is considerable disagreement about the very facts of Russian
VA, I think that the best strategy is to agree on what dialect of Russian is
being described. In my own dialect (the Moscow dialect of CSR), the
prepositions mentioned above are pronounced with those values of
[voice] feature which they have underlyingly. The pronunciation of the
speakers of my dialect is [iz mtsenska] and [ot lgunʲji]. If sonorants are
transparent to VA in some dialect of Russian, they surely are not in CSR.

3. Analysis

Since phonologically an obstruent and a sonorant /v/ are in
complementary distribution, I propose that the data are best treated as a
case of underspecification of /v/ for sonority[3] for the reasons of Lexicon
Optimization (For archiphonemic underspecification in OT see Inkelas
1995, cf. Itô, Mester & Padgett 1995). Lexicon Optimization (Inkelas
1995) requires the underspecification of alternating predictable structures
in order to achieve Optimal Grammar, that is, the grammar in which
alternations are maximally structure-filling (Kiparsky 1993). Phonetic
data discussed in Section 4 provide some support for this claim. The
following analysis is formulated within the framework of Optimality
Theory (OT).[4] This analysis allows the treatment of the full variety of
Russian data described above.

3.1 Basic Patterns

In this section I propose an account of the basic patterns of Voicing
Assimilation and Word-Final Devoicing in Russian.

First, constraints which account for the facts of the regressive VA
need to be stated. Such constraints must require identity in voicing be-

---

[3] An analysis which treats /v/ as a fully specified segment (in the spirit of recent
developments in OT) would derive only the more widespread dialect of CSR.

[4] One of the main postulates of OT is that correct surface form is selected by a
set of violable constraints which are ranked in the order of relevance. All
constraints are universal, and only ranking is language-specific. Constraints are
used to evaluate a potentially infinite set of outputs, which is (without any
further developments) equivalent to the statement that all constraints are
constraints on output.

tween adjacent segments and also account for the direction of VA. They would also have to capture the fact that sonorants are opaque to VA.

The constraint which requires that adjacent obstruents have the same voicing can be stated as in (16):

(16) SIMILAR-VOICE(OBST): Adjacent obstruents have the same voicing specification.

The constraint MAX demands identity between Input and Output. The family of MAX constraints is part of the Correspondence version of OT. MAX can be formalized as in McCarthy and Prince (1994):

(17) MAX
      Every segment of S_{Input} has a correspondent in S_{Output}.
      (I.e., there is no phonological deletion).

Several instantiations of MAX are needed to account for VA. First, there are different faithfulness requirements towards sonority and voicing in Russian, resulting in two different MAX constraints, as in (18) and (19).

(18) MAX-VOICE: no deletion of the input [voice] in the output.

(19) MAX-SON: no deletion of the input [son] in the output.

MAX-VOICE, which prohibits deletion of voicing, is ranked lower than MAX-SON, which prohibits deletion of the sonority specification, since VA is a regular and productive process, and assimilation in sonority is almost unheard of. In addition to this, in order to state the differences between phonological behavior of sonorants and obstruents in respect to VA, I propose the split of the general MAX-VOICE into MAX-VOICE(SON) and MAX-VOICE(OBST). This split between obstruents and sonorants is in respect to the feature [voice] only. This allows us to consider phonological deletion of [voice] applied to sonorants a worse violation than phonological deletion of [voice] applied to obstruents.

The direction of VA is determined by MAX-VOICE(RELEASED-OBST), which states that voicing specification of a surface obstruent which is immediately followed by a sonorant (that is, of a released obstruent) has to be preserved.

(20) MAX-VOICE(RELEASEDOBST): Don't delete [voice] from released obstruents.

MAX-VOICE(RELEASEDOBST) is both a "phonetically grounded" and a typologically common constraint, since the right-to-left spreading of voice is a well-known phonetic tendency (Ohala 1990, Steriade 1997). It is no accident that MAX should single out released consonants. With voicing assimilations, the release of a consonant is more salient perceptually than the burst; it is the release which provides the most important cues for voicing (Steriade 1997). Since sonorants are not triggers of VA in CSR, MAX-VOICE(RELEASEDOBST) must specify the trigger of VA as an obstruent.[5] The specification for voicing is relevant only in the case of released obstruents. This suggests that MAX-VOICE(RELEASEDOBST) is ranked higher than MAX-VOICE(OBST), which prohibits deletion of voicing from any obstruent.

All this discussion amounts to the following ranking:

(21) Max-Son, Max-Voice(Son), Similar-voice(Obst), Max-
      voice(ReleasedObst) >> Max-Voice(Obst)

(21) accounts for the facts of VA as well as for why sonorants in CSR are opaque to VA. MAX-VOICE(SON), which demands faithfulness of the output sonorant to its underlying correspondent, is ranked higher than MAX-VOICE(OBST). Sonorants can devoice in certain environments (13), but all instances of sonorant devoicing are non-categorical and optional, which clearly points to their phonetic, post-lexical nature.[6]

Tableaux (22) and (23) exemplify the proposed account of regressive VA in Russian.[7] In (22), MAX-VOICE(SON) is irrelevant, and the winner is determined by the interaction and ranking of MAX-SON, SIMILAR-VOICE(OBST), and MAX-VOICE(OBST). Ranking MAX-VOICE(OBST)

---

[5] MAX-VOICE(RELEASEDOBSTR) is a general statement which includes all interactions between several phonetic tendencies leading to the preferred status of regressive voicing assimilation, as stated in Steriade (1997).

[6] It would take some adjustment to yield the dialect described by Jakobson (1968, 1978) in which sonorants are transparent to VA.

[7] I show only voicing and sonority specifications which are relevant for the present discussion. I also assume that full surface specification is required (in the spirit of the HAVEPLACE constraint (Padgett 1994), which demands that all segments must have a place). Here I do not consider candidates which are underspecified on the surface.

higher   than   SIMILAR-VOICE(OBST)   and   MAX-VOICE(RELEASEDOBST) would effectively prevent any voicing assimilation, and (22a), the faithful candidate, would be the winner. SIMILAR-VOICE(OBST) eliminates (22a), since in this candidate two adjacent obstruents have different voicing specifications, and MAX-VOICE(RELEASEDOBST) eliminates (22c), because it is not the voicing of the rightmost obstruent in a consonant cluster which surfaces. (22d), in which /d/ is a sonorant, is ruled out by an unviolated MAX-SON constraint.

(22)

	/ot doma/ | | −vd +vd −son −son	MAX- SON	MAX- VOICE (SON)	SIMILAR- VOICE (OBST)	MAX-VOICE (RELEASED OBST)	MAX- VOICE (OBST)
a.	ot doma | | −vd +vd −son −son			*!		
b. ⇒	od doma \\/ [+vd, −son]					*
c.	ot toma \\/ [−vd, −son]				*!	*
d.	ot doma | \\/ −vd +vd −son +son	*!				

In (23), the high ranking of MAX-VOICE(SON) prevents a sonorant from being a target of VA (while MAX-VOICE(RELEASEDOBST) would prevent it from being a trigger, since obstruents are released in the pre-sonorant position). (23c) is bound to fail because of highly ranked MAX-VOICE(SON) and MAX-SON, which prevent any alteration of sonorants. (23b) is ruled out by MAX-VOICE(OBST), which prevents the deletion of underlying [voice] feature in obstruents.

(23)

	/iz mtsenska/ I I +vd +vd −vd −son +son −son	MAX-VOICE (SON), MAX- SON	SIMILAR- VOICE (OBST)	MAX- VOICE (RELEASED OBST)	MAX- VOICE (OBST)
a. ⟹	iz mtsenska				
b.	is mtsenska				*!
c.	is m̥tsenska	*!			*

A constraint on word-final voiced obstruents is needed to account for Word Final Devoicing (24).

(24) WFD: *C   No voiced obstruents word-finally.

                  I

         [−son, +vd]   Word

In this section, Russian VA and WFD were described without considering complications that arise from the schizophrenic behavior of /v/. The following section will deal with these complications.

3.2. /v/

As was mentioned before, the voiced labio-dental segment /v/ has a special status in Russian. It is the only segment which patterns with obstruents, being the target of VA, and with sonorants, not being its trigger. Because of this predictable alternation, I propose to treat /v/ as underspecified for sonority.[8]

Descriptively, the sonority of /v/ depends on the nature of the following segment. /v/ is a phonological sonorant when followed by a sonorant and a phonological obstruent when followed by an obstruent or word-finally. One might conjecture that /v/ becomes an obstruent by default and a sonorant when followed by a more sonorous segment - a vowel, nasal, or liquid. This kind of behavior is phonetically very unnatural (one would expect obstruentization prevocalically as the

---

[8] An analysis which treats /v/ as a fully specified segment would still derive the most widespread dialect of CSR, which devoices all obstruents in word-final clusters ending in /v/, as in [trʲesf], but it would have difficulties accounting for the existence of the variant [trʲezf].

enhancement of contrasts) and clearly is the result of a historical accident. The constraint I propose here is also the result of this accident and bans released /v/.

(25) NO-RELEASED-V: The voiced labio-dental segment may not be released; thus it has the same sonority specification as the following segment.

Since (25) prohibits the release of /v/, the direction of assimilation does not have to be stipulated. The alternation is very robust, and even borrowed or made-up words with /v/ behave the same way as native ones. Since MAX prevents phonological deletion of any feature from a segment which is fully specified underlyingly, NO-RELEASED-V reflects the phonological alternation of /v/ between an obstruent and a sonorant, and the special status of /v/ among other phonemes of Russian.

If the underspecified segment is not followed by a sonorant, it surfaces as an obstruent. The default obstruent is expected to be voiceless, and nothing contradicts this in Russian, but unfortunately there is no testing mechanism available, since the default value of /v/ is always overridden by virtue of constraints on VA or WFD.

There seems to be a need for a markedness constraint (which I will dub *W for the sake of exposition only) which bans voiced labial approximants from the inventory.

(26) *W: No voiced labial approximants.

I am not aware of any phonetic (auditory or acoustic) property of labial approximants which would make them especially "undesirable", but the fact is that Russian does not have /w/ in the inventory (also the result of a historical accident). *W is ranked below NO-RELEASED-V, since /v/ surfaces as a phonological sonorant in prevocalic position.

The ranking so far is as in (27):

(27) Similar-voice(Obst) >> WFD, Max-Son, Max-Voice(Son), No-released-v, Max-voice(ReleasedObst) >> *w >> Max-Voice(Obst)

The tableau in (28) demonstrates the interaction of the constraints proposed so far.

(28)

/ot volka/ [−vd] [+vd] −son	SIMILAR-VOICE (OBST)	NO-RE-LEASED-V	MAX-SON	MAX-VOICE (RELEASE DOBST)	*W	MAX-VOICE (OBST)
a. ⇒ ot v o lka / −vd \/ +vd −son +son					*	
b. od v o lka / +vd \/ +vd −son +son					*	*!
c. ot v olka / −vd +vd +vd −son −son +son	*!	*				
d. od v o lka \/ [+vd, +son]			*!		*	*
e. ot f o lka \/ [−vd, −son]				*!		*

/v/ in [ot volka] 'from the wolf' is not a trigger of VA; it patterns with sonorants in this respect. (28b) is ruled out by MAX-VOICE(OBST), since the underlying voicing value of /t/ in /ot/ has changed. (28c) fatally violates SIMILAR-VOICE(OBST). (28d) is dispreferred by virtue of MAX-SON; the faithfulness to the feature [sonorant] is much higher ranked than the faithfulness to the feature [voice], and in this candidate underlying [−son] is changed for the obstruent /d/. (29e) is ruled out by the MAX-VOICE(RELEASEDOBST). (28a) and (29b) tie violating only *W. (28b) is ruled out by MAX-VOICE(OBST), so (28a) is the winner.

The interaction of WFD and VA is demonstrated in tableau (29) on the following page for the word [tr'esf], a short-form adjective meaning 'sober', in the variant of CSR which devoices word-final consonant clusters ending in /v/. (29a) is ruled out by WFD, (29c) is disallowed by SIMILAR-VOICE(OBST), and (29d) is ruled out by the *w.

There is a complication caused by the existence of the variants in (14). It has been claimed that sometimes even speakers of the same dialect have variation in the voicing of the obstruent before /v/, while in all other respects their pronunciation remains consistent with the analysis

(29)

	/trʲez v/ | | +vd [+vd] −son	SIMILAR-VOICE (OBST)	MAX-SON, MAX-VOICE (SON)	NO RE-LEASED -V	WFD	MAX-VOICE (RE-LEASED OBST)	*W	MAX-VOICE (OBST)
a.	trʲez v \/ [+vd, −son]				*!			
b. ⇒	trʲes f \/ [−vd, −son]							**
c.	trʲez f | | +vd −vd −son −son	*!						*
d.	trʲez v | | +vd +vd −son +son						*!	

given so far. There are only five words known to me or listed in Zaliznjak (1980) which end in an *obstruent+v* sequence. None of the speakers I worked with show any variation, always devoicing /z/ in [trʲesf] and [jasf], but there are some speakers who clearly voice the /g/ in [xorugfʲ].

It is very hard to draw any conclusions on the basis of the available data (especially if only the rare word 'gonfalon' still exhibits the variation). The informal generalization, however, is clear. In some dialects or idiolects of Russian, only "true" obstruents can undergo WFD, thus ensuring the devoicing of a preceding adjacent obstruent. The underspecified segment is somehow exempt from WFD but still participates in VA as a target since in the dialects (idiolects) which exhibit the variation, /v/ is still a target of VA in other types of clusters.

The formalization of this intuition requires a slightly different WFD constraint which refers both to input and output.

(30)   WFD': A word-final segment which is an obstruent in the Input
        and in the Output cannot have [+voice] specification.

The revised WFD' requires voicelessness only from word-final segments which are obstruents underlyingly. /v/ is exempt, which makes the candidate in (29a) a winner if WFD' is used in the evaluation process.

Note that the winner is not identical to the surface phonetic form [trʲezf]. WFD' prefers output forms as [trʲezv] and, probably, [lʲev], but /v/ is a word-final obstruent in the output, so it still devoices phonetically. The only indication of the phonological voicedness of /v/ is the preservation of the underlying [+voice] in the /z/ in [trʲezf].

4. A Phonetics/Phonology Mismatch

The behavior of /v/ in Russian is an example of a mismatch between phonetics and phonology. The alternation in the phonological sonority of /v/ is partially supported by phonetic data gathered for this paper from eight speakers of CSR. Phonetically, /v/ is always an obstruent (a weak fricative) before an obstruent (spectrograms show high frequency aperiodic noise for all speakers), but when it is followed by a sonorant, there is some phonetic variation. At least for some speakers, /v/ is more sonorous than for others. Compare the clear formant structure in (31b) on the following page as opposed to (31a) below. These are spectrograms for the word [dva] 'two' pronounced by two speakers of the same dialect of Russian. For Speaker 1, /v/ is always an obstruent phonetically, even in the most sonorous environments, but there is an interesting variation in the pronunciation of Speaker 2. /v/ has no frication noise when followed by a sonorant, regardless of its position in the syllable. In (31b), where /v/ is in the onset, it is still not a full sonorant, since there is a spectral

(31) a. [dva] 'two' Speaker 1
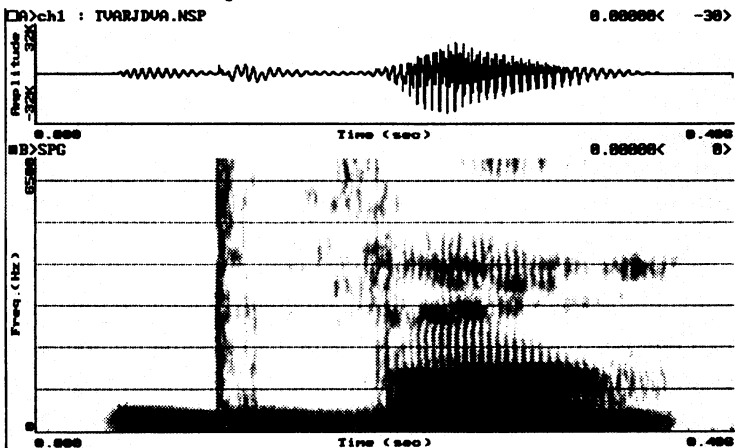
(31) b. [dva] 'two' Speaker 2
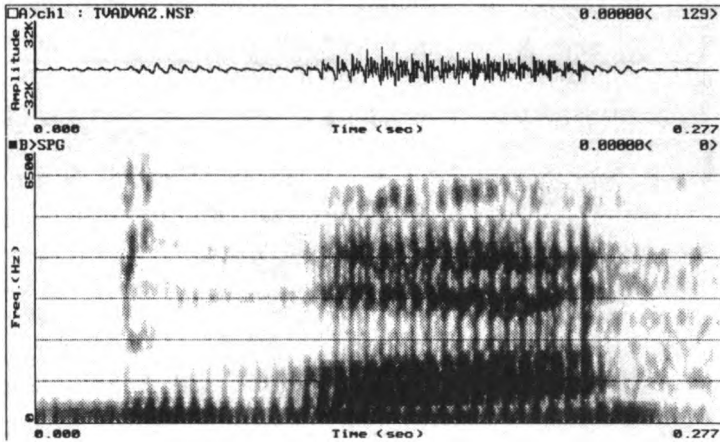
change and a pitch dip in the sound wave which indicate obstruency, but it is not an obstruent to the same extent as other obstruents in Russian are. Phonetic effects are always gradient, so I suggest that these data are best interpreted from the point of view of the obstruent-to-sonorant scale, rather than by using the feature [sonorant]. On this scale, which is, of course, reminiscent of the Sonority Hierarchy, stops are the least sonorous segments, and vowels are at the most sonorous. Such factors as spectral change, abruptness of the amplitude change, degree of constriction, presence or absence of frication, etc. are responsible for the relative sonority of a sound. The data I have so far suggest that in case of Speaker 2, /v/ is the most sonorous when in the coda position followed by a sonorant; see (32) on the following page.

So the environment in which /v/ is most sonorous is in the coda followed by a sonorant. /v/ seems to be slightly less sonorous intervocalically, and even less so word-initially followed by a sonorant. The least sonorous variant of /v/, which exhibits high frequency noise in the data for all speakers, is when it is followed by an obstruent.

This phonetic situation is rather complicated and asymmetrical. When it gets phonologized in Russian, a certain strategy which uses binary oppositions is picked: /v/ behaves either as a sonorant or as an obstruent depending on what follows it, regardless of its place in the syllable. This goes along with the position stated in Hayes (1997).

(32)   [avral] 'all hands on deck!'
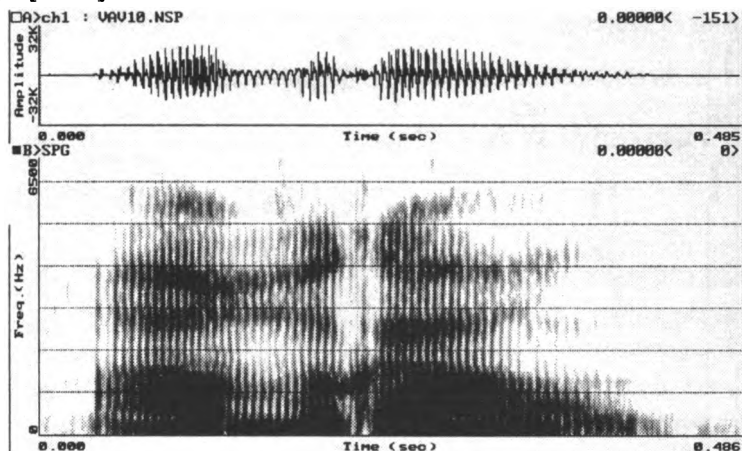
Summing up this section, phonetic data also suggest that Russian /v/ cannot be treated as a regular sonorant, since it has an obstruent variant even in the most sonorous environments.

5. Conclusion

In sum, the account proposed in this paper provides a unified treatment of VA and sheds light on the mismatch between the phonetic and phonological behavior of /v/ in Russian. Representing /v/ as a segment underspecified for sonority accounts for the CSR dialect, and in principle can account for the dialect described by Jakobson. I argued that in CSR /v/ is underspecified for sonority and sonorants are specified for voicing and opaque to VA. Such representational complication eliminates the necessity for a series of ordered rules as in Hayes (1984) or Kiparsky (1985) and avoids the pitfall of mirroring historical processes in synchronic analysis.

References

Andersen, Henning. 1969. "The phonological status of the Russian 'labial fricatives'". *Journal of Linguistics* 5:121–27.

Avanesov, R.I. 1956. *Fonetika sovremennogo russkogo jazyka*. Moskovskij universitet.

Avanesov, R.I. 1968. *Russkoe literaturnoe proiznošenie*. Moscow.

Bethin, Christina Y. 1992. *Polish syllables: The role of prosody in phonology and morphology.* Columbus, Ohio: Slavica.

Bondarko, L.V. 1977. *Zvukovoj stroj sovremennogo russkogo jazyka.* Moscow.

Cho, Young-mee Yu. 1990. "A typology of voicing assimilation." *Proceedings of the 9th West Coast Conference on Formal Linguistics.*

Golovnia, E. E. 1987. "K voprosu ob oppozicii /v/–/f/ v sovremennom russkom jazyke." *Russkoe jazykoznanie* 14:122–27.

Es'kova, N.A. 1971. "K voprosu o svojstvax sonornyx soglasnyx v russkom jazyke." *Razvitie fonetiki sovremennogo russkogo jazyka.* Moskva, 243–47.

Gussman, Edmund. 1992. "Resyllabification and delinking: The case of Polish voicing." *Linguistic Inquiry* 23:29–56.

Hayes, Bruce. 1997. "Phonetically driven phonology: the role of Optimality Theory and Inductive Grounding." UCLA. Ms.

Hayes, Bruce. 1984. "The phonetics and phonology of Russian voicing assimilation." In *Language. Sound. Structure.*, ed. Mark Aronoff and Richard T. Oehrle, 318–328. Cambridge, Mass.: The MIT Press.

Inkelas, Sharon. 1995. "The consequences of Optimization for underspecification." In Jill Beckman (ed.), *Proceedings of NELS* 25: 287–302. Amherst: GLSA

Itô, Junko, Armin Mester and Jaye Padgett. 1995. "Licensing and underspecification in Optimality Theory." *Linguistic Inquiry* 26: 571–613.

Jakobson, Roman. 1968. "K voprosy o gluxosti i zvonkosti russkix ščelinnyx gubnyx." *Slavia Orientalis* 17:321–324. Rpt. in *Selected Writings* 1: 728–33.

Jakobson, Roman. 1978. "Mutual assimilation of Russian voiced and voiceless consonants." *Studia Linguistica* 32:107–10. Rpt. in *Selected Writings* 7: 62–65.

Kiparsky, Paul. 1993. "Blocking in non-derived environments." In S. Hargus and E. Kaisse (eds.), *Phonetics and Phonology 4: Studies in Lexical Phonology.* San Diego, Academic Press.

Kiparsky, Paul. 1985. "Some consequences of Lexical phonology." *Phonology Yearbook* 2:85–138

Lombardi, Linda. 1991. *Laryngeal neutralization and alignment.* PhD dissertation, University of Massachusetts, Amherst. (Garland, 1994.)

McCarthy, John J. and Alan S. Prince. 1994. "Generalized Alignment." *Yearbook of Morphology*.

Ohala, J. 1990. "The phonetics and phonology of aspects of assimilation." In J. Kingston and M. Beckman (eds.) *Papers in Laboratory phonology* 1:258–75. Cambridge University Press.

Padgett, Jaye. 1994. "Stricture and nasal place assimilation." *Natural Language and Linguistic Theory* 12:465–513

Prince, Alan & Paul Smolensky. 1993. *Optimality Theory: Constraint Interaction in Generative Grammar*. To appear, Cambridge, MA: MIT Press.

Reformatskij, A. A. 1975. "[zf] is <zv>", *Fonologičeskie ètjudy*. Moskva.

Robblee, Karen E. & Martha W. Burton. 1997. "Sonorant voicing transparency in Russian." Ms.

Rubach, Jerzy. 1996. "Nonsyllabic analysis of voice assimilation in Polish." *Linguistic Inquiry* 27:69–110.

Rubach, Jerzy. 1997. "Polish voicing assimilation in Optimality Theory." To appear.

Shapiro, Michael. 1993. "Russian non-distinctive voicing: a stocktaking." *Russian Linguistics* 17:1–14.

Steriade, Donca. 1997. "Phonetics in phonology: the case of laryngeal neutralization." UCLA. Ms.

Steriade, Donca. 1995. "Underspecification and markedness." In *The Handbook of Phonological Theory*, ed. John Goldsmith, 114–74. Oxford: Blackwell.

Zaliznjak, A.A. 1975. "Razmyšlenija po povodu jazv A. A. Reformatskogo." *Predvaritel'nye publikacii problemnoj gruppy po eksperimental'noj i prikladnoj lingvistike Instituta russkogo jazyka* 71:13–23.

Zaliznjak, A.A. 1980. *Grammatičeskij slovar' russkogo jazyka*. Moskva. Russkii jazyk.

Department of Linguistics
University of California, Berkeley,
Berkeley, CA 94720–2650 USA
dasha@socrates.berkeley.edu

Dative Subjects in Russian Revisited:
Are All Datives Created Equal?[*]

Eric S. Komar
Princeton University

1. Introduction

The status of pre-predicate Dative NPs in Russian and other Slavic languages has been a topic of interest and controversy in the recent literature (e.g., Bailyn 1991, Franks 1990, Greenberg & Franks 1991, King 1995, Kondrashova 1994, Moore & Perlmutter 1998, Schoorlemmer 1993, and others). The Datives in question are those occurring in impersonal infinitive constructions like (1a) and in impersonal predicative constructions (IPCs) like (1b).[1] Note that in each sentence the copula and/or predicate has the "default" neuter 3rd person singular morphology. This marks the absence of subject-predicate agreement, a characteristic of impersonal sentences:

(1) a. Kuda **nam** bylo postavit' ètot jaščik?
whither **us**$_{DAT}$ was$_{N.SG}$ put$_{INF}$ [this box]$_{ACC}$
'Where should we have put this box?'

   b. **Vase** bylo veselo.
Vasja$_{DAT}$ was$_{N.3SG}$ merry$_{N.3SG}$
'Vasja was enjoying himself/having fun.'

[1] The word "predicative" is being used in this article as a cover term for any non-verbal element which functions as the predicate of the sentence, particularly forms in -o like *veselo*.

One hypothesis is that the DAT NPs in (1) are subjects of those sentences.[2] (Franks 1990, Schoorlemmer 1993, Kondrashova 1994). The veracity of this "unified" account, which we can the Dative Subject Hypothesis (DSH), hinges on the existence of the sentences in (2). These are identical to those in (1) except that here they are personal, i.e., the NPs in question are now NOM and there is subject-predicate agreement:[3]

(2) a. Kuda   **my**   postavim   ètot   jaščik?
       whither   **we**$_{NOM}$ put$_{1.PL}$ this   box$_{ACC}$

       'Where shall we put this box?' (cf. (1a))

   b. **Vasja**   byl   vesel.
      Vasja$_{NOM}$ was$_{M.3SG}$ merry$_{M.SG}$

      'Vasja was enjoying himself/having fun.' (cf. (1b))

---

[2] I will be using *subject* to refer the **grammatical subject** (*podležaščee*), which in undrerived sentences is the external argument and is canonically in the NOM. This is in contrast to the **logical subject** (*sub˜ekt*), which is not necessarily the external argument, and quite often in an oblique case. This distinction is significant since my analysis involves the claim that, while the DAT Experiencer in IPCs like (1b) is not a grammatical subject, it is indeed the logical subject.

[3] There are two other main types of impersonal constructions containing DAT NPs, which also have personal "counterparts": modals (ia) and *sja*-verbs (iia):

(i) a. **Vase**   pridetsja/nado   obidet'   roditelej.
       Vasja$_{DAT}$ has-to$_{N.3SG}$ offend$_{INF}$ parents$_{ACC}$
       'Vasja has to offend his parents.'

   b. **Vasja**   obidel   roditelej.
      Vasja$_{NOM}$ offended$_{M.SG}$ parents$_{ACC}$
      'Vasja offended his parents.' (cf. (1c))

(ii) a. **Mne**   ne   spitsja.
        Me$_{DAT}$ NEG   sleeps+SJA$_{3.SG}$
        'I can't (get to) sleep.' / 'I'm not sleepy.'

   b. **Ja**   ne   splju.
      I$_{NOM}$ NEG   sleep$_{1SG}$
      'I'm not sleeping.' (cf. (1d))

The status of the Datives in the a-sentences is not agreed upon even by proponents of the DSH. Due to limited space, I will ignore these Datives and only focus on those with infinitives and impersonal predicatives.

Due to the existence of personal counterparts to the impersonal con-
structions in (1), the DSH comes to the following general conclusions:

(3)   Dative Subject Hypothesis (DSH):[4] The DAT NP in impersonal
      constructions like those in (1) is the grammatical subject and
      external argument for the following reasons:

      a.   DAT NPs occupy the same syntactic position as NOM
           subjects, i.e., *Vase* in (1b) is in the same syntactic position as
           Vasja in (2b).

      b.   There is a derivational relation between the sentences in (1)
           and their respective personal counterparts in (2).

      c.   Pre-predicate Datives share many of the same properties as
           NOM subjects, such as binding and control.

      d.   DAT Case assignment to the subject position is licensed by or
           in some way linked to the lack of agreement with the
           predicate.[5]

The DSH then claims that Russian has more oblique-case grammatical
subjects than initially thought. In this article, however, I will argue that
the DSH is only "half right": the Datives with infinitives are true
subjects, but those with impersonal predicatives are *not*. This is founded
on "impersonal sentence" being defined as in (4):

(4)   An **impersonal** (or **subjectless**) **sentence** is one whose predicate
      neither selects an external argument nor projects a syntactic
      subject position.

Given this definition, I present my claim as the Dative Non-Subject
Hypothesis (DNSH):

---

[4] This is not the same as the "Dative-Subject Hypothesis" as defined in Moore
& Perlmutter (M&P) 1998, although it is essentially the same idea. Their version
of the DSH, in the RG Framework, is formulated much differently. M&P's arg-
uments against the DSH and how it differs from mine are discussed in Section 4.

[5] The proponents of the DSH differ in their strategies of DAT Case assignment
to the subject position. Some of these tactics are discussed in Section 2.1.

(5) The Dative Non-Subject Hypothesis (DNSH): Whereas the
     Datives of infinitives are subjects, those in IPCs are not subjects
     for the following reasons:

     a. Datives in IPCs represent the indirect internal argument. They
         cannot be the external argument, because impersonal
         predicatives by definition do not select one. They cannot be in
         subject position because impersonal constructions do not
         project one. They are instead in some other pre-predicate
         position, unassociated with agreement features, e.g., SpecTP.

     b. There is no derivational relation between IPCs and their
         seemingly personal counterparts. That is, while impersonal
         predicates may be derived from predicate adjectives by some
         morpholexical rule of impersonalization, there is no such
         operation that can convert the NOM *Vasja* in (2b) into the
         DAT *Vase* in (1b).

     c. The subject-like behavior of DAT NPs in IPCs is insufficient
         to verify their subjecthood due to the ability of non-subjects to
         exhibit the similar behavior.

     d. Subjects of infinitives are assigned DAT as the result of a
         morpholexical operation involving the addition of infinitival
         morphology (see Section 3.1). For Datives in IPCs, which are
         not subjects, no subject Case-assignment strategy is needed
         (see Section 3.2).

My principal claim, then, is that the Dative assigned to the subject of an
infinitive and that assigned to the Experiencer of an impersonal
predicative are *not the same Datives*. I will argue that the infinitival
Dative is Lexical Case assigned to the subject by infinitival morphology
(See Babby 1998); however, the Dative assigned to the Experiencer of
IPCs is Semantic Case (See Babby 1994b). The fact, then, that infinitival
subjects and Experiencers are both DAT in Russian is superficial.

   Section 2 examines the data motivating the claims of the DSH
outlined in (3) and presents counterexamples which refute these claims.
In Section 3, I present my account of the different ways in which subjects
and Experiencers are marked DAT.

It is important to mention that my central claim has been proposed also by Bailyn 1991, Greenberg & Franks 1991, King 1995, and Moore & Perlmutter 1998. However, my analysis differs mainly in that it is the first theta-theoretical account of the topic. In Section 4 I take a look at the prior analyses and demonstrate some advantages that the DNSH has over them.

2. Arguments for DAT Subjecthood

2.1. Pre-Predicate Datives Occupy the Same Syntactic Position as NOM Subjects (3a)

Due to the fact that DAT NPs canonically appear pre-predicately, the DSH argues that the DAT NPs in constructions like (1) are occupying the same syntactic position as their NOM counterparts in (2). The change in Case must then be explained. The following are some proposed strategies.

2.1.1 Structural Case Assignment of DAT to Sister of X'

According to standard GB Theory, Case is assigned to NPs based on their syntactic position and on their structural relations with Case-marking heads. Franks 1990 provides evidence to suggest the structural position for DAT case assignment is the sister of X' (i.e., SpecXP), where X can be virtually any head. For instance, the indirect object *svoej podruge* in (6) is marked DAT by being the sister of V':

(6) Ivan [$_{VP}$ [$_{V'}$ kupil [$_{NP:ACC}$ cvety]] [$_{NP:DAT}$ **svoej** **podruge.**]]
     Ivan   bought   flowers   **self's** **girlfriend**

     'Ivan bought his girlfriend flowers.'/'Ivan bought flowers for his girlfriend.'   [Franks 1990: 233]

Franks (1990:236–37) extends this to the DAT Case-marking of subjects in SpecIP. He proposes that SpecIP, the sister of I', is also a position capable of DAT case marking:

(7) Kuda [$_{IP}$ **nam** bylo [$_{VP}$ postavit' ètot jaščik]] ? (cf. (1a))

To account for why SpecIP is not *always* assigned DAT, Franks proposes that the case assigned to the subject in SpecIP is contingent on the tense

and agreement features of its Case-governor I^0. When I^0 is both [+tense] and [−AGR], it assigns DAT Case to its Spec.

In spite of the simplicity and attractiveness of Franks' analysis, there are a few shortcomings which need to be addressed. To begin with, it makes the incorrect prediction that all tensed constructions with no agreement will have DAT subjects. This, however, is not the case. There exist in Russian sentences with no agreement, yet the subject is not DAT, e.g., sentences with infinitival or quantifier subjects (8):

(8) a. Kurit'   vredno.
       smoke$_{INF}$ harmful$_{[−AGR]}$
       'Smoking is harmful'

    b. Prošlo/i   pjat'   dnej.
       passed$_{[−AGR]}$ five   days$_{GEN.PL}$
       'Five days passed.'

Furthermore, there are sentences like (9) with DAT NPs, yet their predicates exhibit agreement morphology with a NOM NP in the sentence. This means that DAT Experiencers can exist in *personal* sentences as well:

(9) **Ej**   nužen   vrač.
    her$_{DAT}$ needed$_{M.SG}$ doctor$_{NOM.M.SG}$
    'She needs a doctor.'

Finally, (10), a negated existential construction, illustrates that the (logical) subject of impersonal sentences can occur in a Case other than the DAT:

(10) Takix   javlenij   ne   suščestvuet.
     [such   phenomena]$_{GEN.PL}$ NEG   exist$_{[−AGR]}$
     'Such phenomena don't exist.'

Examples (8–10) thus sufficiently demonstrate that [−AGR] and DAT Case are not co-dependent.

The second problem with this analysis is that it fails to consider the diversity in the semantic roles of the above Datives: (6) contains an

indirect object (canonically Goal), (7) an Agentive subject in (1b) and, arguably (9), an Experiencer.[6]

2.1.2. Other DAT Subject Case-Assignment Strategies

In her analysis of Dative subjects Schoorlemmer 1993 recognizes the Experiencer role of the DAT NP, yet still argues for its subjecthood. She proposes a mechanism whereby the Experiencer is assigned DAT in the standard base-generated subject position, SpecVP, before raising to SpecIP. I reject this approach because, as (9–11) demonstrates, the DAT Case marking on the NP cannot be held responsible for the lack of predicate agreement or vice versa.

Kondrashova 1994 proposes another Structural DAT Case-marking strategy to the subject position. She argues that, as subjects, these NPs raise as expected to $SpecAgr_S$. However, since they are not NOM, the predicate and/or copula will only raise as far as T^0, leaving the head Agr_S not "lexicalized". It is this lack of lexicalization of the Agr_S projection that causes non-agreement. However, there is no independent evidence for such a mechanism. More importantly, this approach relies on the interdependency between DAT Case and non-agreement, and also fails to take into account the different semantic roles between the two DAT NPs.

Thus, all of the above DAT subject Case-assignment strategies suffer from at least one of three flaws: a) DAT Case and non-agreement are not co-dependent; b) the difference in semantic roles of the Datives is not considered when determining the type of Case assignment (Structural/ Configurational vs. Lexical vs. Semantic); and c) various problematic or *ad hoc* mechanisms are employed to mark the syntactic subject position DAT. As we will see in Section 3, my approach avoids the need for any subject Case-marking strategy for DAT Experiencers, since I am proposing that they are not subjects.

---

[6] In their 1991 article, Greenberg & Franks reject the subjecthood of Experiencers proposed in Franks 1990 based on the fact that while all Slavic languages have DAT Experiencers, not all of them have DAT infinitival subjects. Still, they employ the same Case-assigning mechanism described in 2.1.1 for infinitival subjects.

2.2. IPCs are Derived from Personal Predicate Adjective Constructions (3b)

Since they certainly share the same root and often the same lexical semantics, most impersonal predicatives, to be sure, evolved from personal adjectives. However, in the modern language the lexical semantics and syntactic behavior of impersonal predicatives often differ so greatly from their personal analogues that it is evident that the argument structures of both predicate types are significantly different.

The first diagnostic involves the overt realization of the subject itself. According to (1b) and (2b), an NP *Vasja* is allowed in both, albeit in two different Cases. However, the NP can be omitted only in the impersonal construction:

(11)   a.   *Byl   vesel.
            was$_{M.3SG}$ merry$_{M.3SG}$

            *'Was merry.'

       b.   Bylo   veselo.
            was$_{[-AGR]}$ merry$_{[-AGR]}$

            'It was fun'

Example (11a) as a discourse-neutral utterance is ungrammatical: the personal *vesel* not only selects an external θ-role, but projects a subject NP. This is then both a Theta Criterion and Projection Principle violation, since no external argument is selected and realized overtly in the syntax. In (11b), no such ungrammaticality ensues. Now, if the missing *Vase* were the subject, we would have to account for why it is obligatory in (11a) but removable in (11b). I argue, then, that the argument structures of *vesel* and *veselo* are crucially different: only the former selects an external argument and projects a subject position, hence the obligatoriness of *Vasja*. The latter neither selects an external argument nor projects a subject position. The Experiencer *Vase* is an optional internal argument, licensed by the lexical semantics of *veselo*, i.e., the experience of joy, fun, etc.[7]

---

[7] The semantic properties of predicatives in *-o* which license the Dative experiencer are beyond the scope of this article, but are discussed at length in Zaitseva 1990.

Further evidence against the derivational relationship of adjectives and impersonal predicatives is given in (12). Unlike *vetrennyj* 'windy', *vetreno* can *never* have a DAT NP:

(12) a. **Večer**   byl   vetrennyj.
          day$_{NOM.M.SG}$ was$_{M.SG}$ windy$_{M.SG}$

          'The evening was windy.'

      b. (***Ivanu**)   bylo   vetreno.
          Ivan$_{DAT}$ was   windy$_{[-AGR]}$

          'It was windy (*to Ivan).'

Finally, there are predicatives like *ščekotno* 'ticklish' which simply have no personal counterpart:

(13) a. **Kate**   ščekotno.
          Katja$_{DAT}$ ticklish$_{[-AGR]}$

          'Katja is ticklish.'

      b. ***Katja**   ščekotna.
          Katja$_{NOM.F.SG}$ ticklish$_{F.SG}$

          'Katja is ticklish.'

Thus, (11–13) suggest that IPCs are not derived from personal adjective constructions and must be considered separate lexical items with their own argument structure.[8]

2.3. The DAT Experiencer Has Subject-like Properties (3c)[9]

2.3.1. Binding and Control Abilities

Those proposing the subjecthood of DAT Experiencers provide data suggesting that they have many of the same properties as NOM subjects. (14) shows both a NOM subject and a DAT Experiencer binding reflexives.

---

[8] This conclusion is further confirmed by the fact that many impersonal predicatives are listed in dictionaries separately from personal adjectives.

[9] The subjecthood tests in this section and similar diagnostics have also been conducted by M&P 1998, whose conclusion is the same as mine. See Section 4 for some differences between our analyses.

(14) a. **On**$_i$ rasskazal   otcu$_j$ o   **svoej**$_{i/*j}$ rabote.
        he$_{i:NOM}$ told$_{M.3SG}$ father$_j$ about   his$_{i/*j}$ work
        'He told his father about his work.'

   b. **Emu**$_i$ bylo   stydno   pered   mater'ju$_j$
        him$_{i:DAT}$ [was   ashamed]$_{[-AGR]}$ before   mother$_j$
        za   **svoe**$_{i/*j}$ povedenie.
        for   his$_i$/*her$_j$ behavior
        'He was ashamed before his mother for his/*her behavior.'

Next, (15) shows that DAT Experiencers can control gerunds:

(15) a. [Čitaja$_i$ knigu]   **on**$_i$ razgovarival
        [reading$_{i:GER}$ book]   he$_{i:NOM.M.SG}$ conversed$_{M.SG}$
        po   telefonu.
        on   phone
        '(While) reading the book, he talked on the phone.'

   b. [Čitaja$_i$ knigu]   **emu**$_i$ bylo   veselo.
        [reading$_{i:GER}$ book]   him$_{i:DAT}$ was$_{[-AGR]}$ merry$_{[-AGR]}$
        'Reading the book, he felt quite merry.'

                                        [Schoorlemmer 1993:130]

However, the fact that DAT experiencers can bind anaphors and control gerunds does not necessarily mean that they are subjects. Non-subjects can also possess these abilities:

(16) Skol'ko   u   **nee**$_i$ bylo
     how-much   at   her$_{i:GEN}$ was$_{[-AGR]}$
     s   **soboj**$_j$/*nej$_i$ deneg?
     with   self$_j$/*her   money
     'How much money did she have with her(self)?'

(17) Podnjavšis'$_i$ na   goru,   **menja**$_i$
     [having climbed$_{i:GER}$ on   mountain]   me$_{i:ACC}$
     zastal   dožd'.
     overtook   rain$_{NOM}$
     'Having climbed up the mountain, rain overtook me.'

                                        [Babby & Franks 1998: 504–05]

Therefore, binding/control data proves unreliable for testing the subjecthood of DAT Experiencers.[10] In Section 3, I propose an explanation for the subject-like behavior of Experiencers without requiring that they be considered subjects.

2.3.2. Arguments against the Internal Argumenthood of the Experiencer

Arguing in favor of the external argumenthood of the DAT Experiencer in IPCs also involves arguing against their *internal* argumenthood. Kondrashova 1994 provides (18), which contains two Datives: *mne*, the Experiencer, and *Vase*, presumably a Lexical Case-marked complement of *zavidno*:

(18) **Mne**   zavidno   **Vase.**
      me$_{DAT}$ envious$_{|-AGR|}$ Vasja$_{DAT}$

      'I am envious of Vasja.'

Assuming that no predicate exists which assigns two internal DAT NPs, Kondrashova concludes that the Experiencer must be an external argument. However, native speakers with whom I consulted insist that (18) is ungrammatical: *zavidno* 'envious' cannot take a DAT NP complement (although its verbal analogue can: *zavidovat' komu*). *Zavidno* either must stand alone or may take a clausal complement, as (19) shows:

(19) **Mne**   zavidno,   ([$_{CP}$ čto   Sergej   tak   bystro
      me$_{DAT}$ envious$_{|-AGR|}$ that   Sergei   so   quickly

      sxoditsja   s   ljud'mi]).
      makes-friends   with   people

      'I'm envious that Sergej makes friends so quickly.'

Therefore, (18) must be ruled out as evidence for subjecthood of the DAT Experiencer.

Schoorlemmer 1993 presents (20–22) to show that the DAT Experiencer cannot be an internal argument. (20–21a) show that *veselyj*

---

[10] Although considered substandard, sentences like (17) are attested quite often in modern Russian. Other examples can be found in Babby & Franks 1998.

cannot select a DAT NP when used either as a long-form attributive adjective or as a short-form predicate adjective, but (20–21b) illustrate that *prijatnyj* can. (22) shows, however, that a DAT NP *is* licit with *veselo*:

(20) a. [veseloe   (*mne)   delo]$_{NP}$
         merry$_{NOM.N.SG}$ me$_{DAT}$ thing$_{NOM.N.SG}$
         'merry thing to me'

     b. [prijatnoe   (✓mne)   delo]$_{NP}$
         pleasant$_{NOM.N.SG}$ me$_{DAT}$ thing$_{NOM.N.SG}$
         'pleasant thing to me'

(21) a. On   byl   vesel   (*materi).
         He$_{NOM.SG}$ was$_M$ merry$_{M.SG}$ mother$_{DAT}$
         *'He was merry (to his mother)'

     b. On   byl   prijaten   (✓materi).
         He$_{NOM.SG}$ was$_M$ pleasant$_{M.SG}$ mother$_{DAT}$
         'He was pleasant (to his mother).'

(22) **Mne**   bylo   veselo.
     me$_{DAT}$ was$_{[-AGR]}$ merry$_{[-AGR]}$
     'I was enjoying myself/having fun.'

                                        [Schoorlemmer 1993: 131–2]

Schoorlemmer reasons that if the Dative in (22) were an internal argument, there would be no way to explain why it is permitted with *veselo*, but not with *veselyj*. She deduces that it must then be an external argument. Since the Datives are allowed with *prijatnyj*, she concludes that they are internal arguments. However, there is one piece of data left out: not only can a Dative occur with *veselo*, but with *prijatno* as well:

(23) **Mne**   bylo   zdes'   prijatno.
     me$_{DAT}$ was$_{[-AGR]}$ here   pleasant$_{[-AGR]}$
     'It was pleasant to me here.' / 'I had a pleasant time here.'

Following Schoorlemmer's reasoning, if the Datives in (20–21b) were internal arguments, then the one in (23) should be also. This results in an

inconsistency: the Dative with *veselo* is being called the external argument while the Dative with *prijatno* is being considered internal. Assuming *veselo* and *prijatno* are the same predicate type and therefore the syntactic structures of (22) and (23) are identical, it is illogical to claim that these Datives are two different arguments.

The discrepancy described above follows directly from the misconception argued against in Section 2.2, i.e., that personal adjectival sentences and IPCs have a derivational relation. As (20–21) indicate, the personal adjective *veselyj* does not select an indirect internal argument, whereas the personal adjective *prijatnyj* does. In contrast, both *veselo* and *prijatno* optionally select a DAT NP, bearing an Experiencer θ-role. This conundrum is solved if we consider *veselo* and *veselyj* two independent lexical items, each with their own argument structures, as well as *prijatno* and *prijatnyj*.[11]

3. Dative Infinitival Subjects vs. Dative Experiencers

Having examined the data supporting the DSH and offered counterexamples for each point, I now present my analysis of the difference between infinitival subjects and Experiencers and how they are each assigned DAT Case.

3.1. DAT Case-Assignment to the Subjects of Infinitives

So far we have not discussed the details of DAT Case-assignment to the infinitival subject, nor my motivation for accepting the subjecthood of infinitive Datives. This claim is based on the fact that the θ-role of infinitival subjects is unquestionably no different from their NOM analogue, namely, Agent. This can be seen by comparing (1a) and (2a).

To account for the DAT Case-marking of infinitival subjects, I adopt the Case-assignment strategy of Babby 1998, who argues that "infinitivization" involves the addition of infinitival morphology -*ti* and its allomorphs. This alters the verb's argument structure by marking its external argument with Lexical DAT Case. (24) is a diathetic representation of such a change (θ_1 is external argument; NP_1 is the subject NP):

---

[11] Note that *veselo* and *prijatno* in (22–23) have different lexical meanings than their personal analogues in (20–21). This again strengthens the case for the lexical autonomy of impersonal predicatives (cf. (11–13) and fn 8).

(24)   **Infinitivization** [Babby 1998]

θ_1		...	→	θ_1		...
NP_1	V	...		NP_1:DAT	$[V+ti]_{INF}$	...

Adopting this mechanism for sentences like (1a) lifts the burden of DAT Case-assignment from the [–AGR] copula and attributes it solely to the infinitive. This infinitive is embedded, and the DAT Case-assignment to its external argument takes place within this embedded clause. This occurs completely independently of the non-agreeing copula, which is the matrix predicate of these constructions. The structure of (1a) is (25):

(25) $[_{CP}$ Kuda $[_{TP}$ **nam**$_i$ bylo $[_{VP}$ t$_i$ postavit' ètot jaščik]]]?[12]

So, even though both the DSH and my analysis agree on the subjecthood of DAT with infinitives, it is important to bear in mind the significant differences in their Case assignment strategies. Under the former approach, *nam* is considered the matrix subject of some complex predicate *bylo postavit'*, and is assigned DAT structurally in conjunction with the lack of agreement with this predicate. My approach claims that *nam* is the subject of the infinitive, assigned Lexical DAT by the addition of infinitival morphology. The infinitive clause is in turn embedded in a matrix clause. It is the *matrix* clause which is subjectless, and this is why the copula is [–AGR].

3.2. DAT Case-Assignment to the Experiencer of IPCs

In (4) impersonal sentence is defined as one whose predicate neither selects an external argument nor projects a subject position. This notion is the basis for my rejection of the subjecthood of DAT Experiencers: since IPCs are impersonal, the DAT Experiencers occurring in them cannot be subjects. I propose below an argument structure for impersonal predicates which successfully reflects the data on IPCs presented so far.

---

[12] *Nam* raises out of the embedded infinitival VP to precede the matrix predicate, the copula. Note, however, that *nam* does not raise *beyond* TP; that is, there is no Agr$_S$ projection. The reason is that, while the infinitive VP itself is personal, the copular matrix clause in which it is embedded is *im*personal, i.e., it has no subject.

First, recall that initial claim that the DAT Case of the Experiencer is in fact Semantic Case. The Experiencer is licensed by the lexical semantics of each impersonal predicative on an individual basis. For instance, words like *veselo* and *prijatno* in (22–23) license one (one can experience joy or pleasure), while words expressing the weather, e.g. (12), are generally unable to license Experiences in Russian.[13]

Now, according to standard Case Theory, NPs bearing Semantic Case have the potential of becoming NOM subjects (see Babby 1994b). But the reason that the DAT Experiencer in IPCs does *not* ever become a NOM subject follows from the fact that impersonal predicatives do not project a subject NP position. I therefore propose (26) as the argument structure of impersonal predicatives (the '–' sign symbolizes the absence of an external argument and a subject position):

(26)

–		$(\theta_2$:THM)	$(\theta_3$:EXP)
–	impersonal predicative	(NP_2)	(NP_3)

The inclusion of an optional Theme direct internal argument is to account for those few impersonal predicatives which select one, such as *bol'no*. Adopting (26) as its argument structure explains both the grammaticality of (27a) and the ill-formedness of (27b): not even the direct internal argument *ruka* can become the subject because there is no subject position:

(27) a. **Mne**   bol'no   (ruku).[14]
          me$_{DAT}$ painful$_{[-AGR]}$ arm$_{ACC}$

          'I'm in pain.' ('My arm hurts.')

      b. *****Mne**   bol'na   ruka.
          me$_{DAT}$ painful$_{F.SG}$ arm$_{NOM.F.SG}$

Independent evidence for predicates with an argument structure like (26) exists with psychological verbs like *vspomnit'* 'remember'. What is interesting about this verb is that even though either of the two arguments

---

[13] The reader is referred once more to Zaitseva 1990 for a formal analysis of the semantics of impersonal predicatives and their DAT NP-licensing properties.

[14] Although *bol'no* used this way is considered obsolete, it still fulfills all the predictions that I make in my analysis. I use it instead of other similar predicatives like *žal'*, because it can potentially inflect.

can function as the NOM subject (28a–b), *vspomnit'* cannot passivize
and *ja* cannot become an Instrumental argument adjunct *mnoj* (28c):

(28) vspomnit' 'remember': <θ_2:THM, θ_3:EXP> [Babby 1996: 47]

    a. **Mne**   vspomnilas'   staraja pesnja.

       I$_{<exp>:DAT}$ remembered$_{F.SG}$-*SJA* old   song$_{<thm>:NOM.F.SG}$

       (cf. English *'This song remembered *to* me.')

    b. **Ja**   vspomnil   staruju pesnju.

       I$_{<exp>:NOM.SG}$ remembered$_{M.SG}$ old   song$_{<thm>:ACC}$

       'I remembered the old song'

    c. *Staraja pesnja   byla   vspomnena   **mnoj.**

       old   song$_{NOM.F.SG}$ was$_{F.SG}$ remembered$_{F.SG}$ me$_{INST}$

       (cf. English ✓'The old song was remembered *by* me.')

To account for the data in (28), Babby 1996 contends that the two
arguments which *vspomnit'* selects are both *internal*, the Theme direct
and the Experiencer indirect.[15] He argues that the DAT Case of the Ex-
periencer is Semantic Case. In this respect, *vspomnit'* is just like
impersonal predicatives. But, as (28c) shows, in spite of the internal
argumenthood of the two NPs, *vspomnit'* projects a syntactic subject
position, which either one of the two arguments must fill. The argument
structure of *vspomnit'* is therefore represented as in (29):

(29)

θ		θ_2:THM	θ_3:EXP
NP$_1$	vspomnit'	NP$_2$	NP$_3$

3.3. The Pre-Predicate Position of DAT Non-Subjects

One final question is why DAT non-subjects like Experiencers appear
pre-predicatively and why they have the subject-like properties seen in
Section 2.1.3. Here is where the notion of *logical subject* becomes
relevant. In a canonical active sentence, the NOM grammatical subject

---

[15] Such a stance is not implausible; the behavior of *vspomnit'* reflects an entire
class of psych verbs analyzed by Belletti and Rizzi (1988). Furthermore, this
class of verbs shows that Experiencers *can* be subjects in Russian. The point of
my article is that they cannot be subjects when occurring with impersonal
predicatives.

and logical subject coincide. If we adopt the Thematic Hierarchy proposed in Grimshaw 1990 and adopted by Bailyn 1991, King 1995, and others, we can argue that non-grammatical subjects can fill the pre-predicate position if they bear θ-roles which are higher in the thematic hierarchy in relation to other arguments in the sentence. Following a Minimalist view, the checking of T's strong EPP-feature and the filling of this pre-predicate position (presumably SpecTP) is executed in Russian not by the *grammatical* subject, but by the *logical* subject – the thematically most prominent NP in the sentence. According to Grimshaw 1990, Experiencer is among the highest in the hierarchy.

4. The DNSH versus Other Dative Non-Subject Hypotheses

As mentioned earlier, others have argued against the subjecthood of DAT Experiencers. The most recent and detailed account is Moore and Perlmutter (M&P) 1998, in the Relational Grammar framework. Their claim, called the "Inversion Hypothesis", also contrasts Dative subjects with non-subjects; however, they call all pre-predicate non-subject Datives "IOs". This unified view of non-subject Datives has some consequences which are avoided in my analysis.

First, it seems incorrect to incorporate all non-subject Datives into one group without taking into account their *semantic* roles: Goal, Benefactor, Experiencer, etc. Each type has different properties, such as varying degrees of subject-like behavior. For instance, rarely will a DAT Goal like the indirect object in (6) have binding or control abilities, yet Experiencers do have this ability. In addition, not considering the various theta roles of Datives precludes the ability to prioritize them according to Grimshaw's (1990) Thematic Hierarchy.

The need to subdivide non-subject Datives becomes clearer in (30–31). According to M&P's, only true subjects trigger agreement. E.g, even though the DAT subject in (30a) does not agree with the infinitive, it *does* agree in gender and number with the past passive participle *opublikovanoj*. No such agreement is possible when the predicate is *nužen*, as shown in (30b):

(30) a. **Toj   rukopisi**   ne   byt'   opublikovan**oj**
     [that   manuscript] $_{DAT.F.SG}$ NEG   be$_{INF}$ published$_{INST.F.SG}$

     zarubežnym   izdatel'stvom.
     foreign   publisher.

     'It isn't in the cards for that manuscript to be published by a
     foreign publisher.'

   b. ***Borisu**   ne   byt'   nužno/nužnym   deneg.
     Boris$_{DAT.M.SG}$ NEG   be$_{INF}$ needed$_{[-AGR]/INST.M.SG}$ money$_{GEN}$

     'Boris wouldn't need money.' [M&P 1998:18–19]

However, this diagnostic fails to rule out DAT Experiencers of
impersonal predicatives:

(31) **Maše**   bylo   veselo   odn**oj**.[16]
     Masha$_{DAT.F.SG}$ was$_{[-AGR]}$ merry$_{[-AGR]}$ alone$_{INST.F.SG}$.

     'Masha had fun alone/by herself.'

Actually, there is one way M&P distinguish indirect objects from other
non-subject Datives: by considering the latter *final* IOs derived from
initial subjects. In other words, by means of a derivation employed under
RG, DAT non-subjects like Experiencers are initially subjects and then
become IOs. However, not only have I illustrated in Section 2.2 the
dangers of this kind of derivation, but I have also presented in Section
3.2 an DAT Experiencer Case-marking strategy entirely independent of
the Experiencer being a subject or *derived* from one.

5. Concluding Remarks

I have provided an account of the argument status of DAT Experiencers
and how they differ from DAT infinitival subjects. I have also explained
why the Experiencer can never become NOM in IPCs. Finally, I have
proposed Case-assignment strategies for both DAT infinitival subjects
and DAT Experiencers without relying on the predicate's [−AGR]
morphology.

---

[16] I owe thanks to L. Billings, with whom this example was discovered during a
personal communication.

Bibliography

Babby, L. (1994a) "A Theta-Theoretic Analysis of Adversity Impersonal Sentences in Russian". In S. Avrutin et al., ed., *FASL: MIT, 1993*, 216–34. Ann Arbor: Michigan Slavic Publications, 25–67.

———. (1994b) "Case Theory". In C. P. Otero, ed., *Noam Chomsky: Critical Assessments, Vol. I: Linguistics* (tome II), Routledge, 630–52.

———. (1996) ™Inflectional Morphology and Theta-Role Suppression›. In J. Toman, ed., *FASL: College Park, 1994*, 1–34. Ann Arbor: Michigan Slavic Publications.

———. (1998) "The Syntax and Semantics of Impersonal Infinitive Sentences in Russian." Ms. Princeton University.

Babby, L. and S. Franks (1998) "The Syntax of Adverbial Participles in Russian Revisited". *SEEJ* 43, 3, 483–515.

Bailyn, J. (1991) "The Configurationality of Case Assignment in Russian". *Cornell Working Papers in Linguistics* 9, 57–98.

Belletti, A. & L. Rizzi (1988). "Psych Verbs and θ-Theory". *Natural Language and Linguistic Theory* 6, 291–352.

Chomsky, N. (1995) *The Minimalist Program*. Cambridge, Mass.: The MIT Press.

Franks, S. (1990) "Reflections on the Second Dative". *Russian Linguistics* 14, 3, 231–54.

Greenberg, G. & S. Franks (1991) "A Parametric Approach to Dative Subjects and the Second Dative in Slavic". *SEEJ* 35, 1, 71–97.

Grimshaw, J. (1990) *Argument Structure*. Cambridge, Mass.: The MIT Press.

Keenan, E. (1987) *Universal Grammar: 15 Essays*. London: Croom Helm.

King, T. H. (1995) *Configuring Topic and Focus in Russian*. Stanford: CSLI Publications.

Kondrashova, N. (1994) "Agreement and Dative Subjects in Russian". In S. Avrutin et al., ed., *FASL: MIT, 1993*, 255–85. Ann Arbor: Michigan Slavic Publications.

Moore, J. and D. Perlmutter (1998) "The Contrast between Inversion Nominals and Dative Subjects". To appear in *Natural Language and Linguistic Theory*, 1999.

Schoorlemmer, M. (1994) "Dative Subjects in Russian". In J. Toman, ed., *FASL: Ann Arbor, 1992*, 129–72. Ann Arbor: Michigan Slavic Publications.

Zaitseva, V. (1990) "Conditions for the Presence of the Dative NP in Russian Impersonal Constructions". *Harvard Studies in Slavic Linguistics,* 1, 215–29.

Department of Slavic Languages and Literatures
028 East Pyne
Princeton University
Princeton, NJ 08544
eskomar@princeton.edu

Subjunctive Complements, Null Subjects, and Case Checking in Bulgarian*

Iliyana Krapova
University of Plovdiv

Vassil Petkov
University of Southern California

1. Subjunctive Complements in Bulgarian

Like the rest of the Balkan languages (Modern Greek, Romanian, Albanian) Bulgarian lacks subjunctive morphology but features a specific type of complementation with a subjunctive-like interpretation. In constructions of this type, the embedded verb has indicative morphology and is fully inflected for person/number agreement, although there are some tense restrictions which will be discussed in greater detail further in the text. The only mark for the "subjunctive"[1] appears to be the particle *da* which immediately precedes the finite verb, as illustrated in examples (1) and (2) below:

(1) Ivan   iska   [e]   da   dojda/[e]   da   dojde.
     Ivan   wants   DA   come-1sg/   DA   come-3sg
     'Ivan wants [for] me to come.'/'Ivan wants to come.'

(2) Ivan   se   opita   [e]   da   razbere   vŭprosa.
     Ivan   refl tried   DA   understand-3sg question-the
     'Ivan tried to understand the question.'

---

[1] Although the term *subjunctive* is rather controversial in Bulgarian linguistics (cf., e.g., Maslov 1982), we will be using it as a cover term for all embedded clauses introduced by the special particle *da* and associated with a subjunctive (or subjunctive-like) interpretation.

As far as the referential properties of the embedded subject are concerned, (1) and (2) present a curious asymmetry in terms of binding relations. In complements to verbs like *want*, the null subject can, but need not be, coreferential with the matrix subject, while in complements to verbs like *try*, the null subject is necessarily anaphoric upon the matrix subject and is therefore controlled by it.

In the present paper, we will argue, using the Minimalist framework of Chomsky (1995), that subjunctive clauses in Bulgarian are not structurally identical with respect to the category of their null subject. Rather, the set is divided between subjunctives as in (1) above, which take a pro subject, and those as in (2), which take a PRO subject. Following previous work (Krapova 1997, to appear) we label the two subsets of subjunctives in Bulgarian Type I and Type II S(ubjunctives) respectively.[2] Our aim is to show that the distribution of pro and PRO in Bulgarian can be derived on the basis of a correlation with the morphological content of subjunctive Tense. The analysis will lead to the conclusion that the control relation in clauses with a Type II S, such as (2) above, does not result from properties intrinsic to PRO, but rather follows from lack of embedded Tense features and provides a configuration where Null Case can be checked successfully.[3]

---

[2] Typically, a Type I S is selected by epistemic verbs (e.g. *nadjavam se* 'hope', *vjarvam* 'believe', *trjabva* 'must', etc.) and volitionals/desideratives (e.g. *iskam* 'want', *želaja* 'wish', etc.), while a Type II S is selected by control verbs (e.g. *znaja* 'know how', the root modal *moga* 'can', *opitvam se* 'try', *zabravjam* 'forget', *uspjavam* 'succeed', etc.) and possibly aspectual verbs (e.g. *započvam* 'begin', *prodŭlžavam* 'continue', *spiram* 'stop', etc.). Within this semantically defined categorization, the term *control verb* can be correlated with the semantic property of control in its broadest sense, i.e. as referring to verbs which take in any non-freely interpreted empty category (Joseph 1992). Also, it is worth noting that the class of verbs which select a Type II S appears to be a mixed one, and some of its representatives show certain ambiguities in their behavior as raising rather than control predicates, but we will leave open for further investigation any attempt to establish class membership in a more precise way.

[3] Typologically, in all Balkan languages there is a subset of subjunctive-selecting predicates which induce an obligatory internal construal of the embedded null subject, regardless of the presence/absence of infinitives in these

2. Null Subjects in Bulgarian Subjunctives

There is abundant evidence that the empty subject in cases like (1) vs. (2) is associated with an array of properties which uniquely identify it as pro and PRO, respectively. More concretely, in a Type I S like (1), the null subject may alternate with a lexical DP or an overt pronoun, it may function as an expletive, it can take split antecedents, it permits both sloppy and strict identity readings, it is compatible with arbitrary effects, and it is not thematically constrained. On the other hand, the null subject in a Type II S like (2) is to be associated with anaphoric PRO, since it instantiates none of the above properties. These differences are summarized in the table on the following page (see Krapova 1997 for a more detailed discussion):

languages and/or of an additional subjunctive complementizer (cf. Iatridou 1993, Terzi 1992, 1998, Roussou 1999 for Modern Greek; Turano 1993 for Albanian; Dobrovie-Sorin 1994 for Rumanian). The problem, however, is whether this type of co-reference can be shown cross-linguistically to instantiate a control relation, and, if so, whether it indicates the presence of a category PRO in these languages, all of which have either lost completely the morphological category of the infinitive, or have limited its use considerably. The availability of PRO in languages with finite-only complements has been questioned or even denied in a number of works within the GB model on the basis of the governing properties of finite INFL (see Philippaki-Warburton 1987, for Modern Greek, Dobrovie-Sorin 1994, to appear, for Rumanian and Bulgarian). It has been argued that subjunctives with anaphoric subjects are only apparent control cases, and that the empty subject position should instead be occupied by pro. Various mechanisms have been proposed in order to capture the control facts. In the GB version, these mechanisms reduce to possible ways of defining a GC for the embedded subject in the above mentioned languages, in order to account for its ambiguous behavior as a pronominal or as a bound variable (see Rivero 1987, Dobrovie-Sorin 1994, to appear, etc.).

Table. Null subjects in subjunctive sentences

	Type I S	Type II S
	pro	PRO
Reference	+pron	+anaph
Alternation with a lexical DP	yes	no
Expletive	yes	no
Split antecedents	yes	no
Covariant interpretation	yes	no
Arbitrary effects	yes	no
Thematic constraints	no	yes

Consider, for example, the pair in (3):

(3) a. Ivan$_i$ iskaše   toj$_{i/j}$/pro$_{i/j}$ da   ostane
         Ivan   wanted-3sg   he   DA   stay-3sg

         pri   nego$_{j/i}$.
         with   him

         'Ivan wanted (him) to stay with him.'

     b. Ivan$_i$ uspja   PRO/*brat   mu$_i$ da
         Ivan   managed-3sg   brother   his   DA

         ostane   pri   nego$_j$[4]
         stay-3sg   with   him

         'Ivan managed to stay with him.'

(3a) shows that only in a Type I S can the null subject alternate with an overt one. The subject pronoun may be coreferent with the matrix subject, or may refer to some DP salient from the context.[5] In a Type II

---

[4] In the text examples, PRO and pro will always be given to the left of *da* for the purpose of marking their presence in the respective subjunctive complement type. The actual structural positions of the null subjects will be discussed in section 4.

[5] It should be pointed out, however, that when the subject pronoun is overt, each reading is associated with a different interpretation: i.e. focused, when in the coreferent reading, and topicalized, when in the non-coreferent reading. Pending the discussion in section 4, and assuming that focus and topic phrases are

S, on the other hand, which corresponds to (3b), alternation with a lexical DP/pronoun is blocked and the understood subject has to be obligatorily controlled. Under the current proposal, the anaphoric relation exemplified in (3b) is to be attributed to the presence of a syntactic element, namely PRO, despite the fact that the embedded verb is finite (see Terzi 1998 for arguments from Modern Greek on compatibility between PRO and finiteness).

It could be argued (along the lines of Borer's 1989 proposal) that the control relation in Type II Ss derives from the anaphoric properties of embedded AGR. However, since person/number morphology does not change with the choice of complement clause type, it is surprising that only (3b) exhibits the standard control effect. It could also be argued that if control is an instantiation of an anaphoric *relation* rather than an indication of the presence of a particular linguistic element, namely PRO, the identity of matrix and embedded agreement features in (3b) is determined by the s-selectional properties of the matrix predicate: i.e., certain verbs in Bulgarian like *try* and *manage*, but not *want* or *hope*, will impose such an anaphoric relationship/interpretation. However, although it is clear that such a distinction in lexical properties indeed exists, we will show that the null embedded subjects in (3a) vs. (3b) have a different syntactic behavior which cannot be otherwise accounted for unless one postulates that they belong to two separate categories.

First, locality effects obtain only with the Type II S, i.e., in subjunctives which take PRO subjects, since this is a property characteristic of obligatory control. The contrast in (4) is hence expected, given that (4a) is a control structure, while (4b) is not:

(4) a. [Na   Ivan]$_i$ [majka   mu]$_j$ može   [PRO   da
       of   Ivan   mother   his   is   able   DA

       SE$_{j/*i}$ izmie.
       self   wash

       'Ivan's mother can wash herself.'

---

situated in the left periphery of the clause (following the proposal of Rizzi 1997), this contrast indicates that overt subjects in *da*-complements of Type I may not surface in one and the same position inside the embedded clause.

(4) b.

[Na	Ivan]$_i$	[majka	mu]$_j$	se	nadjava [pro$_{i/j}$
of	Ivan	mother	his		hopes

da	SE$_{j/i}$	izmie.
DA	self	wash

'Ivan's mother hopes to wash herself.'
or: 'Ivan's mother hopes that he will wash himself.'

(5) John's mother hopes PRO to wash herself/*himself.

The PRO subject in (4a) can be controlled only by a local c-commanding antecedent, thus precluding a non-local construal of the embedded anaphor *se* ('self') with *Ivan,* similarly to the corresponding English example in (5). In (4b), on the other hand, which contains a pro subject, the reflexive can be construed with an antecedent (*Ivan*), which need not be local.

Further, the ungrammaticality of (6a) which contains the impersonal modal *trjabva* 'must' in the intermediate subjunctive clause shows that PRO is prevented from picking up the semantically appropriate controller because of the intervention of the expletive, which is a closer (yet unsuitable) antecedent. Thus, similar to the English case in (7), (6a) is ruled out as a locality violation, despite the fact that the intended interpretation is the one with PRO being controlled by *Ivan.* Unlike (6a), (6b) contains the root modal *moga* 'can', which agrees in phi-features with its subject *Peter.* Since locality conditions are respected, control of PRO by *Peter* in the intermediate clause yields a grammatical result:

(6) a.

*Ivan	ne	smjata	[pro$_{expl}$	da	trjabva	[PRO
Ivan	not	thinks		DA	must	

da	zamine	vednaga]]
DA	leaves	immediately

b.

Ivan	ne	smjata	[Petŭr	da	može	[PRO
Ivan	not	thinks	Peter	DA	is	able

da	zamine	vednaga]]
DA	leaves	immediately

'Ivan doesn't consider Peter capable of leaving immediately.'

(7) *John thinks that it is expected PRO to leave.

If in the above examples (2), (3b), (4b), (6b) we have the subject-oriented anaphor PRO, then we predict that it should be sensitive to the referential properties of its local antecedent. Following Higginbotham's generalization (1992: 101), PRO may receive a pronominal interpretation, in the case that it has a local pronominal controller. This situation is exemplified in (8), which presents a combination of a Type I and a Type II S. PRO in the most embedded clause can be interpreted as referring either to the superordinate subject *Ivan*, or to some discourse-salient participant. These referential differences, however, are not to be attributed to properties of a presumed pro subject, but rather to the fact that PRO is controlled by the null/overt pronoun in the intermediate clause. Thus, binding is local, rather than long-distance:

(8) Ivan$_i$ ne   si   predstavja   [pro$_{i/j}$/toj$_{i/j}$zamine]]
     Ivan   not   imagines   he

     da   može   [PRO$_{i/j}$ da.
     DA   is able DA   leaves

     'Ivan does not imagine that he will be able to leave.'

Consider next the interpretation of the reflexive/impersonal pronoun *se* 'self' in the two types of subjunctive clauses that we have postulated. First, as (9a) shows, a Type I S permits all interpretations which are available to *se*, i.e., passive, reciprocal, reflexive, null object, and impersonal (as in 10b):

(9) a. Ivan   iska   decata   da   SE   bijat.
         Ivan   wants   children-the DA   self hit

         'Ivan wants the children to be hit.'
     or: 'Ivan wants the children to hit each other.'
     or: 'Ivan wants the children to hit themselves.'
     or: 'Ivan wants the children to hit someone.'

     b. Ivan   iska   da   SE   raboti   i   v   nedelja.[6]
         Ivan   wants   DA   SE   works   and   on   Sunday

         'Ivan wants [for] people to work on Sundays as well.'

---

[6] In the text examples only the impersonal *se* is glossed with "SE", while all the other usages of *se* are glossed with "self".

Following Progovac (1998), we consider *se* an expletive element whose presence is imposed by the fact that one of the arguments is not expressed. According to Progovac, *se* may check either the Accusative Case feature on the verb, thereby deriving a passive structure with a Nominative theme as in (9a), or the Nominative Case feature of the verb, thereby deriving an impersonal structure as in (9b). Reflexive/reciprocal/null object structures differ from passive ones in that the external argument, rather than the internal one, raises to the Nominative position.

(9a) and (9b) contrast in grammaticality with (10a) and (10b), which contain a Type II S:

(10) a. *Ivan   otkazva   [da   SE   bijat   decata.
         Ivan   refuses   DA   self   hit   children-the

         [Intended interpretation]: Ivan refuses for the children to be hit/to hit each other/to hit someone

     b. *Ivan   otkazva   [da   SE   zamine.
         Ivan   refuses   DA   SE   leave

(11) Decata   otkazvat   [PRO   da   SE   bijat.
     children-the   refuse   DA   self hit

     'The children refuse to hit each other/themselves/ someone.'

The above examples show that the presence of PRO blocks the passive and the impersonal interpretations of *se* and allows only the reflexive/reciprocal/null-object one. Moreover, the fact that an arbitrary null subject is impossible in impersonal structures like (10b) shows that a subset of subjunctive complements in Bulgarian do not provide a Nominative Case checking environment, assuming, with Progovac, that in impersonal structures *se* checks Nominative Case.[7]

It has been noted for English (Lasnik 1992:240) that "for a wide range of obligatory control constructions, the predicate of the complement must be an intentional action, that is one either fully, or

---

[7] Note that the present conclusion is also compatible with the standard analysis of *se* (see, e.g., Cinque 1988), according to which *se* is not involved in Case checking but rather absorbs an internal or an external argument, depending on interpretation. We will not go into comparing the alternative hypotheses.

partially within the intentional control of the subject". Lasnik's observation holds for Bulgarian as well, and, apparently, PRO does not admit a non-agentive interpretation on a general basis, as the ungrammaticality of (12b) illustrates:

(12) a. Ivan šte se   opita [PRO da   pomaga
        Ivan will   try   DA   helps

      na   Anton.
      to   Anton

      'Ivan will try to help Anton.'

    b.*Ivan šte se   opita [PRO   da
        Ivan will   try   DA

      napodobjava na   Anton.
      resembles   to   Anton

As expected, no thematic constraints are imposed on pro subjects, as seen from (13) below. Thus, with verbs which permit either pro or a lexical DP as the subject of their subjunctive complement, a full range of theta-roles is available to that subject:[8]

(13) a. Ivan se nadjava [pro da   poseštava Petŭr.
        Ivan   hopes   DA   visits   Peter

    b. Ivan se nadjava [pro da   napodobjava na   Petŭr.
        Ivan   hopes   DA   resembles   to   Peter

3. Subjunctives and Tense Features

Having provided evidence as to the existence of PRO in the Bulgarian Type II S, let us see what are the factors that stand behind the distinction between the two types of null subjects in Bulgarian subjunctive clauses.

---

[8] This situation finds a parallel in English for verbs like *want*, which may take a lexical DP as well as PRO: i.e., they do not require an obligatorily controlled PRO, as Lasnik (1992) has observed:

(i) a. John wanted [Sue/PRO to visit Bill] = Lasnik's (38) and (41) (1992: 241ff)

     b. John wanted [Sue/PRO to resemble Bill]

Lasnik (1992: 241) notes: [T]hese thematic constraints on Control tend to obtain only in configurations where PRO is demanded (rather than simply allowed)".

We will claim that the relevant factor is the referential (and the morphological) content of embedded Tense. We will assume that Tense[9] comes in two varieties: T_{nom} and T_{null}. The former corresponds to a [+T] specification and checks Nominative Case, while the latter corresponds to [-T], to indicate lack of temporal specification, and checks Null Case.[10] In the next section we will try to show how the right type of Case is checked in each relevant configuration. What we would like to argue is that the control relation in the Type II S is not imposed by the anaphoric properties of PRO, but follows from, or at least correlates with, the specific temporal reference of the clause in which it is licensed.

Although it is generally true that subjunctive Tense is defective and dependent on matrix Tense for interpretation, the Type I and Type II S differ considerably with respect to their Tense specification. More precisely, in terms of Tense features, the former type has a richer semantic content than the latter.

Turning now to the data, the following generalization obtains: a Type I S may not appear in the whole range of indicative tenses,[11] but it nevertheless exhibits fewer tense restrictions than the Type II S.

---

[9] In this and the following section, we will be using the term 'tense' to refer to morphological tense, and the term 'Tense' (with a capital T) to refer to the head of the functional projection TP which hosts the Tense features.

[10] It should be noted here that we do not interpret the strict tense dependency (at least in Bulgarian) in the Type II clauses to amount to lack of Tense altogether. Instead, we suggest that control subjunctives have a Tense node which is specified as [-T]. The assumption that [-T] specification should replace lack of Tense will be shown to have important consequences for the minimalist account of Null Case checking of PRO given in section 4.

[11] It has been noted (e.g. Picallo 1984, Stowell 1982, Borer 1989, etc.) that (a) tense in subjunctives is defective (or degenerate) in comparison to indicative clauses; and (b) it is anaphoric upon the tense of the matrix clause. To account for the latter fact, it could be argued that subjunctives lack a TP altogether (see Tsimpli 1990:240ff). However, as noted by Dobrovie-Sorin (1994:105), when it comes to temporal reference, anaphoricity does not imply lack of Tense, but rather should be interpreted in terms of a referential dependency of the embedded Tense features upon the matrix Tense features. Thus, properties (a) and (b) are not independent, but should be taken to correlate.

Since the Type I S appears as a complement to epistemic and volitional predicates, it has a 'possible future' interpretation (Bresnan 1972), i.e., a Type I S describes a hypothetical or an unrealized event. All Bulgarian subjunctives are incompatible with the morphological past (aorist) tense and with the future tense, implying that the [±Past] features of embedded Tense do not have an independent status. As a consequence, the aorist is excluded (see (14)), since, in contrast to the imperfect, it has to be directly linked to the utterance time and cannot rely on any other reference point for its interpretation. Besides, the aorist is incompatible with a hypothetical/irrealis interpretation and also with the fact that subjunctives cannot be assigned a truth-value, as far as the speaker is concerned (Farkas 1992):

(14) *Ivan   se   nadjavaše/   možeše   da
       Ivan   refl   hoped/   could   DA

      napisa   pismoto.
      write-aor   letter-the

With respect to other tense restrictions, however, the Type I and Type II S behave differently. The Type I S permits all of the indicative tenses, except for the future and the aorist: present (the unmarked case), imperfect, present perfect and past perfect. Consider first present tense subjunctives, which appear as complements to volitionals and desideratives:

(15) a. Iskam   da   dojdeš.
          want-1sg   DA   come-2sg

          'I want you to come.'

      b. Nadjavax   se   da   dojdeš.
          hoped-1sg   DA   come-2sg

          'I hoped that you would come.'

The time reference of a present tense subjunctive, embedded under a present tense verb as in (15a), is evaluated at the utterance time, and yields a future tense reading. When the matrix verb is in the past, as in (15b), the time reference of present tense subjunctives is evaluated with respect to the matrix event time and has a 'future-relative-to-past' value. Such a state of affairs argues against the claim that subjunctive Tense is

strictly anaphoric. This is confirmed by the possibility of having different temporal adverbs in the higher and the lower clauses, as illustrated in (16):

(16) *Včera*   rešix   [*utre*   da   ne   puša
     yesterday   decided   tomorrow   DA   not   smoke-1sg
     poveče].
     anymore

   'Yesterday I decided that tomorrow I would give up smoking.'

Example (16) shows that the future-oriented adverb *utre* 'tomorrow' has narrow scope and does not conflict either with the higher past tense, or with the past-oriented adverb *včera* 'yesterday', which modifies the higher clause. Such facts seem to show that Type I S clauses may denote an independent event and have a distinct time frame, although a specific temporal interpretation is imposed by the Tense of the matrix predicate. More precisely, there exists a (head) dependency between embedded Tense and matrix Tense, in order for the temporal evaluation to be achieved. Following Enç (1987) and Roussou (1999), we can say that embedded Tense features are linked to the matrix Tense features in order for embedded Tense to be anchored.

Note that these meaningful tense distinctions are hard to reconcile with the proposal that subjunctive Tense is necessarily anaphoric and should be specified with [-T], like its infinitival counterparts in other languages. Therefore, we will suggest that Tense in a type I S is uniformly specified as [+T]. Since in these complements tense is typically interpreted as shifted "future", i.e., posterior to the matrix event time (Kempchinsky 1986), it lacks [± Past] features, but it contains other Tense (or Tense-related) features, such as [± Anteriority] which are anchored to matrix Tense through the embedded C.

Consider now the Type II S. First, compare (16) with the ungrammatical (17), which has the matrix control verb *zabravjam* 'forget':

(17) **Včera*   zabravix   [da   zamina   *utre*].
     yesterday   forgot-1sg   DA   leave-1sg   tomorrow

(17) shows that an embedded temporal adverb is ungrammatical if it conflicts with matrix tense and/or a temporal adverbial. This conclusion is confirmed by (18), where the control root modal *moga* 'can' in the past

(aorist) tense requires that the event in the embedded clause be necessarily interpreted as past, i.e., simultaneous with the matrix event, hence precluding the occurrence of a non-past time indicator:

(18) Ne   možax   da   kupja   knigata   *včera/   *utre*.
      not could-1sg DA   buy-1sg   book-the   yesterday/ tomorrow
      'I could not buy the book yesterday.'

The wide-scope interpretation of the temporal adverbials in the Type II S is expected, given that, depending on the semantic properties of the selecting predicate, a Type II S may denote an event which is either simultaneous with the matrix event (as in (17)), or aspectually non-distinct from it (as in (18); see also Varlakosta and Hornstein 1993 for similar facts from Modern Greek). Similarly, in (19) the adverbial *do utre* 'until tomorrow' can be interpreted only with a future time reference, as imposed by the future tense of the matrix verb:

(19) Šte   uspeja   da   pročeta   tazi   kniga
      will manage-1sg   DA   read-1sg   this   book
      do   *utre*.
      by   tomorrow
      'I will manage to read this book by tomorrow.'

It could be argued that the embedded present tense in (17), (18) and (19) is pleonastic, in that it has no semantic function other than signaling lack of independent tense or yielding a simultaneous construal.

Finally, it is worth noting that the Type II S in Bulgarian can appear only in the present tense, irrespective of the tense in the matrix clause. All other tenses are excluded, as the ungrammatica-lity of the examples in (20) shows:

(20) a. *Ivan   može   da   napišeše   pismoto
          Ivan   can   DA   write-impf-3sg   letter-the
      b   *Ivan   ne   moža   da   napišeše/   beše
          Ivan   not   could DA   read-impf/   had
          napisal   pismoto.
          written   letter-the
          'Ivan could not write the letter,'/'Ivan could not have written the letter.'

We conclude, therefore, that control complements in Bulgarian do not possess Tense features at all. In the grammatical examples (19)/(20) the present tense is Tense zero, so we will generalize that Tense in Type II S is specified with [-T].[12] This specification will allow us to capture the strict anaphoric relation which exists between matrix and embedded Tense.

4. Subjunctives, Case Checking and V-Movement

In this section, we will offer an account of how Nominative and Null Case are checked in the respective Tense feature contexts within the subjunctive clause. The analysis to be proposed will follow the spirit of the Minimalist Program elaborated in Chomsky (1995).

First, we will suggest that the base position of the subjunctive particle *da* is in C (see also Penčev 1997, Dobrovie-Sorin 1994), rather than in some functional projection (MoodP) inside the IP domain, as is currently maintained (in, e.g., Rudin 1985, 1988; Rivero 1994). Following Chomsky (1995), we assume that C selects TP, and that agreement features are checked in a Spec,head relation within TP, as indicated in the structure below:

(21) $[_{CP}$ C da $[_{TP}$ T $[_{VP}$ SU $[_{V'}$ V OB $]]]]$

Since the verb is selected from the lexicon with tense and agreement on it, the V feature of T will check the Tense on the verb, while its D feature will check the Case of the subject DP that raises to its Spec position. The

---

[12] The contrast between the two subjunctive types in terms of the pro/PRO distinction is reminiscent of the well-known contrast in (i), which illustrates that Control structures prohibit an overt subject, while ECM structures require one:

(i) a. John tries PRO/*Mary to finish his thesis.
     b. John believes *PRO/Mary to be pregnant.

Martin (1992) following Stowell (1982), proposes that this property correlates with Tense: Control Tense is specified for [+T], while ECM Tense is specified for [-T]; hence ECM complements do not have an independent temporal interpretation. In terms of Tense specification, it seems that the Type I S patterns with English Control Tense, while the Type II S (the control subjunctive) patterns with English ECM Tense. We do not have an explanation for these "mirror-image" effects. See also fn. 10.

DP carries along its phi-features, which will be checked against the Agr features of V in the Spec,head relation established within TP.

Recall that we have suggested above that Tense comes in two varieties, T_{nom} and T_{null}, each having a Case feature which has to be checked by V movement. Suppose T_{nom} has an uninterpretable Nominative Case feature which corresponds to its [+T] specification. The situation is similar with *that*-complements in which Tense is also specified with [+T]. Since pro and lexical DPs check Nominative Case, either one can merge, whenever T_{nom} is selected. Movement of V to T is overt, because the uninterpretable feature T_{nom} will attract V's Tense feature by pied-piping the entire verb, assuming (with Chomsky 1995) that only uninterpretable features attract and get subsequently deleted. The derivation is shown in (22):

(22)   V..... [$_{CP}$ da [$_{TP}$ pro/lexical DP [$_{T'}$ V+T [$_{VP}$ t$_{SU}$ t$_v$]]]]

Overt V-to-T will ensure that pro/lexical DP will move from Spec,VP to Spec,TP for checking of both Nominative Case and the strong EPP feature. Since there is no other trigger for movement, pro/lexical DP will stay in Spec,TP.

As for PRO, we will adopt the Case-theoretic account of its distribution proposed by Chomsky and Lasnik (1993), who argue that PRO is the minimal Case-marked DP which checks Null Case against a minimal Infl. Suppose now that T_{null} has a weak interpretable Tense feature which can check only Null Case, because it corresponds to a [-T] specification. Since there are no infinitives in Bulgarian, [-T +Agr] will be the minimal finite specification that must be marked on each verb. Thus PRO will merge whenever T_{null} is selected, or else the derivation will crash. The weak interpretable feature of T will attract only V's T features, to check T_{null} (obeying economy or Procrastinate: 'Movement is delayed as late as possible'), while PRO will move from Spec,VP to Spec,TP for checking of both Null Case and EPP against the raised Tense features of V, in compliance with Last Resort (Chomsky 1995):

(23)   V.... [$_{CP}$ da [$_{TP}$ PRO [$_{T'}$ T [$_{VP}$ t$_{PRO}$ V]]]]

The opposite choice, namely the one by which PRO instead of pro moves to Spec,TP in (22)/(23), will be barred because T_{nom} will not have satisfied its Nominative Case feature and the derivation will crash.

Alternatively, if pro rather than PRO raises to Spec,TP for Null Case checking, the derivation will crash again, since in this case T_{null} will not have satisfied its Null Case feature.

Unfortunately, this explanation predicts that a lexical DP in Spec,TP should be able to intervene between *da* in C and the verb in T. This is contrary to fact, as shown by the contrast in (24):

(24) a. *Iskam   da   *decata/*   *vsički*   ostanat.
         want-1sg   DA   children-the/ all   stay-3pl
     b.   Iskam   da   ostanat.   *decata/*   *vsički*
         want-1sg   DA   stay-3pl   children-the/ all

         'I want the children to stay.'/'I want them all to stay.'

In view of the grammaticality of (24b), we propose that when the subjunctive subject appears postverbally, the embedded verb has adjoined to the particle *da* in C, leaving the subject behind in Spec,TP.[13] The reason for this movement is in the feature specification of embedded C. Recall that the Type I S appears as a complement to epistemic and volitional predicates and describes a possible, hypothetical or unrealized event. Therefore, it seems plausible to assume that C has an uninterpretable Mood feature which attracts the embedded verb into the CP domain and can be checked by overt movement of V+T to C. Moreover, the respective verbs which select for a Type I S also have modal or modal-like properties, and thus require that their complement realize a Mood feature which is expressed on the embedded C.[14, 15]

Beside accounting for the strict adjacency between *da* and the following verb, overt T-to-C movement across the subject is also

---

[13] This proposal relies on right adjunction. Although not in the spirit of Kayne (1994), it is potentially compatible with Chomsky (1995).

[14] Interestingly, this latter class of verbs corresponds almost perfectly to the class of verbs that would normally require a subjunctive in languages marking this mood morphologically.

[15] According to traditional Bulgarian grammars (e.g., Maslov 1982), *da* in these complements is a subordinating conjunction which functions like a modal operator, with the effect of switching the time-reference of the subjunctive and deriving the above-mentioned past-shifted and future-shifted construals (see also Kempchinsky 1986 on this issue).

responsible for linking of the embedded Tense features to matrix Tense. Recall that we claimed above that Type I S clauses may denote an independent event and have a distinct time frame, although a specific temporal interpretation is imposed by the Tense of the matrix predicate. In view of this fact, T-to-C raising in Type I S clauses will have the additional effect of anchoring embedded Tense, in the sense of Enç's (1987) proposal, thereby achieving the temporal evaluation of the subjunctive clause. Under Enç's approach, T-anchoring proceeds indirectly, i.e., through the embedded C, which is selected by the matrix V in satisfaction of the locality conditions. More precisely, as argued by Roberts and Roussou (1996) and Roussou (1999), there exists a (head) C-T dependency which is overtly manifested in the V2 Germanic languages where T also moves to C. Furthermore, by the same operation (T-to-C raising), the embedded verb checks off its categorial feature against the V feature of the particle, since *da* is compatible only with finite verbs: it cannot co-occur with participles or gerunds.[16]

Turning now to Type II S clauses, recall that their present tense morphology is not related to the utterance time, but is interpreted as simultaneous with the tense in the matrix clause. In view of this tense dependency, we would like to suggest that CP in the Type II S is specified for a weak Mood feature. At LF, the latter attracts the subjunctive verb to C (obeying Procrastinate). Through this movement, an anaphoric relation is established between matrix and embedded Tense.[17] The subjunctive verb also checks off its categorial feature against the V-feature of the particle in C.

As noted above, the current approach runs contrary to the common view that the particle *da* has no complementizer properties. This view is grounded on word order facts: *da* has to be strictly adjacent to the

---

[16] Note that the categorial feature of the raised V in (22) is still accessible to the computation and remains visible at LF, by virtue of being Interpretable (Chomsky 1995), although it has been checked by T as a free rider (via the adjunction operation).

[17] Note that this proposal allows us to account for the tense dependencies exhibited in subjunctive clauses, making it irrelevant to posit different types of projections (CP or IP) for the various subjunctive complements based on co-occurrence with complementizers and wh-words (as in Varlakosta and Hornstein's 1993 analysis of Modern Greek subjunctives).

inflected verb or auxiliary, unlike "genuine" complementizers such as *če* 'that', which need not be:

(26) Ivan   se   nadjava *če*   Petŭr   e   zaminal veče.
     Ivan   hopes   that   Peter   be-3sg   left   already
     'Ivan hopes that Peter has already left.'

On a general basis, choice of a complement type is lexically determined: i.e., some verbs license a *če*-clause, while others license a *da*-clause. A limited class of verbs, however, including *nadjavam se* 'hope',[18] are equally compatible with both clause types:

(27) Ivan   se   nadjava   Petŭr   *da*   e
     Ivan   refl   hopes   Peter   DA   be-3sg

     zaminal   veče.
     left   already
     'Ivan hopes that Peter has already left.'[19]

A comparison between (24b) and (27) shows that overt subjunctive subjects can appear preverbally, i.e., to the left of *da*, as well as postverbally. On the other hand, a comparison between (26) and (27) indicates that *če* and *da* occur at two different sides of the overt preverbal subject: *če* appears before the subject, while *da* follows it. Fronted constituents such as focus and topic phrases (in clitic left dislocation constructions illustrated in (28)-(29)) obey the same ordering constraint: i.e., they follow *če* and precede *da:*

(28) Iskam   knigata$_i$ IVAN   *da*   mi   ja$_i$ dade.
     want-1sg   book-the   Ivan   DA   me   it   give-3sg
     'I want Ivan to give me the book.'

---

[18] All verbs seem to belong to the class of belief verbs, such as *vjarvam* 'believe', *mislja* 'think', *predpolagam* 'assume', etc.

[19] There is a difference in interpretation, however, between this example and (26) above. In (26), the subjunctive expresses the speaker's commitment to the factual status of the embedded proposition, while in (27) it expresses the speaker's belief in the possible realization of the embedded event.

(29) Nadjavam   se   *če*   knigata$_i$ IVAN   šte   mi
      hope-1sg   refl that   book-the   Ivan   will me

      ja$_i$ dade.
      it   give-3sg

      'I hope that Ivan will give me the book.'

The above examples show that *če* is higher than *da* in the embedded structure. In recent work, Rizzi (1997) has argued that the left periphery of the clause (the CP domain) has a finer structure which can be split into several projections, as exemplified in (30):

(30)   [$_{ForceP}$ Force [$_{TopP}$ Top [$_{FocusP}$ Focus [$_{TopP}$ Top [$_{FinitenessP}$ Finiteness]]]]]

Rizzi's proposal allows us to allows us to capture the distributional correlations observed in (26) - (29) by supposing that there are at least two complementizer positions in Bulgarian. The Finite-nessP contains information which "faces the inside, the content of the IP embedded under it.' (Rizzi 1997:283), and its head, Finiteness, differentiates between finite and non-finite clauses. We would like to suggest tentatively that this is the position occupied by *da*. Since *če* is always higher than *da* and they appear on opposite sides of Topic and Focus, it could be argued that *če* occupies the head of ForceP, i.e., the projection which contains information about the type of the clause (declarative, exclamative, relative, etc.).

In view of this suggestion, whenever the subjunctive subject is situated to the left of *da*, it can either stay in Spec,FinitenessP; or be topicalized and surface in Spec,TopP; or be focused and surface in Spec, FocP, respectively. The structure in (30) predicts that combinations between several topics and a focus should also be possible. (31) shows that this is indeed the case in Bulgarian:

(31) a. Nadjavam   se   [knigata$_i$ [UTRE   [Ivan   da
          hope-1sg   book-the   tomorrow   Ivan   DA

          ja$_i$ donese]]].
          it   bring-3sg

(31) b. Nadjavam se   [knigata$_i$ [IVAN   [t   da
         hope-1sg   book-the   Ivan   DA

         ja$_i$ donese]]].
         it   bring-3sg

         'I hope that Ivan will bring the book tomorrow.'

5. Conclusion

In this paper, we have examined the syntactic behavior of the null
subjects in finite subjunctive clauses in Bulgarian, a language that has
lost almost entirely the category of the infinitive.[20] We have provided
additional arguments which help identify the postulation of two types of
subjunctives, based on a correlation between their distinct temporal
specifications. The results are summarized in the following descriptive
generalizations:

   (a) Bulgarian has two types of *subjunctive* complements, one which
licenses pro and another which licenses PRO. Complements with a pro
subject (Type I Subjunctives) show some tense restrictions, but
nevertheless, their Tense features may not be anaphoric upon the matrix
Tense. Complements with a PRO subject (Type II Subjunctives) show
very strict tense restrictions. Their Tense features are anaphoric and
(present) Tense is pleonastic, or T_{null}.

   (b) Control relations in Type II Subjunctives do not result from
properties intrinsic to PRO, but rather follow from the fact that the
negatively specified T in the embedded clause provides a configuration
where (Null) Case can be checked successfully.

   (c) Embedded Tense, through its respective +/- specification,
regulates the distribution of pro/PRO subjects, in compliance with

---

[20] The few infinitives that have persisted till present day have an extremely
limited usage and appear as complements to the modals *moga* 'can' and *smeja*
'dare', as well as to the negative imperative *nedej* 'don't':

   (i) Ne   moga   ti   kaza.
        Not can   you   tell-inf

        'I cannot tell you.'

   (ii) Nedej plaka!
         Don't cry-inf
         'Don't cry.'

Minimalist Principles and the s-selectional properties of matrix predicates.

References

Borer, Hagit. 1989. "Anaphoric AGR." In Osvaldo Jaeggli and Kenneth Safir, eds., *The Null Subject Parameter*, 69-109. Dordrecht: Kluwer Academic Publishers.

Bresnan, Joan. 1972. Theory of Complementation in English Syntax, Unpublished doctoral dissertation, MIT, Cambridge, Mass.

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

Chomsky, Noam and Howard Lasnik. 1993. "Principles and Parameters theory." In Joachim Jacobs, Arnim von Stechow, Wolfgang Sternefeld, and Theo Vennemann, eds., *Syntax: An International Handbook of Contemporary Research,* 506-569. Berlin & New York: Walter de Gruyter.

Cinque, Guglielmo. 1988. "On Si Constructions and the Theory of *Arb*". *Linguistic Inquiry* 19: 4. 521-582

Dobrovie-Sorin, Carmen. 1994. *The Syntax of Rumanian: Comparative Studies in Romance.* Berlin, New York: Mouton de Gruyter.

————. (to appear). "The Balkan Subjunctive and Control Theory." In Angela Ralli and Maria-Luisa Rivero, eds., *Balkan Syntax* Oxford: Oxford University Press.

Enç, Murvet. 1987. "Anchoring Conditions for Tense," *Linguistic Inquiry* 18:633-657.

Farkas, Donka. 1992. "On the Semantics of Subjunctive Complements." In Paul Hirschbühler and E. F. Konrad Koerner, eds., *Romance Languages and Modern Linguistic Theory*, 69-104. Amsterdam & Philadelphia: John Benjamins.

Higginbotham, James. 1992. "Reference and Control." In Richard Larson, Sabine Iatridou, Utpal Lahiri and James Higginbotham, eds., *Control and Grammar*, 79-108. Dordrecht: Kluwer Academic Publishers.

Iatridou, Sabine. 1993. "On Nominative Case Assignment and a Few Related Things," *MIT Working Papers in Linguistics*, 19. Papers on Case and Agreement. vol. II, 174-195.

Joseph, Brian. 1992. "Diachronic Perspectives in Control." In Richard Larson, Sabine Iatridou, Utpal Lahiri and James Higginbotham, eds., *Control and Grammar*, 195-223. Dordrecht: Kluwer Academic Publishers.

Kayne, Richard. 1994. *The Antisymmetry of Syntax*. Cambridge: MIT Press.

Kempchinsky, Paula. 1986. Romance Subjunctive Clauses and Logical Form, Unpublished doctoral dissertation, UCLA.

Krapova, Iliyana. 1997. "On Control in Bulgarian." In Uwe Junghans and Gerhild Zybatow, eds., *Formale Slavistik*, 93-107. Frankfurt am Mein: Vervuert.

————.(to appear). "Subjunctives in Bulgarian and Modern Greek". In Angela Ralli and Maria-Luisa Rivero, eds., *Balkan Syntax*, Oxford: Oxford Universoty Press.

Lasnik, Howard. 1992. "Two Notes on Control and Binding," In Richard Larson, Sabine Iatridou, Utpal Lahiri and James Higginbotham, eds., *Control and Grammar*, 235-252. Dordrecht: Kluwer Academic Publishers.

Martin, Roger. 1992. On the Distribution of Case-features and PRO. Ms. University of Connecticut, Storrs.

Maslov, Jurij S. 1982. *Gramatika na bŭlgarskija ezik*, Sofia: Nauka i izkustvo.

Penčev, Jordan. 1998. *Sintaksis na sŭvremennija bŭlgarski knižoven ezik.* Plovdiv.

Philippaki-Warburton, Irini. 1987. "The Theory of Empty Categories and the Pro-Drop Parameter in Modern Greek," *Journal of Linguistics* 23: 289-318.

Picallo, Carme. 1984. "The Infl Node and the Null Subject Parameter," *Linguistic Inquiry* 15:75-102.

Progovac, Ljiljana. 1998. "Events in Serbian." In Mila Dimitrova-Vulchanova, Lars Hellan, Ivan Kasabov and Iliyana Krapova, eds., *Papers from the Second Conference on Formal Approaches to South Slavic Languages* (FASSL2), *Sofia, September 1997*. University of Trondheim Working Papers in Linguistics 31:79-116.

Rivero, Maria-Luisa. 1987. "Barriers and the Null Subject Parameter in Modern Greek." In *NELS* 18. 412-425.

Rivero, Maria-Luisa. 1994. "Clause structure and V-movement in the languages of the Balkans," *Natural Language and Linguistic Theory* 12:63-120.

Rizzi, Luigi. 1997. "The fine structure of the left periphery." In Liliane Haegeman, ed., *Elements of grammar,* 281-337. Dordrecht: Kluwer Academic publishers.

Roberts, Ian and Anna Roussou. 1996. "Speculations on the Phenomenon of Verb Second," *Bangor Research Papers in Linguistics* 7:48-61.

Roussou, Anna. 1999. "Modals and the Subjunctive." In Artemis Alexiadou, Geoffrey Horrocks and M. Stavrou, eds., *Studies in Greek Syntax,* 169-183. Dordrecht: Kluwer Academic Publishers.

Rudin, Catherine. 1985. *Aspects of Bulgarian Syntax: Complementizers and WH constructions.* Columbus: Slavica.

———. 1988. "Finiteness and opacity: Evidence from the Balkans." In Michael Hammond, Edith Moravcsik and John Wirth, eds., *Studies in syntactic typology*, 37-51. Amsterdam: John Benjamins.

Stowell, Tim. 1982. "The Tense of Infinitives," *Linguistic Inquiry* 13:561-570.

Terzi, Arhonto. 1992 PRO in finite clauses: A study of the inflectional heads of the Balkan languages. Unpublished doctoral dissertation, CUNY, New York.

———. 1997. "PRO and Null Case in Finite Clauses," *The Linguistic Review* 14: 335-360.

Tsimpli, Ianthi-Maria. 1990. "The Clause Structure and Word Order in Modern Greek," *UCLA Working Papers in Linguistics* 2:226-255.

Turano, Giuseppina. 1993. "Subjunctive Construction in ArbĎresh and Standard Albanian," *Rivista di grammatica generativa* 18. 101-133.

Varlakosta, Spiridoula and Norbert Hornstein. 1993. "Control complements in Modern Greek," In *NELS* 23:507-521.

Iliyana Krapova
Department of Linguistics
University of Plovidv
4000 Plovdiv, Bulgaria
iliyana@ulcc.uni-plovdiv.bg

Vassil Petkov
Department of Linguistics
University of Southern California
Los Angeles, CA 90089-0359
petkov@scf-fs.usc.edu

Negative Concord and Wh-Extraction in Polish:
A Lexical HPSG Approach

Anna Kupść

Polish Academy of Sciences, Institute of Computer Science
Université Paris 7

1. Introduction

In this paper we argue against the fully parallel treatment of Negative Concord (NC) and *Wh*-Extraction (WHE) in Polish. This kind of analysis has been often proposed in the GB literature mostly based on Romance data, e.g., Kayne (1981), Rizzi (1982), and esp. Longobardi (1990), but such an account has been also proposed for Slavic languages, e.g., Progovac (1994). In Polish, we do not find evidence for a parallel analysis of these phenomena. Although we analyze both phenomena as unbounded dependency constructions (UDCs), there are differences that disfavor their parallel treatment.

     The organization of this paper is as follows. We start with a comparative presentation of the data. This comparison shows that in spite of apparent analogies, both phenomena have distinct behavior. Then, we propose a uniform (but not fully parallel) syntactic analysis of Polish NC and WHE. The presented analysis is couched within the lexical framework of HPSG (Head-driven Phrase Structure Grammar), cf. Pollard and Sag (1987, 1994) and is mostly based on our previous work on Polish NC, cf. Przepiórkowski and Kupść (1997a,b,c; 1998).

2. Comparison of NC and WHE in Polish

2.1. Basic Facts

At first glance, NC and WHE do show a parallel behavior. WHE of any dependent is possible in simple clauses. The dependent can be an argument, as in (1a), or an adjunct, as in (1b).

(1) a. Kogo   zaprosiłeś __?
           whom invited-you

          'Whom did you invite?'

(1) b. Kiedy przyjedziesz __?
     when will-come-you

   'When will you come?'

Similarly, any n-word[1] dependent obligatorily triggers verbal negation in a simple clause, cf. (2).

(2) a. Nikogo nie zaprosiłeś.
       nobody not invited-you

     'You didn't invite anybody.'

   b. Jan nie pamięta nigdy o imieninach Marysi.
      John not remembers never about nameday of Mary

     'John never remembers about Mary's nameday.'

Moreover, multiple WHE, cf. (3), and the multiple occurrence of n-words, see (4), are possible in Polish.

(3) Kto kiedy kogo __ zaprosił __ __?
    who when whom invited

   'Who invited whom when?'

(4) Nikt nigdy nikogo nie zaprosił.
    nobody never nobody not invited

   'Nobody has ever invited anybody.'

A closer investigation of both phenomena shows, however, that they have distinct properties.

2.2. NP and PP Projections

NPs and PPs behave differently with regard to NC and WHE. In Polish, NC can be triggered by an n-word deeply embedded within NP and PP projections:

---

[1] We use the term n-words, after Laka (1990), to refer to words that trigger verbal negation, e.g., *nikt* 'nobody', *nic* 'nothing', *nigdy* 'never', etc. As argued in Błaszczak (1997,1998) and Richter and Sailer (1998), Polish n-words are best treated as Heimian indefinites.

(5) Nie   lubię   [smaku [konfitur   [z   [owoców [z
    not   like-I taste   of preserves from   fruits   from

[niczyjego   ogrodu]]]]]], oprócz własnego.
nobody's   garden,   apart   my own

'I don't like the taste of preserves made of fruit from anybody's
garden, apart from (these made of fruit from) my own.'

This property makes NC unbounded in the sense that an arbitrary number
of NPs and PPs can be crossed, cf. Przepiórkowski and Kupść (1997a,b).
Polish allows for pied-piping and *wh*-words can be deeply nested within
NPs or PPs, as in (6).

(6) [W [domu [siostry [czyjego brata]]]] Piotr   poznał Marię__?
    in   house of sister of whose brother Peter   met   Mary
    'In the house of the sister of whose brother did Peter meet Mary?'

Note, however, that extraction from NPs or PPs is impossible in Polish:[2]

(7) a. *Czyjej kupiłeś   [książkę [matki __]]?
         whose bought-you book   mother's

        'Whose mother's book did you buy?'   Willim (1989)

    b. *Z   czyjego ogrodu lubisz   [smak [konfitur
          from whose   garden like-you taste   of preserves

        [z   [owoców__]]]]?
        from   fruits

        'From whose garden do you like the taste of fruit preseves?'
                                                    Błaszczak (1998)

---

[2] Examples such as (i) seem to counterexamples to the claim that WHE out of
NPs in Polish is impossible:

(i)   Czyją widziałeś [matkę _]?
      whose saw-you   mother

      'Whose mother did you see?' Willim (1989)

The initial position of a *wh*-word can be due to its focus nature and Polish free
word order since (ii) does not sound correct:

(ii) ??Czyją Jan   chciał, żeby   Piotr zobaczył [matkę_]?
        whose John   wanted   COMP   Peter saw   mother

      'Whose mother did John want Peter to see?'

Also gerunds (deverbal nominals), adjectives or adjectival participles (modifiers of nominals) do not constitute a barrier for NC, e.g., (8a) and (9a), whereas WHE out of such phrases is impossible, as in (8b) or (9b).

(8) a. Nie pamiętam   czytania   tej książki w żadnej klasie.
       not remember-I reading$_{gerund}$ this book in no   class
       'I don't remember reading this book in any class.'

    b. *Czego pamiętasz   czytanie __ w tamtej klasie?
        what remember-you reading$_{gerund}$ in that   class
        'What do you remember being read in that class?'

(9) a. Nie lubię aktorów grających   u żadnego z   tych
       not like-I actors playing$_{adj-pp}$ at none   of these
       reżyserów.
       directors
       'I don't like actors playing in films of any of these directors.'

    b. *Kogo widziałeś Piotra całującego __   czule?
        who saw-you   Peter kissing$_{adj-pp}$ tenderly
        'Who did you see Peter kissing tenderly?'   Witkoś (1992)

2.3. Locality

Locality conditions for NC and WHE are different. Although it is usually assumed that WHE from indicative clauses is not possible in Polish,[3] cf. (10a), a long-distance extraction from subjunctive complements of certain verbs is acceptable, see (10b) ((10) are from Witkoś (1992)).

(10) a. *Co   Janek myśli, że   studenci czytają __?
         what John thinks COMP students read$_{ind}$
         'What does John think that students read?'

     b. Z   kim   Iwona chce, żeby   się Tomek widział __
        with whom Ivone wants COMP self Tom seen$_{subj}$
        natychmiast?
        at once
        'Who does Ivone want Tom to see immediately?'

---

[3] This opinion is expressed in Kardela (1986), Willim (1989) and Witkoś (1992) but Cichocki (1983) and Zabrocki (1989) allow for extraction from indicative complements of some verbs (cited after Przepiórkowski (1998a)).

On the other hand, NC is strictly clause-bound[4] and no *n*-word in the subordinate (indicative or subjunctive) clause can be licensed by verbal negation in the main clause:

(11) a. *Nie wiedziałeś, że   zaprosił   nikogo.
        not knew-you COMP invited$_{ind}$-he nobody

        'You didn't know that he invited anybody.'

    b. *Nie chciałeś,   żeby   Piotr nigdy przyszedł.
       not wanted-you COMP Peter never come$_{subj}$

       'You didn't want Peter to ever come.'

Note that interclausal NC is impossible even in the case of the verbs that allow for long-distance WHE, cf. (11a). This property distinguishes Polish from Serbian/Croatian: normally clausemate NC and WHE in Serbian/Croatian are possible interclausally with verbs that take subjunctive complements. Moreover, both phenomena hold for exactly the same class of verbs, see Progovac (1994). In Polish, however, only WHE is possible across a sentential barrier, see (10b) vs. (11b).

    Note finally that the prohibition of interclausal NC is absolute in Polish, see (11) and (12a), whereas WHE exhibits the apparent subject/object asymmetry, cf. (10b) vs. (12b).

(12) a. *Nie chciałeś,   żeby   nikt   pomagał Piotrowi.
        not wanted-you COMP nobody helped$_{subj}$ Peter

        'You didn't want anybody to help Peter.'

    b. ?*Kto chciałeś,   żeby __ pomagał Piotrowi?
       who wanted-you COMP   helped$_{subj}$ Peter

       'Who did you want to help Peter?'

Therefore, WHE (to the extent it is possible) is unbounded in the traditional sense (it can cross a clause barrier), unlike NC.

---

[4] In Verb Clusters (VC), NC (as well as WHE) is possible across a bare infinitive complement boundary. This, however, can be considered a local phenomenon due to the clause union analysis of VC, cf. Przepiórkowski and Kupść (1997c).

2.4. Islands

As observed in Willim (1989), WHE in Polish is sensitive to typical island constraints such as Complex Noun Phrase Constraint (CNPC), (13a), Sentential Subject Constraint (SSC), (13b), or *Wh*-Island Condition (WhIC), cf. (13c).[5]

(13)   a.   *Kogo   czytałeś   książkę,   która   krytykowała __?
            whom   read-you   book   which   criticised$_{ind}$
            'Whom did you read a book that criticised?'

      b.   *Kogo   to,   że   Maria   uderzyła __   zaskoczyło   ich?
            who   this   COMP   Mary   hit$_{ind}$ surprised   them
            'Who that Mary hit surprised them?'

      c.   *Co   zastanawiałeś   się,   komu   Jan   da __?
            what   wondered-you   self   whom   John   will-give$_{ind}$
            'What did you wonder to whom John would give?'

Note that the ungrammaticality of (13) may be explained by general restrictions on long-distance WHE in Polish. Every island in (13) is an indicative clause, which independently prohibits extraction, see (10a). Also due to locality of Polish NC (see section 2.3), *n*-words are not licensed across a clause boundary. Thus, a relative clause, a sentential subject, or a subordinate *wh*-clause are also islands for NC.

Adverbial participle phrases behave analogously with regard to WHE and NC.

(14)   a.   *Co   Maria   płakała   pisząc __?
            what   Mary   cried   writing$_{adv-pp}$?
            'Writing what did Mary cry?'

      b.   *Maria   nie   płakała   pisząc   niczego.
            Mary   not   cried   writing$_{adv-pp}$ anything
            'Mary didn't cry writing anything.'

---

[5] Also adjuncts are often mentioned in the literature as islands for extraction. As (1b) and (6) show, however, adjuncts can be extracted. See Przepiórkowski (1998a) for arguments that WHE is insensitive to the traditional complement vs. adjunct dichotomy.

Note that the ungrammaticality of (14) does not follow from the properties discussed so far. As observed in Przepiórkowski and Kupść (1998), adverbial participle phrases do not have the same grammatical status as clauses. WHE out of (certain types of) clauses is possible, see (10b), whereas this is not the case with participles, see (14).

2.5. Semantic Parallel?

The data presented above show that these two phenomena do not have the same syntactic behavior. Before drawing an ultimate conclusion, let us consider briefly whether this distinction can be relegated to semantics.
    In Polish, *wh*-words are licensed also 'in situ', cf. (15).

(15) Jan   chciał,   żeby   Maria   zaprosiła   kogo?
      John   wanted   COMP   Mary   invited   whom

      'Who did John want Mary to invite?'

    As argued in Willim (1989), such questions can be interpreted as genuine requests for information, i.e., *wh*-words can take wide scope. In the case of NC, however, *n*-words in a subordinate clause are not licensed by matrix negation, cf. (11) and (12a). Note that this is impossible even in the case of 'neg-raising' verbs, e.g., *sądzi* 'supposes' in (16), cf. also Przepiórkowski and Kupść (1997b).

(16) *Jan   nie   sądzi,   żeby   zaprosili   nikogo.
       John not   supposes COMP   invited$_{subj}$-they nobody

      'John does not suppose that they would invite anybody.'

Negation on the verb *sądzi* can be understood as negation of the subordinate clause, i.e., the *n*-word *nikogo* is in the scope of negation. The sentence is nevertheless ungrammatical.[6]
    Therefore the semantic parallel does not hold, either.

2.6. Conclusion

The data presented in this section show that whatever evidence there is in favor of a parallel analysis of NC and WHE in Polish, it is matched by evidence against such an analysis. In spite of apparent analogies (section

---

[6] See Błaszczak (1997) for the discussion of problems with adopting for Polish the Neg Criterion analysis proposed in Haegeman and Zanuttini (1991).

2.1 and behavior in indicative clauses or adverbial participles, section
2.4), there are crucial differences (sections 2.2–2.3) that would be hard to
capture if a parallel analysis were postulated. In the next section, we
propose an account that allows us to capture both similarities and
discrepancies of both phenomena.

3. HPSG Account

In this section we provide a syntactic account of the data in the previous
section. We treat NC and WHE as (two kinds of) unbounded dependency
constructions (UDC). NC is unbounded in the sense that it can be
construed across an arbitrary number of NP and PP projections, whereas
WHE is a 'classical' UDC, which can cross a clause boundary. In the
framework of HPSG, Pollard and Sag (1987, 1994), a feature structure
which represents UDCs can introduce distinct attributes for each type of
UDC separately. The similarities will follow from common constraints
satisfied by all such attributes. On the other hand, the discrepancies can
be captured by specific constraints imposed on these attributes.

    We follow the lexical approach to UDC proposed in Sag (1997). The
lexical analysis of WHE and NC we propose is obtained by combing the
approach of Ginzburg and Sag (1998) (for WHE) with the syntactic
analysis of NC proposed in Przepiórkowski and Kupść (1997a,b).[7]
Additionally, we provide a more detailed analysis of extraction.

3.1. Representation of UDC in HPSG

In HPSG, UDCs are represented by the NONLOC(AL) attribute. Its val-
ue is the structure of the type *nonloc* which can introduce other attributes.

$$
\left[\text{NONLOC} \begin{bmatrix} \textit{nonloc} \\ \text{SLASH} & \textit{set(local)} \\ \text{WH} & \textit{set(index)} \\ \text{NC} & \textit{boolean} \end{bmatrix} \right]
$$

In this paper, WHE is represented via SLASH (for extraction) and WH
for the dependency introduced by *wh*-words, cf. Ginzburg and Sag

---

[7] Such a combined analysis has been previously proposed for Italian in
Przepiórkowski (1998b) and adopted for Polish in Przepiórkowski and Kupść
(1998). These accounts are based mostly on semantic aspects of NC.

(1998). The NC attribute serves for the unbounded dependency introduced by *n*-words, cf. Przepiórkowski and Kupść (1997a,b).

The presence of a dependency is signalled by a non-empty set value of the corresponding NONLOC attribute. This value is projected in the syntactic structure until the dependency is discharged, which empties the attribute's value. In the subsequent sections, we describe this mechanism.

3.2. Lexical Approach to UDC

Let us recapitulate the lexical analysis of UDC proposed in Sag (1997).

The dependency is always introduced lexically. In the case of extraction, there is no phonologically empty syntactic item that corresponds to a missing element. The gap is introduced directly in the lexicon, e.g., via a lexical rule which identifies a missing argument as a gap.

The dependency need not be introduced by a direct argument. Words collect information about the dependency from their dependents (amalgamation principle) and then transmit it to phrases. The NONLOC value is projected from words to phrases via Inheritance Principles encoded as structure sharing of NONLOC values by the mother and head daughter.

Finally, the dependency is discharged. In the case of extraction, the filler is associated with the missing element by a special syntactic rule. As a result of this rule, the corresponding NONLOC value of the resulting phrase is empty.

In the case of extraction, the combined effect of the Inheritance Principle and the discharging rule corresponds to the GB transformation 'Move α'. In HPSG there is no movement, however, and the same result is obtained by structure sharing of attributes' values.

The lexical approach to UDC sketched above allows one to easily capture the idiosyncratic behavior of certain items. As observed in e.g., Flickinger and Nerbonne (1992), a class of adjectives such as *easy* or *tough*, bind slash lexically. This property is encoded directly in the lexical entries of these adjectives. Such idiosyncrasies are present also in Polish NC. The preposition *bez* 'without' is exceptional among prepositions in licensing *n*-words:

(15) Zaczął   bez   żadnych wstępów.
      started-he without no   introduction

      'He started straight away.'

Below we present a lexical analysis of both UDC. The "bottom" describes how the dependency is introduced. The "middle" shows how the dependency is transmitted within the tree structure, while the "top" indicates how the dependency is discharged.

3.3. Bottom

3.3.1. Bottom of WHE

Arguments of a word can be either realized overtly or as *gaps*. Following Sag (1997), an object of the type *gap* identifies its local (syntactic and semantic) information with the SLASH value:

$$gap \rightarrow \begin{bmatrix} \text{LOCAL} & [1] \\ \text{NONLOC|SLASH} & \{[1]\} \end{bmatrix}$$

Words whose arguments have been extracted are specified in the lexicon. This can be obtained via a lexical rule, see Sag (1997), or by a general constraint on words, see Bouma et al. (1998).

Interrogative words need not be direct arguments of a verb and they show pied-piping effects, cf. e.g., (6). Hence they also introduce a dependency, which is reflected as a non-empty set value of the NONLOC|WH attribute of *wh*-words.

3.3.2. Bottom of NC

The dependency is introduced by *n*-words. This is reflected in their lexical entries as a non-empty value of the NC attribute. Since NC does not depend on the number of *n*-words present or their function, it is sufficient to use a binary specification of the NC value.[8] We implement this here in terms of sets, i.e., we use the empty set, { }, and a non-empty singleton ({[}) as the only NC values.

3.4. Middle

3.4.1. Lexical Amalgamation

The mechanism of lexical amalgamation, introduced in Sag (1997), allows a word to collect the information about the dependency (the value of a NONLOC attribute) from its dependents:

---

[8] Przepiórkowski and Kupść (1998) use a different specification of the NC value based on semantic properties of NC.

Lexical Amalgamation of SLASH, Sag (1997):[9]

$$\begin{bmatrix} \text{ARG-ST} & <[\text{NL|SLASH} \ [1]], \dots ,[\text{NL|SLASH} \ [n]]> \\ \text{NONLOC|SLASH} & ([1] \ \uplus \ \dots \ \uplus \ [n]) \ \backslash \ [0] \\ \text{BIND} & [0] \end{bmatrix}$$

This principle is defined in Sag (1997) as a constraint satisfied by all words. Therefore, if a dependent of a word (an element of the ARG-ST list) has a non-empty SLASH value, the word itself becomes slashed. For example, the (lexical) verb *zaprosiłeś* 'you invited' in (1a) or the noun *matki* mother's' in (7a) have a non-empty SLASH value introduced by a missing complement.

The value of the attribute BIND is non-empty only for items which bind slash lexically and it is empty otherwise. As a result, the subtraction affects only the SLASH value of these words which cannot associate the gap with a syntactic filler.

Although the mechanism of lexical amalgamation of the NC values is the same, the principle is formulated differently.

Lexical Amalgamation of NC:[10]

$$\begin{bmatrix} \text{ARG-ST} & <[\text{NL|NC} \ [1]], \dots ,[\text{NL|NC} \ [n]]> \\ \text{NONLOC|NC} & [1] \ \cup \dots \ \cup [n] \end{bmatrix}$$

Unlike the SLASH Amalgamation, this principle does not hold for all words. It is not satisfied by *n*-words (they have a non-empty NC value specified directly in their lexical entries, see section 3.3.2), the preposition *bez* and negated verbs (they discharge the dependency[11], see section 3.5.2), cf. Przepiórkowski and Kupść (1997a,b).[12] Hence, the noun *ogrodu* 'garden' in (5) has a non-empty NC value of its *n*-word dependent *niczyjego* 'nobody's'.

---

[9] The symbol indicates a disjoint set union which is as a usual set union but it is unspecified if the unioned elements are not disjoint.

[10] This is a notational variant of the constraint proposed in Przepiórkowski and Kupść (1997a,b).

[11] As argued at length in Kupść and Przepiórkowski (1998), the Polish negative marker *nie* 'not', contrary to orthography, is a verbal prefix.

[12] Another (technical) difference is that we use a simple set union for the amalgamation of NC since the NC value can be binary only.

The amalgamation constraint for the WH attribute is similar to that for the NC values as it holds for all words apart from *wh*-words, see Ginzburg and Sag (1998).

We use the same mechanism for all NONLOC attributes but the precise formulation of the corresponding principles differs. Since these principles are satisfied by distinct classes of words, a single general constraint would be quite complex. It is convenient, however, to keep the formulation of amalgamation principles distinct as some words can satisfy certain constraints only. As observed in Witkoś (1992) and Przepiórkowski (1998a), negated verbs do not constitute absolute islands for *wh*-extraction. Hence, even though they do not satisfy the NC amalgamation (see sec. 3.5.2), they are still subject to the SLASH and WH amalgamation.

3.4.2. Inheritance

We follow Sag (1997) and Ginzburg and Sag (1998) and assume that all types of phrases can be organized in an inheritance type hierarchy: [13]
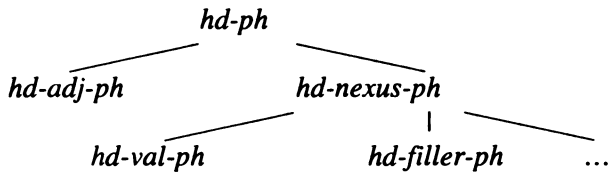
All headed phrases, *hd-ph*, are split to phrases that combine the (phrasal) head with an adjunct, *hd-adj-ph*, and a *hd-nexus-ph* phrase. The latter type is in turn partitioned into *hd-val-ph* phrase which has an argument as a non-head daughter, and a *hd-filler-ph* which combines the filler with a slashed phrase. In an inheritance hierarchy constraints imposed on a supertype (a type higher in the hierarchy) are inherited by its subtypes. Hence, if a constraint is defined, e.g., for the *hd-nexus-ph* type, it is inherited also by *hd-val-ph* and *hd-filler-ph* types but it does not hold for *hd-adj-ph* or *hd-ph*.

The NONLOC values amalgamated by words are projected to phrases according to inheritance principles. In Sag (1997), phrases of the type *hd-val-ph* have the SLASH value transmitted from the head daughter:

---

[13] Dots '...' indicate that other types can be present.

$$hd\text{-}val\text{-}ph \rightarrow \left[\begin{array}{l} \text{NONLOC|SLASH } [1] \\ \text{HD-DTR|NONLOC|SLASH } [1] \end{array} \right]$$

This constraint ensures that in all phrases which combine an argument with the head (word or phrase) the dependency is transmitted from the head daughter rather than (directly) from the argument. Hence, the SLASH value of *zaprosiłeś* in (1a) is transmitted to VP from the verb rather than taken directly.

Analogous technique is used to transmit the WH value in *hd-nexus-ph* phrases, Ginzburg and Sag (1998), and the NC value in all types of headed phrases, Przepiórkowski and Kupść (1997a).

All these principles can be succinctly formulated as a common constraint on all NONLOC values valid for *hd-val-ph*:

$$hd\text{-}val\text{-}ph \rightarrow \left[\begin{array}{l} \text{NONLOC } [1] \\ \text{HD-DTR|NONLOC } [1] \end{array} \right]$$

This constraint cannot be imposed on all *hd-ph,* since the *hd-filler-ph* phrase does not inherit the SLASH value from the head daughter (in fact it binds slash, see 3.5.1). In *hd-adj-ph*, the values of SLASH and WH attributes are inherited from the non-head daughters (filler or adjunct) and the NONLOC attributes are not taken from the head daughter, either.

3.5. Top

3.5.1. Top of WHE

Apart from words that bind SLASH lexically (see 3.4.1), the dependency is discharged syntactically. The extracted element is associated with the filler, i.e., a *wh*-phrase, via the *hd-filler-ph* constraint:

$$hd\text{-}filler\text{-}ph \rightarrow \left[\begin{array}{l} \text{NONLOC|SLASH } \{ \} \\ \text{HD-DTR|NL [SLASH } \{[1]\} \ ... \ \{[n]\}] \\ \text{NHD-DTRS } <\text{LOC } [1]],...,\text{ [LOC } [n]]> \end{array} \right]$$

Since Polish allows for multiple WHE, e.g., (3), we do not constrain the number of fillers to a single one: the list of non-head daughters (fillers) can contain several elements. Hence, if there are several gaps they are all bound at a time and a phrase with the empty SLASH value results.

3.5.2. Top of NC

In the case of NC, the dependency is discharged lexically by negated verbs and the preposition *bez* 'without'. This property is encoded in their lexical entries as NONLOC|NC { }. These lexical items do not transmit the dependency higher up in the syntactic structure (according to the inheritance principle). The NC values of their dependents are irrelevant since negated verbs and *bez* are not amalgamating items.

3.6. Islands

3.6.1. NP and PP Projections

As we said in section 2, we assume that NPs and PPs are islands for extraction. We adopt the lexical specification of islands as proposed for NC in Przepiórkowski and Kupść (1997a,b).

Nouns and prepositions are SLASH amalgamating items, but we assume that simultaneously they are lexically specified as NONLOC|SLASH { } (they do not introduce the dependency themselves). Therefore, only those nouns are grammatical that have no slashed dependents. If a noun has a gap as one of its dependents, e.g., (7a), according to the SLASH amalgamation the noun itself is slashed. This, however, contradicts its lexical specification as SLASH { }. We block WHE out of PPs by assuming the same specification of the SLASH value for prepositions.

Recall that most nouns and prepositions amalgamate also other NONLOC attributes, section 3.4.1. This suggests that they behave analogously with respect to WHE and NC. This conclusion, however, is correctly avoided by the additional lexical specification of nouns and prepositions as SLASH { }. This specification correctly accounts for their island status with respect to extraction only.

3.6.2. Clauses

As noted in section 2.3, WHE out of clauses is possible for certain sub-junctives only. Other, e.g., indicative, clauses are islands for extraction.

We assume that all verbs are SLASH amalgamating items (they do not discharge the dependency lexically). This ensures that WHE within a simple clause is possible, cf. (1) and (3).

We block WHE out of non-subjunctive clauses, cf. (8a) and (12), by the following constraint:

$$\left[\begin{array}{l} clause \\ \text{HEAD } verb \text{ [MODE } non\text{-}subj] \end{array} \right] \rightarrow \text{[NONLOC|SLASH } \{\}]$$

If a clause is headed by a non-subjunctive verb, e.g., (10a) or (13), no unbound extracted elements are licensed. The filler must occur within the clause. This constraint, however, does not prohibit WHE out of subjunctive clauses. If nothing more is said, this is too permissive since only certain subjunctives allow for long-distance WHE. We follow Witkoś (1992) and assume that verbs which subcategorize either for subjunctives or bare infinitives (*vc-verbs*) allow for WHE from their verbal complements. Clausal dependents of other verbs must have the empty SLASH value:

$$\left[\begin{array}{l} word \\ \text{HEAD } non\text{-}vc\text{-}verb \\ \text{COMPS } <...,[1]clause,...> \end{array} \right] \rightarrow \text{[COMPS } < ..., [1] \text{ [NL|SL } \{\}], ...>]$$

If a *non-vc-verb* takes a (subjunctive or non-subjunctive) clause as one of its complements, this constraint guarantees that no element can be extracted from such a complement.

Additionally, subjunctives do not allow for extraction of the subject, cf. (11b). We implement this here as a constraint that subjunctive (lexical) verbs must have the subject's SLASH value empty:

$$\left[\begin{array}{l} word \\ \text{HEAD } verb \text{ [MODE } subj] \end{array} \right] \rightarrow \text{[SUBJ } <NL|SLASH\{\}>]$$

Non-negated clauses are islands for NC, i.e., they do not license *n*-words, e.g., (11), (12a) or (16). This is ensured by stating that non-negated (lexical) verbs are NC amalgamating items (see section 3.4.1) and, simultaneously, they have the empty NC value. Therefore, non-negated verbs allow for such dependents which have the empty NC value.

Observe again that all non-negated verbs, including *vc-verbs*, amalgamate all NONLOC attributes. The distinct properties of non-negated verbs with respect to NC and WHE, see (10b) vs. (11b), follow from their additional lexical specification as NC { }.

4 .Conclusions

On the basis of the data presented in this paper, we do not treat WHE and NC in Polish as fully parallel phenomena. We use the same technique, i.e., lexical amalgamation and inheritance, in order to account for the UDC character of both phenomena. Since the amalgamation constraint is specified lexically, it can be satisfied by certain (classes of) words only. Moreover, it does not prohibit additional lexical specification of NONLOC values. This allows us to account for the distinct status of NPs and PPs as well as certain verbs with respect to extraction and negation.

References

Błaszczak, J. 1997. Towards a binding analysis of negative polarity items in Polish. Paper delivered during the Second International Conference on Formal Description of Slavic Languages, Potsdam, November 20–22, 1997. To appear in the proceedings.

Błaszczak, J. 1998. Some reflections on the interaction between indefinites and the clause. In M. Giger and B.Wiemer, editors, *Die Welt der Slaven*, volume 2 of *Beiträge der Europäischen Slavistischen Linguistik (POLYSLAV)*, pages 55–65. Verlag Otto Sagner, Munich.

Bouma, G., Malouf, R., and Sag, I. 1997. Satisfying constraints on extraction and adjunction. Draft of July 1, 1997.

Cichocki, W. 1983. Multiple wh-questions in Polish: A two-comp analysis. *Toronto Working Papers in Linguistics*, 4, 53–71.

Flickinger, D. and Nerbonne, J. 1992. Inheritance and complementation: A case study of *easy* adjectives and related nouns. *Computational Linguistics*, 19(3), 269–309. Walter Dalemans and Gerald Gazdar, eds., *Inheritance and Natural Language Processing*, special issue

Ginzburg, J. and Sag, I. A. 1998. English interrogative constructions. Draft of July, 1998.

Haegeman, L. and Zanuttini, R. 1991. Negative heads and the Neg Criterion. *The Linguistic Review*, 8, 233–251.

Kardela, H. 1986. *A grammar of English and Polish reflexives.* Uniwersytet Marii Curie-Skłodowskiej, Wydział humanistyczny, Lublin.

Kayne, R. S. 1981. Two notes on NIC. In A. Belletti, L. Brandi, and L. Rizzi, editors, *Theory of Markedness in Generative Grammar.* Scuola Normale Superiore, Pisa.

Kupść, A. and Przepiórkowski, A. 1998. Morphological aspects of verbal negation in Polish. Paper delivered during the Second International Conference on Formal Description of Slavic Languages, Potsdam, November 20–22, 1997. To appear in the proceedings.

Laka I. 1990. *Negation in Syntax: On the Nature of Functional Categories and Projections.* PhD dissertation, MIT, Cambridge, Mass.

Longobardi, G. 1990. In defence of the correspondence hypothesis. In J. Huang and R. May, editors, *Logical Structure and Linguistic Structure.* Reidel, Dordrecht.

Pollard, C. and Sag, I. A. 1987. *Information-Based Syntax and Semantics, Volume 1: Fundamentals.* CSLI Publications.

Pollard, C. and Sag, I. A. 1994. *Head-driven Phrase Structure Grammar.* Chicago University Press.

Progovac, L. 1994. *Negative and Positive Polarity.* Cambridge University Press, Cambridge.

Przepiórkowski, A. 1998a. On complements and adjuncts in Polish. To appear in: R. D. Borsley and A. Przepiórkowski (eds.), *Slavic in HPSG,* CSLI Publications.

Przepiórkowski, A. 1998b. Negative polarity questions and Italian negative concord. To appear in: Valia Kordoni (ed.) *Tübingen Studies in Head-driven Phrase Structure Grammar,* SFB 340, Report 132.

Przepiórkowski, A. and Kupść, A. 1997a. Negative concord in Polish. Technical Report 828, Institute of Computer Science, Polish Academy of Sciences.

Przepiórkowski, A. and Kupść, A. 1997b. Unbounded negative concord in Polish: A lexicalist HPSG approach. In J. Landsbergen, J. Odijk, K. van Deemter, and G. V. van Zanten, editors, *Computational Linguistics in the Netherlands 1996: Papers from the Seventh CLIN Meeting,* pages 129–143, Eindhoven. IPO, Center for Research on User-System Interaction, Technische Universiteit Eindhoven.

Przepiórkowski, A. and Kupść, A. 1997c. Verbal negation and complex predicate formation in Polish. In *Proceedings of the 1997 Texas*

Linguistics Society Conference on the Syntax and Semantics of Predication, volume 38 of *Texas Linguistic Forum*, pages 247–261, Austin, Texas.

Przepiórkowski, A. and Kupść, A. 1998. Eventuality negation and negative concord in Polish and Italian. To appear in: R. D. Borsley and A. Przepiórkowski (eds.), *Slavic in HPSG*, CSLI Publications.

Richter, F. and Sailer, M. 1998. LF conditions on expressions of Ty2: An HPSG analysis of Negative Concord in Polish. To appear in: R. D. Borsley and A. Przepiórkowski (eds.), *Slavic in HPSG*, CSLI Publications.

Rizzi, L. 1982. *Issues in Italian Syntax*, chapter IV: Negation, *Wh-movement* and the null subject parameter, pages 117–184. Foris Publications, Dordrecht.

Sag, I. A. 1997. English relative clause constructions. *Journal of Linguistics*, 33 (2), 431–483.

Świdziński, M. 1998. Negacja w polszczyźnie: uwikłania składniowe imiesłowów, gerundiów i quasi-gerundiów. *Prace Filologiczne*, XLIII, 411–420. In print.

Willim, E. 1989. *On Word Order: A Government-Binding Study of English and Polish*, volume 100 of *Zeszyty Naukowe Uniwersytetu Jagiellońskiego*. Uniwersytet Jagielloński, Kraków.

Witkoś, J. 1992. Subject/object asymmetry in extraction from clausal complements in Polish. Paper presented at the XXVI International Conference on Polish-English Contrastive Linguistics, Rydzyna.

Zabrocki, T. 1989. A surface structure constraint and its consequence for a positional and an inflectional language. In J. Fisiak, editor, *Further Insights into Contrastive Analysis*, pages 85–109. Benjamins, Amsterdam.

Anna Kupść Institute of Computer Science
Polish Academy of Sciences
21, Ordona
01–237 Warsaw, Poland
e-mail:aniak@ipipan.waw.pl

Subject Properties and Ergativity in North Russian and Lithuanian*

James E. Lavine
Princeton University

1. Introduction

The goal of this paper is to resolve an apparent mismatch between the morphology and grammatical function of the subject and object NPs of the North Russian (NR) and Lithuanian (Lith) nonagreeing constructions in (1–2) below. On the surface, this construction consists of i) a non-agreeing participle functioning as the main predicate, ii) a preverbal oblique (or PP) constituent, and iii) a nominative object:

(1) NR

    a. *-no/-to*

        U   lisicy   uneseno   kuročka.

        at fox_{GEN} carried-off: -no $chicken_{NOM.F}$

        'A fox has carried off a chicken.'

                                 [Kuz´mina and Nemčenko (= K&N) 1971:27]

    b. *-n/-t*

        U   nas   kadočka   ogurcov   posolen.

        at us_{GEN} $barrel_{NOM.F}$ $cucumbers_{GEN}$ pickled: -n

        'We have pickled a barrel of cucumbers.'   [K&N 1971:77]

    c. *-vši*

        U   menja   už   korova   podoivši.

        at me_{GEN} already $cow_{NOM.F}$ milked: -vši

        'I have already milked the cow.'   [Filin 1969:72]

---

(2) Lithuanian

    a. *-ma*

        Darbininkų   vežama   plytos.

        workers$_{GEN}$ being-carted: *-ma*   bricks$_{NOM.PL}$

        'Workers are evidently carting bricks.'

    b. *-ta*

        Jonuko   tie   grybai   atnešta.

        Jonukas$_{GEN}$ [these mushrooms]$_{NOM.PL}$ brought: *-ta*

        'Apparently Jonukas brought these mushrooms.'

                                       [Ambrazas et al. 1997:281]

The predicates in both NR and Lith show frozen, invariant word-final morphology. In their inflectional function to mark agreement, NR *-no/-to* and *-n/-t* are the neuter and masculine singular short forms, respectively, of the past passive participle; *-vši* is the feminine singular form of an erstwhile agreeing short form past active participle.[1] Lith invariant *-ma* and *-ta* correspond to the "old" neuter singular forms of the present and past passive participles, respectively.[2] I will argue that these forms are no longer agreeing inflectional affixes, but rather derivational morphemes with their own argument structure.[3] The dedicated function of these morphemes is to mark the perfect tense in NR and the evidential mood in Lith.[4]

---

[1] It should be noted that the three distinct NR forms in (1) do not share the same areal distribution (see K&N 1971, maps 1 and 4). I will refer to the *-no/-to* form as a catch-all for all three NR predicate types.

[2] Modern Lithuanian has assimilated all neuter nouns to the masculine and feminine declensions.

[3] That is, the NR and Lith predicates in (1–2) do not co-occur with distinct neuter, masculine, and feminine agreeing null expletive pronouns. The purpose of such null expletives is generally to function as a "slot-filler" to satisfy the subject-positional requirement of the Extended Projection Principle (EPP). If we assume the minimalist reinterpretation of the EPP as simply a strong D-feature in T (which makes reference neither to Case nor to category), it appears that the EPP in (1–2) is satisfied independently by overt lexical material bearing this feature (cf. Lavine 1998).

[4] The perfect tense in NR is discussed in Petrova 1968, K&N 1971, and Trubinskij 1984. The evidential mood in Lith is discussed in Ambrazas et al.

A central claim of this paper is that the constructions in (1–2) display properties which are typical of morphologically-ergative languages.[5] Thus, I will argue that these predicates are basic and active, rather than derived and passive. Morphological ergativity is confined to the marking of morphological case. In traditional terms, the object argument of a transitive verb appears in the absolutive case (= nominative case) along with the single argument of an intransitive verb, while the agent argument of a transitive verb is marked differently, by what is known as the ergative case (which is usually an oblique case that is used elsewhere in the language, most often to mark either a passive BY-PHRASE or possession). That is, I will claim that the preverbal oblique (or PP) argument in (1–2) is the ergative subject, while the nominative NP is the absolutive object.[6] Morphologically-ergative languages are all **split**-ergatives, that is, languages in which ergativity is restricted to certain tenses, aspects, or moods (see Anderson 1976 and Trask 1979 for discussion).

The NR and Lith data considered in this paper contribute in an interesting way to the literature on positional licensing and the checking of morphosyntactic features. We will note, in particular, the lack of a straightforward correlation between morphological case and structural position. The minimalist framework, which will be adopted in this paper, is motivated by the distinct licensing relations (checking positions) it provides for subject properties such as the EPP[7], nominative case, and subject-predicate agreement. In (1–2), for example, the preverbal consti-

---

1985:249–50, 1997:281. It denotes an action that is inferred or assumed to be true (which I try to indicate in the English glosses). Note that use of this construction with the neuter participle of transitive verbs is most characteristic of (though not limited to) eastern Lith dialects.

[5] Ergativity in NR was first proposed by Orr (1989:11–17).

[6] Syntactic relations in morphologically-ergative languages follow the pattern of accusative languages (see Anderson 1976). Alternatively, **syntactically**-ergative languages, such as Dyirbal (Australian), treat constituents marked in the same way morphologically as **syntactic**-likes. The subject of intransitive verbs and the object of transitives, for example, serve as a "syntactic pivot" for coordination, relativization, and other processes that are sensitive to a common grammatical function (See Dixon 1994 for a full description of these facts).

[7] The E(xtended) P(rojection) P(rinciple) is the requirement that clauses have subjects. See section 3.3 for details and a more precise formulation.

tuent satisfying the EPP and the lower constituent bearing nominative case clearly cannot be treated as occupying the same position, nor can either be implicated in subject-predicate agreement.

This paper is organized as follows. In section 2 I provide evidence against an impersonal passive analysis for these predicates. In section 3 I argue in favor of treating the preverbal argument as a non-displaced ergative subject (rather than a passive adjunct). Independent evidence for the ergative analysis from a typological perspective will be presented in section 4. Finally, the question of the formal implementation of the licensing mechanisms involved in the NR and Lith ergatives will be taken up in section 5.

2. The Impersonal Passive Analysis

The argument for treating (1–2) as impersonal passives is based on the passive-participial morphology of the main predicate and the homophony of the preverbal oblique element with the passive BY-PHRASE of these languages (Timberlake 1976 (NR) and 1982 (Lith)). The data in (3–11) provide evidence against the passive analysis. Here I follow the widely-held assumption that the single universal property of passivization is the dethematization of a verb's initial external theta role (see, e.g., Jaeggli 1986 and Grimshaw 1990).[8]

2.1. Unaccusative Predicates

According to this view of passivization, if a predicate such as an un-accusative or passive (the latter, itself, a derived unaccusative) lacks an external theta role, it cannot be passivized (or further passivized). (3–7) are underlying unaccusatives to which *-no/-to* and *-ma/-ta* are attached, forming licit **non-passive** structures:[9]

---

[8] To be sure, Timberlake (1982) does not follow the assumption that passiviza-tion targets an external theta role. His view of passivization admits the unaccusa-tive predicates in (3–8) and, thus, it might seem that the question of passivehood here is a mere terminological problem. Note, however, that the additional evi-dence in sections 2.2 and 3, plus the typological motivation for an alternative analysis in section 4, renders the impersonal passive analysis implausible under any view of passivization.

[9] An unaccusative predicate is one in which the base verb's sole argument is underlyingly internal. A derived unaccusative is one in which a verb's initial

(3) NR derived unaccusative

Gljadite-	kas'	u	kotjat	razvaleno-	s'
look	PRT	at	cats$_{GEN}$	spread-out: *-no*	REFL

na	polu.
on	floor

'Look how the cats have spread themselves out on the floor.'

[Trubinskij 1984:143]

(4) NR unaccusative with existential 'be'

U	menja ...	na	službe	pobyvano,	v	trex
at	me$_{GEN}$	in	service	been: *-no*	in	three

službax	byto.
divisions	been: *-to*

'I have served... in three divisions.'   [Šapiro 1953:143]

(5) Lith derived unaccusative

Visų	keleivių	iš-	si-	gelbėta
all	travelers$_{GEN}$	PREF	REFL	saved: *-ta*

su	laivais.
with	boats

'All the travelers were apparently saved by boats.'

[Ambrazas 1985:251]

---

external theta role is suppressed by a pre-syntactic morpholexical operation on a verb's argument structure, often involving either passive or middle-voice formation. Note that, in part, I am relying on a notion of unaccusativity that is semantically-defined (Perlmutter and Postal 1984:97–100), whereby the status of an intransitive verb's sole theta role is predictable from the semantics of the predicate. The sole argument of intransitive 'burn', or existential 'be', for example, is internal and, thus, these predicates are unaccusative. (Rosen 1984 points out, however, that verbs with similar meanings cross-linguistically may be classified differently with respect to unaccusativity). Unaccusativity is more clearly established in cases where it is derived by overt morphology (i.e., REFL *-sja/-s'* in NR and *-si-* in Lith).

(6) Lith unaccusative

Ko   čia   degta?
what$_{GEN}$ here   burnt: -*ta*

'What has burnt here?'   [Matthews 1955:353]

(7) Lith unaccusative with existential 'be'

Čia   grybų   buta.
here   mushrooms$_{GEN}$ been: -*ta*

'Mushrooms evidently grew here.'   [Schmalstieg 1982:119]

Example (8c) is the Lith evidential ergative construction derived from the passive in (8b). (8a) is the underlying active construction.

(8) a. Lith active

         Jos   vyras   paprašė   jį   [parašyti
         her   man$_{NOM}$ asked: 3.SG   him: ACC   to-write

         tą   laišką].
         that   letter

         'Her husband asked him to write that letter.'

     b. Lith passive

         Jis   buvo   paprašytas   (jos   vyro)   [parašyti
         he$_{NOM}$ was   asked: *M.SG* her   man$_{GEN}$ to-write

         tą   laišką].
         that   letter

         'He was asked (by her husband) to write that letter.'

     c. Lith evidential ergative of (8b)

         Jo   buvo   paprašyta [parašyti tą laišką].
         him$_{GEN}$ was   asked: -*ta*

         'Evidently he was asked to write that letter.'

                                               [Timberlake 1982:519–20]

Note that the preverbal genitive pronoun in (8c), *jo* 'him', cannot be a passive BY-PHRASE: it is an initial **internal** argument. The initial **exter-**

nal argument that was suppressed in the canonical passive in (8b) refers to the genitive BY-PHRASE, *jos vyro* 'by her husband'.[10]

2.2. NR and Lith Non-Passive-Participial Ergatives

A second argument against treating the NR and Lith ergatives as passives is the fact that these constructions may occur with **active** participial forms as well. In (1c) we noted the NR ergative construction in *-vši* (based initially on the F.SG past active participle), repeated here as (9)[11]:

(9)   NR -*vši*

U   menja   už   korova   podoivši.
at   me$_{GEN}$ already   cow$_{NOM.F}$ milked: -*vši*

'I have already milked the cow.'   [Filin 1969:72]

Schmalstieg (1982) notes a similar nonagreeing usage of the M.PL form of the past active participle (-*ę*) in Lith. (10) minimally differs from (7) in the selection of the main participle in -*ę* rather than -*ta*, with apparently the same meaning:

(10)   Lith -*ę*

Čia   grybų   buvę.
here   mushrooms$_{GEN}$ been: -*ę*

'Mushrooms evidently grew here.'   [Schmalstieg 1982:119]

3. Subject Properties of the Ergative Argument

Having established that the preverbal constituent in the NR and Lith constructions under discussion cannot be considered a passive BY-PHRASE under standard assumptions of passivization, let us now pursue the possibility that these constructions are active, and that the preverbal constituent is a (non-displaced) subject.

3.1. Control of Reflexives

In (11a) we see that the NR ergative subject binds the reflexive *svoj*, in contrast to the BY-PHRASE in the CSR (Contemporary Standard

---

[10] The question of ergative marking on the subject of intransitive predicates is discussed in section 4.

[11] See K&N (1971:139–42) for more examples.

Russian) example in (11b). Note in (11c) that in CSR only the derived
subject can control the reflexive pronoun, suggesting that the binding of
anaphors (in Russian) is established at Spell-Out. The NR ergative
subject thus patterns with the grammatical subject in (11c) rather than
with the "displaced" subject in (11b).[12]

(11)   Control of reflexive *svoj*

   a. NR ergative

       U   Šurki$_i$ privedeno   svoja$_i$ staraja   nevesta.
       at   Šurka$_{GEN}$ brought: -*no* [REFL   old   bride]$_{NOM.F}$
       'Šurka brought his old bride.'   [Timberlake 1976:559]

   b. CSR canonical passive

       Šurkoj$_i$ byla   privedena   *svoja$_i$/   ego$_i$ nevesta.
       Šurka$_{INST}$ [was   brought]$_F$ REFL   his   bride$_{NOM.F}$
       '(Lit) By Šurka was brought his bride.'

   c. CSR canonical passive

       Otec$_i$ byl   zabyt   svoimi$_i$ /   *ego$_i$ det'mi.
       father$_{NOM.M}$ [was   forgotten]$_M$ REFL   his   children$_{INST}$
       The father was forgotten by his own children.'

We find the same reflexivization facts in the Lith ergative construction.
(12) shows that the ergative (GEN) subject functions as the antecedent of
the subject-controlled possessive reflexive *savo*:

(12)   Lith: control of reflexive *savo*

       Mamos$_i$ jau   esama   savo$_i$ /   *jos$_i$ kaime.
       mother$_{GEN}$ already   been: -ma   REFL   her   village$_{LOC}$
       'Mother is presumably already in her own village.'

                                                       [Timberlake 1982:516]

3.2. Subject Ellipsis in Conjoined Clauses

In the VP-conjunction structure in (13), the nominative subjects of the
lower predicates are deleted under identity with the ergative (*u*+GEN)
subject of the first conjunct. Note that subject ellipsis here appears to be

---

[12] These facts were first discussed in Timberlake 1976.

sensitive to a notion of subjecthood that crucially does not rely on mor-
phological case.

(13) NR subject ellipsis

U	ego	vybežano	na	bereg,	da	napilsja
at	him$_{GEN}$	run-out: *-no*	to	bank	and	had-his-fill

vody,	da	v	les	i	ušel.
water	and	into	woods	PRT	left

'He ran out onto the bank, had his fill of water, and went off into
the woods.'   [Šapiro 1953:143]

The example in (14) shows that a passive BY-PHRASE and an elided
nominative subject cannot be coindexed in a coordinate structure in CSR:

(14) CSR

???Im	byla	pročitana	kniga	i	ušel	domoj.
him$_{INST}$	was	read$_F$	book$_F$	and	went	home

'By him the book was read and went home.'

Evidence against treating the nominative object as a derived (nonagree-
ing) subject is provided in (15), where the elided subject of the second
conjunct is coindexed with an elided subject of the first conjunct, rather
than with the overt nominative argument:

(15) NR

Pečka	zatopleno	i	ujdeno
stove$_{NOM}$	lit: *-no*	and	left: *-no*

'They lit the stove and left.'   [K&N 1971:29]

3.3. The Extended Projection Principle

In both NR and Lith the ergative subject appears obligatorily in the
preverbal position (under neutral intonation), where it satisfies the posi-

tional constraint referred to as the EPP.[13,14] Note that in current minimalist theory, the EPP position is not a Case position, nor is it devoted to a particular discourse status, such as theme or topic.[15] In (2a), repeated below as (16a), the subject *darbininkų* 'workers' is optionally indefinite and non-D-linked, i.e., the subject 'workers' does not necessarily have a pre-established referent in the discourse.

(16) a. Lith evidential ergative

Darbininkų   vežama   plytos.
workers$_{GEN}$ being-carted: -*ma*   bricks$_{NOM}$

'Workers are evidently carting bricks.'

b. Lith canonical passive

(Darbininkų)   Plytos   (D)   vežamos   (D).
workers$_{GEN}$ bricks$_{NOM.F.PL}$ being-carted$_{NOM.F.PL}$

'Bricks are being carted by workers.'

c. Lith evidential ergative

*Plytos   vežama   darbininkų.
bricks$_{NOM}$ being-carted: -*ma*   workers$_{GEN}$

'Workers are evidently carting bricks.'

In (16b) we note that in the non-evidential canonical passive the BY-PHRASE is free to appear in any position, depending on the information structure of the sentence (below *D = Darbininkų*). But in (16c), if the

---

[13] Word order facts in the NR -*no/-to* construction are discussed in Petrova 1968:123–24 and Timberlake 1976:560. Word order in the Lith -*ma/-ta* construction is discussed briefly in Ambrazas et al. 1985:249.

[14] This is not to suggest that there is a predetermined syntactic position devoted exclusively to this checking function (such as [Spec,TP]). In section 5 I will pursue the idea (based on economy of representation) that there is no fixed structure for clauses and that features do not necessarily refer to specific functional projections. The EPP, then, is checked simply in the highest specifier of the verb's extended projection (see Grimshaw 1997:390, 416–17).

[15] There is abundant recent literature which seeks to separate the EPP-feature from the feature responsible for checking nominative case (based on independent data). See, in particular, the discussion of Icelandic in Sigurðsson 1992, Schütze 1993, and Harley 1995.

ergative subject is moved from the preverbal position, the evidential reading is no longer available and the sentence is no longer grammatical with the nonagreeing morphology on the predicate. The ungrammaticality of (16c) supports the claim that the oblique NP is Merged with the predicate as its subject.[16] It is of higher thematic prominence and, thus, according to a theory of locality of movement, it should maintain its prominence in the functional domain of the derivation. According to Attract, which we assume, a functional category attracts the closest feature that can enter into a checking relation with its head (Chomsky 1995: 297).[17] That is, movement is triggered by an unchecked feature of a head that "looks for" the closest available element with the corresponding feature.

4. Morphological Ergativity in the Typological Literature

The claim that NR and Lith exhibit morphological ergativity would reduce to an ad hoc stipulation if this type of ergativity were not shown to follow from properties in these languages that other morphologically ergative languages share. In the following brief review of the typological literature, I will show that the NR and Lith ergatives conform to a unified characterization of morphological ergativity that relies crucially on a possessive predication.[18]

---

[16] See section 5 for elaboration.

[17] In the case of overt movement, the lexical material associated with the raised D-feature (i.e., the oblique subject) is "pied-piped" to satisfy interface conditions at PF (the D-feature itself at PF is uninterpretable).

[18] I am grateful to David Pesetsky for pointing out that possessive u+GEN links the NR construction to a similar ergative construction in Hindi, discussed in Mahajan 1994. Hindi makes use of a possessive predication in which the ergative argument is marked by the postposition -ne (cf. the use of an adposition—rather than a "bare Case"—to mark this function in NR as well). The ergative in Hindi marks the perfect tense, as in the example from Mahajan below:

  (i) Hindi perfect

    Raam- ne   vah   kitaabē   parīī   thīī
    Ram   erg   [those books]$_{F.PL}$ read$_{PART.F.PL}$ be$_{F.PL.PAST}$
    'Ram had read those books.'   [Mahajan 1994:318]

See Dixon (1994:41–42) for more on the use of adpositions (and particles) to mark the ergative case.

4.1. Trask's Type-B Ergativity

According to the typological survey provided in Trask 1979, split (or "Type B") ergativity is correlated with the absence in a particular language of the distinct lexeme 'have'. The leading idea is that in order to form periphrastic past/perfect tenses in split-ergative languages, the stative passive participle is predicated of an agent phrase by means of an oblique case used elsewhere in the language to mark possession. The oblique marking on the possessor is then reinterpreted as the ergative case marker.[19] The distinct ergative pattern signifies either a tense/aspect split (where the ergative marks the perfect tense) or some other well-defined contrast in meaning with a competing accusative construction (Trask 1979:395–400).[20]

The idea of treating NR *u*+GEN in nonagreeing passive participial clauses as a possessive marker rather than as a passive BY-PHRASE is suggested by Petrova (1968:124) and further developed by Trubinskij (1984:137–49). Note that the idea of *u*+GEN as an ergative marker in the sense of Trask's Type-B ergativity was first discussed by Orr (1989, 1991).[21]

---

[19] The fact that the ergative Case in NR is realized morphologically as a prepositional phrase (as in Hindi) need not complicate the present analysis. Prepositions are used to mark the same syntactic functions as case systems. They can also be "selected" as a lexical property of predicates and argument-bearing morphemes (see section 5.1).

[20] Ergative languages that do **not** contain such a split are believed to derive from passive constructions reinterpreted as active. Trask (1979) refers to this type of ergativity as "Type A".

[21] As for Lith, Ambrazas (cited in Schmalstieg 1982:120, fn.1 as p.c.) notes that at an earlier stage in the language, the bare GEN subject was also initially a marker of possession. Note that for the periphrastic perfect Lith uses an agreeing form of 'be', following the pattern of other non-'have' languages:

(i) Lith perfect

Aš   esu   skaitęs   tą   knygą
[I   am]$_{NOM.M}$ read$_{NOM.M}$ [that   book]$_{ACC.F}$
'I have read that book.'

Thus in Lith the agreeing form of the passive participle + 'be' marks the perfect, in contrast to the evidential reading of the nonagreeing *-ma/-ta* form.

4.2. On Deriving Ergative Subjects of Intransitive Predicates

In this section we briefly address the following typological difference between NR/Lith and more robust Type-B ergatives: in NR and Lith the subject of **intransitive** predicates is also marked "ergative". Orr points out this typological anomaly (1989:20, fn. 18) but offers no explanation for it, suggesting only that it is common for the ergative argument "to extend its range" to intransitives. Note, however, that under a finer-grained analysis of intransitive predicates it has been shown that ergative subjects commonly appear with **unergative** intransitives, though only quite rarely with unaccusative intransitives (see Marantz 1991 and Bobaljik 1993). Marantz has formalized this observation in the following generalization (Marantz 1991:237):

(17)   Marantz's Ergative Generalization

If a verb does not assign an external theta role, it will not assign ergative case to its subject (i.e., though ergative case can be assigned to the subject of an intransitive verb, it will not appear on a derived subject).

This generalization is derived from Marantz's (1991) theory of "Dependent Case". In Marantz's framework the assignment of a dependent case (ergative or accusative) relies on the crucial condition that the position to which this (abstract) case is assigned may be set in opposition to another (structural or, "environment sensitive") case position that constitutes a distinct chain. In this way Marantz rules out the ergative on a derived subject NP: both positions are in the same chain.[22] Note that case realization in Marantz's framework is treated as a property of the clause, in the same spirit as the "Case in Tiers" model proposed in Yip et al. 1987. The lack of "Dependent Case" effects in NR and Lith (i.e., the presence of ergative subjects of unaccusative predicates) suggests that the assignment of ergative case to the subject in NR and Lith is not a clausal property in the strict sense (which may be considered to indicate a certain "marginality" of the split-ergativity in these languages). In section 5 we will consider the possibility that ergative case assignment to the subject

---

[22] The subject of unergative intransitives can bear ergative Case because the object position in such a configuration is empty and available to count as a distinct position in opposition to which the ergative Case can be assigned.

is a **lexical** property of the *-no/-to* / *-ma/-ta* morphemes rather than a clausal property of the relevant split (i.e., the perfect tense or the evidential mood).

5. Case and Structure

Data from the NR and Lith ergative constructions suggest that the realization of morphological case may not necessarily involve the features that are standardly assumed to be responsible for abstract Case licensing in Agr projections. Example (18) represents a standard minimalist phrase structure:

(18) $[_{\text{AgrSP}}$ Spec AgrS $[_{\text{TP}}$ Spec T $[_{\text{AgrOP}}$ Spec AgrO $[_{\text{VP}}$ NP [V NP]]]]]

According to basic minimalist assumptions (Chomsky 1995, ch.3), T and V contain the nominative and accusative Case features, respectively. Case is checked in a uniform Spec-Head relation in the functional domain: abstract accusative is checked against V in AgrO while abstract nominative is checked against T in AgrS.

In what follows, (18) will be reworked in such a way that morphological nominative will be shown to be distinct both from the abstract nominative represented in AgrS, as well as from T(ense), more generally. The notion of abstract nominative is subsumed under "subject positional licensing", an effect of the EPP, which is checked, as we have seen, by the morphological ergative.[23] Finally, the VP will be articulated (following Chomsky 1995, ch.4) to provide two distinct positions in which the morphological ergative can be assigned (i.e., to canonical external subjects, as well as to the internal argument of unaccusative predicates).

5.1. The Ergative Subject: Quirky Case and Derivational Morphology

In this section it will be argued that the trigger for the ergative construction in NR and Lith is the derivational morphology affixed to the participial main predicate. Following Di Sciullo and Williams (1987), let

---

[23] Note that the absence of subject-predicate agreement in NR and Lith ergatives (and the fact that subject positional licensing can be checked in TP) forces the absence of an AgrS projection. If present in the structure, its functions would remain unchecked and the derivation would not converge.

us assume that affixes head the stems to which they are attached, and that these affixes have their own lexical specification which determines the argument structure of the derived forms. The oblique (or PP) ergative, then, is assigned as a selectional property of the *-no/-to* and *-ma/-ta* derivational morphemes. It will be recalled that *-no/-to* and *-ma/-ta* (and their variants) no longer perform the inflectional function of marking agreement.

It should be noted that derivational affixes assign quirky case elsewhere in both NR and Lith. In NR (and CSR) the infinitival suffix *-ti* assigns dative case to the infinitive's overt-NP or PRO subject (see Babby 1998:22–23). In Lith secondary predicates with gerunds, the gerundive suffix *-ant* assigns quirky dative to the secondary predicate's subject. (19) is an example:

(19) Lith gerund

Saulei   tekant,   pasiekėm   kryžkelę.
sun$_{DAT}$ rising$_{GER}$ we-reached   crossing

'When the sun rose we reached the crossing.'

[Ambrazas et al. 1985:320]

If the ergative marking (*u*+GEN / GEN) is a lexical property of the *-no/-to* / *-ma/-ta* affix, then the lack of Dependent Case effects in the assignment of ergative Case to subjects is explained in a straight-forward manner. Rather than clausal ergativity in the more robust sense (cf. Georgian, Hindi, and Basque), NR and Lith exhibit a particular analogue of quirky case assignment, similar to the type known in Icelandic (see Zaenen et al. 1985, Sigurðsson 1992, Schütze 1993). The crucial difference is that in Icelandic quirky case is assigned as a lexical idiosyncrasy of particular verbs, while in NR and Lith, for the appropriate tense or mood, it is assigned in all instances, regardless of both the verb's lexical semantics and the larger clausal structure, as a lexical idiosyncrasy of a particular affix. It is precisely in this way that the ergative subject can be extended to subjects of unaccusative predicates (in violation of Marantz's Ergative Generalization in (17)).[24] Quirky case is

---

[24] It was pointed out at FASL 7 by Johanna Nichols that the absence of a strict distinction in case marking between the subjects of transitive and intransitive verbs renders use of the term "ergative," in the more rigorous sense, inappro-

assigned in the site of base-generation (i.e., at Merge). It enters the derivation [+interpretable]; there is no requirement that it be licensed in a structural position in the functional domain.

As I indicate below in (20a-b), the subjects of both transitive and unaccusative predicates are in a Spec-Head configuration with the verb allowing for the assignment of quirky ergative in the usual way (following standard assumptions of quirky case assignment independently motivated for Icelandic (see Schɫtze 1993 and Harley 1995)). The functional "light *v*" projection, which immediately dominates VP, is responsible for the assignment of the external theta role. It is headed by phonologically null "*v*", to which the lower V adjoins. Unaccusative structures, which, by definition, lack an external theta role, correspondingly lack the higher projection.[25]

(20) The assignment of quirky ergative

    a. transitives and unergatives   b. unaccusatives

---
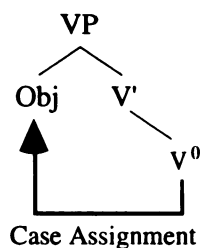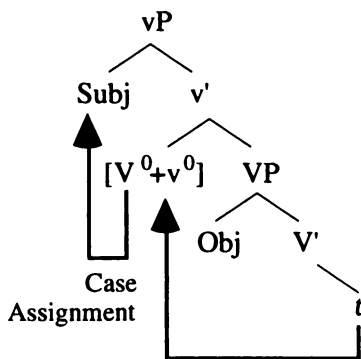
priate. Though much recent work on ergativity (e.g., Marantz 1991 and Bobaljik 1993) has been concerned with accounting for the extension of ergative marking to the subject of intransitives, perhaps a more fitting term for NR and Lith *-no/-to* and *-ma/-ta* constructions is Orr's (1989, 1991) "**embryonic** ergativity" (emphasis JEL). See Nichols 1992 for a broad-based typological study of factors favoring robust ergativity in the traditional sense.

[25] See Bailyn 1995 for discussion of a similarly articulated VP for Russian.

5.2. The Nominative Object[26]

The nominative object in NR and Lith transitive ergatives appears to be defined positionally, i.e., the argument bears a structural case. We must consider, then, whether all instances of the structural nominative are checked in the same position and related in the same way to the Tense projection and finiteness. We have already seen that the nominative object is positionally distinct from the argument that satisfies the EPP. The most convincing evidence for separating the nominative object from Tense (and finiteness) is that the former regularly appears in NR and Lith infinitival clauses (where a canonical nominative subject would ordinarily not be licensed). The relevant examples are provided in (21):

(21) a. NR infinitive + nominative object

Ne   tebe   na ètogo konja   uzda   nadevat'.
NEG you$_{DAT}$ on this   horse   bridle$_{NOM}$ put-on$_{INF}$ (= -ti)

'It is not for you to put a bridle on that horse.'

[Timberlake 1974:104–5]

b. Lith infinitive + nominative object

Kitiem   laiškai   rašyti   buvo   daug   lengviau.
others$_{DAT}$ letters$_{NOM}$ write$_{INF}$ was   much   easier

'For others letters were much easier to write.'

[Schmalstieg 1982:128]

Babby (1991) found that the distribution of nominative objects in NR can be reduced to control theory: the nominative object appears only when the PRO subject of infinitives is either uncontrolled or controlled by the matrix object.[27] Since PRO in NR (as well as in CSR and Lith) is assigned dative case (along with overt subjects of infinitives as in (21a)), Babby proposes that the nominative objects of NR infinitivals and Icelandic quirky-subject constructions are best treated as a unified phenomenon (1991:40–50). Note that both Babby (1991) and Yip et al.

---

[26] Note that the analysis presented in this section is only preliminary.

[27] Although Babby (1991) refers to Old Russian in his discussion of nominative objects, his data specifically reflect Old NR (see Timberlake 1974:5).

(1987) rely on a non-local, clausal analysis of nominative case assign-
ment that does not refer to finiteness as the licensing mechanism.
Nominative object assignment in their framework is dependent on the
unavailability of morphological nominative case for the subject NP. That
is, the nominative object is a result of a mismatch between abstract nomi-
native Case and its non-nominative morphological realization on the
subject NP (cf. Marantz's Dependent Case).

Let us therefore assume that the nominative object in NR and Lith is
not licensed by finiteness (i.e., the abstract Case feature in T), but instead
is a property of the clause, in contrast to the assignment of the ergative
subject, which is a lexical property of the morpheme that triggers the
ergative split. Harley (1995:150) refers to this type of nominative object
licensing as "clause-bound case assignment". According to Harley's
proposal, which we have been implicity assuming, structural case reali-
zation is not related to specific functional heads, but rather to the clause
as a whole. This is in contrast to the idea (proposed for Icelandic nomi-
native objects in SchŁtze 1993) that T (or AgrS) obligatorily contains a
nominative Case feature as an invariant selectional property of the head.

Having ruled out linking the licensing of NR and Lith nominative
objects with a Case feature in finite T, what remains to be resolved is
specifying where else nominative Case can be checked. Let us speculate
that this may implicate functional structure between vP and TP (such as
AgrO (or an adjoined vP)). Such a proposal rests on the assumptions that
the nominative object is indeed structural and that functional heads are
not inherently associated with particular case morphology. That is, AgrO
canonically licenses **abstract** accusative case, which may be taken to
refer to a positional licensing requirement of direct objects, but it does
not determine **morphological** case. A similar distinction was drawn
above for abstract nominative case being realized morphologically by the
"quirky" ergative. The evidence from NR and Lith provide empirical
support for this "abstract" vs. "morphological" distinction. The projec-
tion of a nominative case feature in AgrO, however, remains a non-trivial
matter for a minimalist system and requires the elaboration of a mecha-
nism that would properly constrain clause-bound case checking. I will

not attempt to resolve this problem here. The resulting structure for NR and Lith transitive ergatives is given in (22) (cf. (18)):[28]

(22)   [$_{TP}$ Spec T [$_{AgrOP}$ Spec AgrO [$_{vP}$ Subj v [$_{VP}$ Obj V]]]]

6. Conclusion

The NR and Lith ergative constructions lend empirical support to the claim that subject properties cannot be linked universally to a single position. In particular, we have seen that nominative case can be checked in more than one position, and that the argument that bears nominative case is not obligatorily involved in subject positional licensing (the EPP), which may be checked by a distinct NP.

   More generally, I have shown that treating the nonagreeing passive-participial structures in NR and Lith as ergative is typologically motivated, consistent with the subject properties of the preverbal oblique constituent, and, crucially, does not require amending a widely-held view of passivization just for these constructions. I have also provided an explanation for the extension of ergative case marking to derived subjects of unaccusative predicates that follows from independently motivated theories of quirky-case assignment and argument structure.

References:

Ambrazas, Vytautas et al. 1985. *Grammatika litovskogo jazyka*. Vil'njus: Mokslas.

———— 1997. *Lithuanian grammar*. Vilnius: Baltos lankos.

Anderson, Stephen. 1976. "On the notion of subject in ergative languages." In *Subject and topic*, ed. Charles Li, 1–23. New York: Academic Press.

Babby, Leonard. 1991. "Noncanonical configurational case assignment strategies." *Cornell Working Papers in Linguistics* 9: 1–55.

---

[28] In any event, the case feature in AgrO is weak and will be checked, accordingly, post-Spell-Out. We may note, however, that if we admit **all** local relations into the system as potential checking configurations (contra Chomsky 1993), case-checking of the nominative object may occur, without covert feature movement, against the lexical V in situ (cf. Bobaljik and Thráinsson 1998).

Babby, Leonard. 1998. "Subject control as direct predication: Evidence from Russian." In *FASL 6: The UConn meeting*, ed. Željko Boškovic;, Steven Franks, and William Snyder, 17–37. Ann Arbor: Michigan Slavic Publications.

Bailyn, John. 1995. "Underlying phrase structure and "short" verb movement in Russian." *Journal of Slavic Linguistics* 3:13–58.

Bobaljik, Jonathan. 1993. "On ergativity and ergative unergatives." *MIT Working Papers in Linguistics* 19:45–88. Department of Linguistics and Philosophy, MIT, Cambridge, Mass.

Bobaljik, Jonathan and Höskuldur Thráinsson. 1998. "Two heads aren't always better than one." *Syntax* 1:37–71.

Chomsky, Noam. 1993. "A Minimalist Program for linguistic theory." In *The View from Building 20: Essays in linguistics in honor of Sylvain Bromberger*, ed. Ken Hale and Samuel Keyser, 1–52. Cambridge, Mass.: MIT Press.

———. 1995. *The Minimalist Program*. Cambridge, Mass: MIT Press.

Di Sciullo, Anna Maria and Edwin Williams. 1987. *On the definition of word*. Cambridge, Mass: MIT Press.

Dixon, R.M.W. 1994. *Ergativity*. Cambridge: Cambridge University Press.

Filin, F.P. 1969. "Iz istorii sintaksisa vostočnoslavjanskix jazykov: O forme imenitel´nogo padeža imen ženskogo roda na -a (-ja) v značenii akkuzativa." *Voprosy jazykoznanija* 3:70–81.

Grimshaw, Jane. 1990. *Argument structure*. Cambridge, Mass: MIT Press.

———. 1997. "Projection, heads, and optimality." *Linguistic Inquiry* 28:373–422.

Harley, Heidi. 1995. Subjects, events and licensing. Doctoral dissertation, MIT, Cambridge, Mass.

Jaeggli, Osvaldo. 1986. "Passive." *Linguistic Inquiry* 17:587–622.

Kuz´mina I.B. and E.V. Nemčenko. 1971. *Sintaksis pričastnyx form v russkix govorax*. Moskva: Nauka.

Lavine, James. 1998. "Null expletives and the EPP in Slavic: A minimalist analysis." In *FASL 6: The UConn meeting*, ed. Željko Boškovic;, Steven Franks, and William Snyder, 212–230. Ann Arbor: Michigan Slavic Publications.

Mahajan, Anoop. 1994. "The ergativity parameter: *have-be* alternation, word order and split ergativity." *Proceedings of NELS 24*, 317–31.

Marantz, Alec. 1991. "Case and licensing." *Proceedings of ESCOL '91*, 234–53.

Matthews, W.K. 1955. "Lithuanian constructions with neuter passive participles." *The Slavonic and East European Review* 33:350–71.

Nichols, Johanna. 1992. *Linguistic diversity in space and time*. Chicago: The University of Chicago Press.

Orr, Robert. 1989. "A Russo-Goidelic syntactic parallel: *u nego svoja izba postavlena / Tá sé dšanta agam*." *General Linguistics* 29:1–21.

———. 1991. "More on embryonic ergativity." *General Linguistics* 31:163–175.

Perlmutter, David and Paul Postal. 1984. "The 1-Advancement Exclusiveness Law." In *Studies in Relational Grammar 2*, ed. David Perlmutter and Carol Rosen, 81–125. Chicago: The University of Chicago Press.

Petrova, Z.M. 1968. "Posessivnyj perfekt v pskovskix govorax." *Pskovskie govory* 2:118–26.

Rosen, Carol. 1984. "The interface between semantic roles and initial grammatical relations." In *Studies in Relational Grammar 2*, ed. David Perlmutter and Carol Rosen, 38–77. Chicago: The University of Chicago Press.

Šapiro, A.B. 1953. *Očerki po sintaksisu russkix narodnyx govorov*. Moskva: Akademija nauk.

Schmalstieg, William. 1982. "The shift of intransitive to transitive passive in the Lithuanian and Indo-European verb." *Baltistica* 18:119–34.

Schütze, Carson. 1993. "Towards a minimalist account of quirky case and licensing in Icelandic." *MIT Working Papers in Linguistics* 19:321–75. Department of Linguistics and Philosophy, MIT, Cambridge, Mass.

Sigurðsson, Halldór Ámann. 1992. "The case of quirky subjects." *Working Papers in Scandinavian Syntax* 49:1–26.

Timberlake, Alan. 1974. *The nominative object in Slavic, Baltic, and West Finnic*. München: Verlag Otto Sagner.

Timberlake, Alan. 1976. "Subject properties in the North Russian passive." In *Subject and topic*, ed. Charles Li, 545–70. New York: Academic Press.

————. 1982. "The impersonal passive in Lithuanian." *Proceedings of the eighth annual meeting of the Berkeley Linguistics Society*, 508–24.

Trask, Robert. 1979. "On the origins of ergativity." In *Ergativity: Towards a theory of grammatical relations*, ed. Frans Plank, 385–404. London: Academic Press.

Trubinskij, V.I. 1984. *Očerki russkogo dialektnogo sintaksisa.* Leningrad: Izd. Leningradskogo universiteta.

Yip, Moira, Joan Maling, and Ray Jackendoff. 1987. "Case in tiers." *Language* 63:217–50.

Zaenen, Annie, Joan Maling, and Höskuldur Thráinsson. 1985. "Case and grammatical functions: The Icelandic passive." *Natural Language and Linguistic Theory* 3:441–83.

Dept. of Slavic Languages
028 E. Pyne
Princeton University
Princeton, NJ 08544
jelavine@princeton.edu

Predictive Rules of Direct Object Ellipsis in Russian*

Marjorie J. McShane
New Mexico State University

1.0. Introduction

Ellipsis in the world's languages has been studied from two largely segregated linguistic perspectives: syntactic theory and discourse theory. However, at least with regard to Slavic languages, we achieve maximal explanatory and predictive power by taking an integrated approach—by exploring the interaction of syntactic, lexico-semantic, and pragmatic factors on ellipsis. This paper focuses on the interfaces among these components of the language system as they relate to the ellipsis of Russian direct objects (DOs) with definite reference, a type of ellipsis that is widely possible in Russian but does not occur in English.[1] The goal is to present a sampling, rather than a comprehensive inventory, of the rules regulating Russian DO ellipsis, and to show that an integrated approach is required to fully understand the workings of ellipsis in Russian.

Although Russian has a developed system of morphological agreement, ellipted DOs (unlike ellipted subjects) do not agree with their selecting verbs, so their licensing and recoverability strategies cannot be linked to agreement morphology.

The relative weight of syntactic, lexico-semantic, and pragmatic factors in determining the elliptability of a given DO depends primarily upon the nature and placement of the antecedent, which can be syntactically relevant or pragmatically understood. (Provisionally, I define 'syntactically relevant' as syntactically overt and located in the immediately preceding context – generally the preceding clause.) In fact, there are three types of licensing strategies for which different

---

* This paper is an overview of work presented in McShane (1998a-c), where further discussion of all points can be found.

[1] Strictly speaking, DO ellipsis does occur in English, but only in markedly telegraphic language, e.g., stage directions in plays and recipe contexts. For discussion of the latter, see Massam and Roberge (1989)

combinations of factors play a role; they are shown in Table 1 (EC refers to 'empty category').

Table 1

Status and Placement of Antecedent	Ellipsis is Licensed Within	Example	Relevant Factors
The antecedent is overt and located in the same sentence as the EC.	Sentence Grammar	1) On vzjal *mjač* i brosil [*e*]. 'He took the ball and threw it.'	Syntactic Lexico-Semantic (*limited*: Discourse)
The antecedent is overt and syntac-tically relevant, but not located in the same sentence as the EC.	Discourse Grammar	2) Ja s"ela *tri piržoka.* Sama [*e*] ispekla. 'I ate three pirozhki. I baked them myself.'	Syntactic Lexico-Semantic Discourse
The antecedent is pragmatically understood.	Discourse Grammar	3) [*The speaker holds out a bag*] Poderži [*e*], požalujsta. 'Hold this, please.'	Lexico-Semantic Discourse

The remainder of the paper focuses on the first two types of licensing strategies, i.e., those with a syntactically relevant antecedent.[2] Rules of ellipsis will be proposed that not only provide insight into theoretical aspects of this phenomenon, but also give non-native speakers guidelines regarding when and when not to ellipt DOs in Russian.

---

[2] As regards the third licensing strategy, ellipsis-promoting factors include the following: the DO refers to the speaker, the interlocutor, or a visible third person/thing; the DO is the object of an imperative or interrogative verb; the speaker and interlocutor have a large set of shared information and a clearly understood current concern. For discussion of the latter, see Yokoyama (1986).

1.1. Sentence Grammar Versus Discourse Grammar[3]

For our purposes, the crucial difference between ellipsis licensed within Sentence Grammar (SG) and ellipsis within Discourse Grammar (DG) is as follows. Within SG, there is a direct syntactic link between the antecedent and the EC, and syntax plays the most prominent role in determining ellipsis potential. So, there are different rules of DO ellipsis for VP coordinate structures, IP coordinate structures, sentences containing a subordinate clause, etc. Lexico-semantics and pragmatics play a role in some structures of SG, but syntax remains central. Within DG, there is only an indirect syntactic link between the antecedent and the EC because the antecedent must be reinterpreted as a null discourse topic for the purposes of the elliptical sentence per se. It is the null discourse topic located within the elliptical sentence that formally licenses the ellipsis (in the way proposed by Huang 1984 and amended for Slavic in McShane 1998a). Thus, within DG, syntax has a somewhat reduced role, and semantics and pragmatics have a proportionally increased role. One of the numerous concrete manifestations of this SG/DG contrast is that whereas a NOM antecedent can never support DO ellipsis within SG, it sometimes can within DG. The lack of structural parallelism between a NOM antecedent and an ACC DO is fatal within SG, but is tolerated under certain circumstances within DG because the link between the antecedent and the EC is mediated by the intervening null discourse topic.

1.2. The Limits of Pragmatics

Perhaps the most important point about DO ellipsis in Russian is that it is *not* the case that any DO that can be logically understood can be ellipted. Consider in this regard examples (4) and (5):

(4) Ja slučajno   vypustila   *pticu,*   no   brat
     I   accidentally   let-out   *bird*$_{ACC}$ but   brother

     (*ee*)   pojmal.
     (*it*)$_{ACC}$ caught

     'I accidentally let out the bird but my brother caught it.'

---

[3] For a discussion of Sentence Grammar versus Discourse Grammar as it relates to ellipsis, see Williams (1977), Huang (1984), and McShane (1998a).

(5) V   komnatu   vletela   *ptica,*   i   brat
     into room   flew   *bird*$_{NOM}$ and   brother

     ee/[e]*   pojmal.
     it/[e]*$_{ACC}$ caught

     'A bird flew into the room and my brother caught it.'

In both sentences it is equally clear on a logical level that *bird* is intended
to be the DO of the second clause. However, in (5) the ellipsis-blocking
syntactic factor of having a NOM antecedent is stronger than the ellipsis-
promoting pragmatic factor of having a logically retrievable DO. The
impossibility of ellipsis in (5), therefore, provides indisputable evidence
that the study of DO ellipsis must not be relegated to a purely pragmatic
framework.

2.0. DO Ellipsis Licensed within SG

Below are a number of rules of DO ellipsis within SG, which are
organized according to what factor most strongly determines them (note,
however, that most instances of ellipsis are influenced at least to some
extent by multiple factors):

2.1. Syntactic Rules of DO Ellipsis Licensed within SG

In Russian, ACC antecedents support DO ellipsis better than NPs with
any other case marking. Let us call this Syntactic Rule of SG #1.

> *Syntactic Rule of SG #1*: ACC antecedents best support DO
> Ellipsis in Russian.

Following Bailyn (1995), I assume that ACC NPs occupy spec-VP,
whereas oblique NPs occupy sister-of-V position.[4]

Tree 1   VP

        NP-ACC   V'

               V   NP-OBLIQUE

---
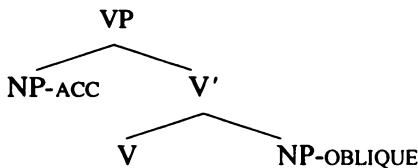
[4] Spec-VP is the specifier position in the VP.

This difference in structural placement explains why the case-marking of the antecedent can be considered a matter of syntax rather than of pure morphology: when the antecedent is ACC, it is structurally parallel to its coreferential DO, and ellipsis is promoted. Lack of structural parallelism between the antecedent and EC significantly impedes ellipsis potential. It must be stressed that in some instances an oblique antecedent *can* support DO ellipsis within SG, but the rules for that are complex and include a strong semantic component, so they are not formalizable in the manner attempted here. Thus, in continuing this section on the syntactic factors affecting DO ellipsis within SG, I limit the discussion to configurations containing an ACC antecedent.

When the antecedent is ACC, there are at least four syntactically based patterns of DO ellipsis within SG, designated Syntactic Rules of SG #2-4.

> *Syntactic Rule of SG #2*: In Syndetic VP Coordinate Structures
> (with an ACC antecedent) DO Ellipsis is consistently possible.[5]

Syndetic VP Coordinate Structures are structures in which two VPs (that share a subject) are joined by an overt coordinating conjunction (see example (1)):[6]

> SUBJ [[VP$_i$] and/but [VP$_j$]]

---

[5] If a coordinate structure lacks an overt coordinating conjunction, it is called an asyndetic coordinate structure (Quirk et al. 1972: 918). I consider asyndetic structures to be part of Discourse Grammar.

[6] I analyze such structures as VP Coordination, rather than IP Coordination with *pro*-drop of the second subject, for two reasons:

(i) When two coordinated VPs in Russian have the same subject, that subject is almost never repeated, regardless of whether the DO is overt or ellipted (* On$_i$ vzjal mjač i on$_i$ brosil (ego). 'He took the ball and he threw it.'). In fact, having the second subject overt would either be generally confusing or would imply that the second subject had a different referent from that of the first subject.

(ii) Different DO-ellipsis patterns obtain in same-subject coordinate structures and in different-subject coordinate structures. This finds a natural explanation if we consider the former to be VP-coordination and the latter to be IP-coordination.

Example (6), like (1), is a VP-coordinate structure that permits DO ellipsis – as do virtually all Russian VP-coordinate structures containing coreferential DOs. Note that the clauses may contain additional adjuncts and/or arguments, which in no way affect ellipsis potential:

(6) Lizka vzjala *Arkašu*   pod ruku i   povela
     Lizka took   *Arkasha*$_{ACC}$ by   arm   and   led

     (*ego*)   po   ulice.[7]
     (*him*)$_{ACC}$ down   street

     'Lizka took Arkasha by the arm and led him down the street.'

Syntactic Rule of SG #3: In Multi-Clause Syndetic VP Coordinate Structures (with an ACC antecedent), Ellipsis of one or more DOs tends to be highly preferred.

Multi-Clause Syndetic VP Coordinate Structures are sentences in which three or more VPs (that share a subject) are conjoined and the last is preceded by an overt coordinating conjunction:

[SUBJ [[VP$_i$], [VP$_j$] and/but [VP$_k$]]]

When Russian structures of this type have three coreferential DOs, ellipsis of at least one of them is not only possible, it tends to be highly preferred in order to avoid what is considered excessive repetition of DO pronouns. (Of course, this assumes a non-emphatic context.) In three-clause examples, there are four possible combinations of overt and covert DOs. Three of these are generally acceptable in Russian, and one is not, as illustrated by (7). The symbol % denotes stylistic infelicity produced by overrepetition of pronouns.

---

[7] This example is quoted from V. Vojnovič's *My zdes' živem* (Moskva: Sovetskij pisatel', 1963). The DO is ellipted in the source text.

(7) Pelageja usmexnulas' tixo,   vzjala *bukvar'*   v   ruki,
     Pelageja laughed   quietly, took *primer*$_{ACC}$ in hands

   a. povertela *ego*   i   v   komod sprjatala [*e*].[8]

   b. povertela [*e*]   i   v   komod sprjatala [*e*].

   c. povertela [*e*]   i   v   komod sprjatala *ego*.

   d. %povertela *ego*   i   v   komod sprjatala *ego*.
     twirled   *it*/[*e*]$_{ACC}$ and into bureau stashed *it*/[*e*]$_{ACC}$

   'Pelagea laughed quietly, took the primer in her hands, fiddled with it and stashed it in the bureau.'

It bears mentioning, however, that multi-clause examples can be complex rhythmically, intonationally, semantically, etc., so although in a majority of contexts patterns (a)-(c) are possible and (d) is infelicitous, there are exceptions.

The next two rules of ellipsis concern sentences containing a Gerund Phrase (GP) or a subordinate clause. In all instances, I assume that the matrix clause is base-generated to the left of, and higher on the tree than, the GP or subordinate clause. In addition, recall that in Russian, antecedents must canonically precede their ECs at surface structure; thus, we will not see Russian sentences similar to the English *Having spied [e]$_i$, John picked up the twenty-dollar bill$_i$ (exceptions will not be dealt with here). Finally, all sentences under consideration are, to the extent possible, taken out of context. (If, for example, the given object were to occur as a DO in the preceding sentence, inter-sentential influences on ellipsis would complicate ellipsis judgments.)

> *Syntactic Rule of SG #4*: In sentences containing a GP, DO-
> Ellipsis potential is determined prior to syntactic movement.[9]

---

[8] This example is quoted from M.M. Zoščenko's 'Pismo' (pp. 118-121 in *Russian Intermediate Reader*, Igor S. Mihalchenko (ed.), Lincolnwood, Illinois: National Textbook Company, 1985). The original variant is (a).

[9] Following the approach proposed by Babby and Franks (ms. 1998), I analyze GPs as nonclausal, nonfinite VP adjuncts that originate within the VP then may or may not move up to clause-initial position.

In Russian sentences containing a Gerund Phrase (GP), DO ellipsis is possible only if the matrix clause precedes the GP, such that the matrix clause contains the antecedent and the GP contains the EC:[10]

8) Džon   otdal   professoru   *èsse,*   ne
   John   gave   professor$_{DAT}$ *essay$_{ACC}$*   NEG

   proveriv   *(ego)*.
   having-checked   *(it)$_{ACC}$*

   'John gave his professor the essay, not having checked it over.'

If the GP is fronted, ellipsis is impossible:

(9) Podnjav   *okurok,*   Džon   brosil
    having-picked-up   *cigarette-butt$_{ACC}$*   Džon   threw

    ego/[e]*   v   urnu.
    it/[e]$_{ACC}$*   into   trash-can

    'Having picked up the cigarette butt, John threw it in the trash can.'

This contrast cannot be explained by the surface linear order of elements because in (9), as in (8), there is an NP$_{ACC}$ that looks as if it should be a licit antecedent for DO ellipsis. The impossibility of ellipsis in (9) can, however, be explained in terms of movement: ellipsis potential in such Russian structures must be established prior to syntactic movement. This means that the DO located in the matrix clause will always be understood as the antecedent because it is always base-generated to the left of, and higher than, the DO located in the GP. Thus, when the GP remains *in situ*, its DO can be ellipted because it follows the matrix-clause antecedent. If, however, the GP is fronted, an illicit ordering of antecedent and EC obtains. If ellipsis were to be licensed in such a structure, the DO located in the GP would have to adopt the function of antecedent—which, the evidence shows, is impossible in Russian.

---

[10] This pair of examples, (8)-(9), is not strictly minimal because with sentences of this type, one of the members of a truly minimal pair is virtually always semantically awkward, and semantic normality is an inviolable requirement for all types of ellipsis.

Syntactic Rule of SG #5: In sentences containing a subordinate clause, DO-Ellipsis potential is determined prior to syntactic movement.[11]

Sentences containing a subordinate clause have the same ellipsis-related clause-order restrictions as sentences containing a GP, as shown by (10)-(11):

(10) Anja   vnimatel'no   perečitala *pis'mo*,   pered   tem   kak
      Anya   carefully   reread   *letter$_{ACC}$*   before

      vložit'   (*ego*)   v   konvert.
      put$_{INFIN}$ (*it*)$_{ACC}$ in   envelope
      'Anya carefully reread the letter before putting it in the envelope.'

(11) Pered   tem   kak   vložit'   *pis'mo*   v   konvert,
      before   put$_{INFIN}$ *letter$_{ACC}$*   in   envelope,

      Anja   vnimatel'no   perečitala *ego/*[e]*.
      Anya   carefully   reread   *it/*[e]$_{ACC}$*

      'Before putting the letter in the envelope, Anya carefully reread it.'

Assuming, again, that the matrix clause is base-generated to the left of, and higher than, the subordinate clause, the matrix-clause DO will always be interpreted as the antecedent. When no movement takes place, the matrix-clause antecedent precedes the DO in the subordinate clause, and that DO may be ellipted. When, however, the clause order is switched, ellipsis is blocked because the subordinate-clause DO cannot assume the role of antecedent after movement operations have occurred.

2.2. Lexico-Semantic Rules of DO Ellipsis

Thus far, five syntactic rules of DO ellipsis licensed within SG have been proposed. However, even if a given sentence would be expected to have optional DO ellipsis on *syntactic* grounds, the combination of lexical

---

[11] Although this generalization applies to most subordinate clauses in Russian, it does not apply to all of them. For example, *esli* ('if') permits DO ellipsis with either clause order. See McShane (1998a: 222-225) for discussion of the data and theoretical implications.

items in the sentence can render ellipsis highly preferred (if not virtually mandatory) on *lexico-semantic* grounds.[12] In stating the lexico-semantic rules that follow, I do not specify that they are limited to SG, because, as will be shown later, they apply equally rigorously to configurations of DG. The discussion continues to address only those configurations that contain an ACC antecedent.

> *Lexico-Semantic Rule #1*: Pronominal antecedents often render DO Ellipsis highly preferred.

In many syntactic configurations in which an ACC *R-expression* antecedent would permit optional ellipsis, an ACC *pronominal* antecedent renders DO ellipsis highly preferred, as in (12). (Recall that the percent sign indicates that the overt-object variant is stylistically infelicitous, albeit not ungrammatical per se.)

(12) ...Ona   ešče   i   ešče   blagoslovljala   *ego*   i
      she   again   and   again   blessed him_{ACC} and

      prižimala   [*e*]/%*ego*   k   grudi.[13]
      pressed   [*e*]/%him_{ACC} to   breast

      '...She blessed him time and again and pressed him to her breast.'

> *Lexico-Semantic Rule #2*: Referent mismatches (Generic-Specific or Whole-Part) may render DO Ellipsis virtually mandatory.

In some instances, a DO and its antecedent have a generic-specific or whole-part relationship: e.g., *I like **Ferraris** and bought **one**; They were selling **grapes** and I bought **some***. In Russian, as in English, the second DO in such contexts generally cannot be expressed by a pronoun like *it* or *them* because there is an inexact match between referents. In sentences like (13), in which English uses *one*, Russian must ellipt the DO because *odin* cannot be employed in this manner:

---

[12] There also exist lexico-semantic factors that can block ellipsis – e.g., when the ellipsis-clause verb has wide selectional restrictions – but these factors are more prevalent in DG than in SG, and are not pursued here for reasons of space.

[13] This example is cited from L. Tolstoj's *Detstvo* (pp. 5-104 in *Detstvo, otročestvo, junost'*, Moskva: Detskaja literatura, 1973). The DO is ellipted in the source text.

(13) Včera   v   universitete   prodavali   *komp'jutery,*
      yesterday   at   university   were-selling$_{3.PL}$ *computers*$_{ACC}$

      i   moj   brat   kupil   [*e*]/**odin.*
      and   my   brother   bought   [*e*]/**one*$_{ACC}$

      'Yesterday they were selling computers at the university and my
      brother bought one.'

In sentences like (14), both English and Russian can express the second
DO using *some* (or another referential expression indicating quantity);
Russian, however, presents the additional option of ellipting the DO.[14]

(14) Na uglu   prodavali   *apel'siny,*   i
      on corner   were-selling$_{3.PL}$ *oranges*$_{ACC}$ and

      ja   kupila   *neskol'ko*/[*e*].
      I   bought   *some*/[*e*]$_{ACC}$

      'They were selling oranges on the corner and I bought some.'

Lexico-Semantic Rule #3: Gender agreement quandaries may
render DO Ellipsis virtually mandatory.

DOs in Russian are often ellipted when there are gender-related compli-
cations associated with expressing the DO overtly. Such complications
most often occur when the biological gender of a person does not corres-
pond to the grammatical gender of the word used to refer to that person
in the context, as in (15):

(15) [Assume that the child is a girl]

      Mat'   pojmala   *rebenka*   i   šlepnula   [*e*].
      mother   caught   *child*$_{MASC.ACC}$ and   slapped   [*e*]$_{ACC}$

      'The mother caught the child and slapped her.'

In the first clause of this example, a biologically feminine girl is referred
to by the grammatically masculine noun *rebenok* 'child'. The next refer-
ence to the girl is as the DO of *šlepnula* 'slap'. Biological gender
suggests that the object of *šlepnula* should be expressed using the

---

[14] While some speakers of Russian marginally permit the pronoun *ix* ('them') to
be used in examples like (14), others consider this sloppy to the point of being
ungrammatical.

feminine pronoun *ee*. However, this is grammatically impossible: rules of Russian grammar require that all pronouns agree in gender with their syntactic antecedents, if they have a syntactic antecedent. Therefore, if the object of *šlepnula* is to be expressed overtly, it must be by the masculine pronoun *ego*. However, since it is strange to refer to a girl using a masculine pronoun, the elliptical variant of this sentence is highly preferred.

2.3. Combined Rules of DO Ellipsis Within SG

As was mentioned above, pragmatic factors most often do not affect DO-ellipsis potential within SG, but in certain configurations they do. One such configuration is Syndetic IP Coordination.

Syndetic IP Coordination describes sentences in which two clauses with different subjects are joined by an overt coordinating conjunction.

$$[[[SUBJ_i] [VP_i]] \text{ and/but } [[SUBJ_j] [VP_j]]]$$

Naturally, we are only interested in configurations of this type that contain coreferential DOs.

In order for DO ellipsis to be possible in such structures, there must be a clear semantic and intonational contrast established between rhematic categories in the clauses, and this contrast must be signalled by the contrastive conjunction *a* or *no*.[15] When a strong contrast is thus established between rhematic categories, thematic ones (here, the repeated DO) are deemphasized and may often be ellipted. Compare in this regard (16a) and (16b). Whereas (16a) presents the actions as a discourse-neutral series and blocks DO ellipsis, (16b) permits ellipsis because of the strong contrast between rhematic *bought* and *hung on the wall*. (This contrast is prosodically indicated by a contrastive rising contour on the verb *kupil*).[16]

---

[15] For our purposes, an intuitive notion of semantic contrast will suffice. As Yokoyama (1986: 314) says, "Contrast is an intuitively clear but not clearly defined concept." See Yokoyama (1986: 312-316) for a discussion of contrast in Russian.

[16] Yokoyama notes (in a personal communication) that another word order is possible for (16b), producing the same ellipsis judgment (of course, different intonation is required): *Muž kartinu kupil, a rabočie (ee) povesili na stenu.*

(16) a. Muž   kupil   *kartinu*,   i   rabočie povesili

husband bought *painting*$_{ACC}$ and$_{COORD}$ workers hung

ieel/[e]   na stenu.

t/*[e]$_{ACC}$ on wall

'My husband bought a painting and workers hung it on the wall.'

b. Muž   kupil   *kartinu*,   a   rabočie povesili

husband bought *painting*$_{ACC}$ and$_{CONTRAST.}$ workers hung

(*ee*)   na stenu.

(*it*)$_{ACC}$ on wall

'My husband bought a painting and workers hung it on the wall.'

3.0. DO Ellipsis Licensed within Discourse Grammar with a Syntactically Relevant Antecedent

As (2) shows, syntactically relevant antecedents need not be located within the minimal sentence – they may also be located outside the minimal sentence, making the clause complex part of Discourse Grammar. However, even when an antecedent is not located within the minimal sentence, its position and case-marking can still affect DO ellipsis potential. As a preliminary approach, I analyze all clause complexes that are not clearly single sentences as part of DG. Punctuation is, of course, irrelevant: such clause complexes may be separated a period, a colon, a comma, or a semi-colon.

3.1. Syntactic Rules of DO Ellipsis Licensed within DG

As with ellipsis in SG, ellipsis in DG is most consistently possible in Russian when the antecedent is ACC.

Syntactic Rule of DG #1: Syntactically visible Antecedents best support DO Ellipsis if they are ACC.

(17) Ja snjala   s   nego   *plašč.*   Povesila

I took-off from him   *raincoat*$_{ACC}$ Hung

(*ego*)   na vešalku.

(*it*)$_{ACC}$ on hanger

'I took his raincoat off of him. I hung it on a hanger.'

This appears to be the only primarily syntactic rule of DG. All other rules of DG are "combined" rules, since they indivisibly incorporate aspects of syntax, lexico-semantics, and discourse. Particularly important in all configurations of DG is the semantic and functional relationship between the antecedent clause and the ellipsis clause.

3.2. Combined Rules of DG

There are at least two semantically/functionally determined relationships between clause complexes within DG: Asyndetic Coordination and what I call the [Assertion + Elaboration] Strategy.

Asyndetic Coordination represents the same semantic relationship between clauses as Syndetic Coordination does, but there is no overt conjunction joining the clauses, as shown in (17).

Although Asyndetic Coordinate Structures generally permit DO ellipsis, the elliptical variant is often stylistically marked as being overly elliptical or telegraphic. So, whereas the elliptical variant of (17) is stylistically neutral, the elliptical variant of (18) is not – it could only be used in stage directions and other such contexts.[17]

(18) Rycar′ podnimaet *meč*,   protjagivaet (*ego*)   korolju.
      knight picks-up   *sword*$_{ACC}$ holds-out   (*it*)$_{ACC}$ king$_{DAT}$
      'The knight picks up the sword and holds it out to the king.'

This generalization will be called Combined Rule of DG #1:

> *Combined Rule of DG #1*: Asyndetic VP Coordinate Structures
> (with an ACC antecedent) in Russian regularly permit DO
> Ellipsis, but the elliptical variant may be stylistically marked.

Importantly, if we were to add a coordinating conjunction to (18), the utterance would belong to SG and the elliptical variant would be stylistically neutral. Thus, Syndetic and Asyndetic coordination are fundamentally different with regard to DO ellipsis.

> *Combined Rule of DG #2*: The [Assertion + Elaboration] strategy
> promotes DO Ellipsis.

---

[17] The overt-object variant of (18) is stylistically neutral.

The [Assertion + Elaboration] Strategy describes clause complexes in which the first clause asserts something and the second clause explains, embellishes, or otherwise comments upon it, as in (2) and (19):[18]

(19) Pered   teatrom ja   kupila *bilet*   *na*   *spektakl'*:
     in-front-of theater   I   bought *ticket*$_{ACC}$ *to*   *show*:

     odna ženščina prodala *(ego)*   mne   za   polceny.
     one   woman   sold   *(it)*$_{ACC}$ me$_{DAT}$ for half-price

     'In front of the theater I bought a ticket to a show: a woman sold it to me for half price.'

Structurally, such clause complexes look just like Asyndetic Coordinate Structures: that is, two clauses occur in series with no conjunction joining them. However, *semantically* and *functionally* there is a crucial difference: the [Assertion + Elaboration] Strategy is incompatible with a coordinating conjunction (* *I ate three pirozhki and baked them myself.*), since the second clause acts as an attribute and therefore is not semantically or functionally on a level with the first. On a prosodic level, the clauses in an [Assertion + Elaboration] Structure must be separated by a significant pause. In Russian, this configuration strongly promotes DO ellipsis by making the categories in the first clause felt to be strongly thematic for purposes of the second clause. The ellipsis-promoting power of this configuration is especially clear when the antecedent is non-ACC (a topic pursued in McShane 1998a-b).

3.2. Lexico-Semantic Rules of DO Ellipsis Applied to DG

The same lexico-semantic factors that affect DO ellipsis within SG affect it within DG: DO ellipsis can be rendered highly preferred or virtually obligatory by a pronominal antecedent (20) or referent mismatches (21):

(20) Ona ne   otpuskaet *menja,*   prosit   [*e*]/% *menja*
     she NEG let-go-of *me*$_{ACC}$ asks$_{3.SG.}$ [*e*]/% *me*$_{ACC}$

     vypit'   s   nej   čaj.
     to-drink with her   tea

     'She doesn't let me go, she asks me to have tea with her.'

---

[18] See Halliday (1994) for a discussion of 'elaboration' and related notions in Functional Grammar.

(21) Možet   byt',   vy   kupite   kalendar?   Net.
      maybe   you   will-buy   calendar$_{ACC}$ no

      Vy   uže   [e]/*odin   kupili.
      you   already [e]/*one$_{ACC}$ bought

      'How about buying a calendar? No. You already bought one.'

3.3. NOM Antecedents

Until now the discussion has focused on configurations in which the
antecedent was an ACC DO, since this type of antecedent gives us
maximal predictive power regarding DO-ellipsis potential. However, as
noted earlier, other types of antecedents can, under certain circum-
stances, support DO ellipsis. Notable in this regard are NOM ante-
cedents, since they support DO ellipsis in highly predictable configura-
tions of DG (although never within SG). NOM antecedents can function
as subjects or as quasi-topics, which are discussed in turn.

The ability of a NOM subject to support DO ellipsis depends upon
the nature of its selecting verb. Subjects of lexical verbs can virtually
never antecede DO ellipsis, whereas subjects of existential (e.g., *byt'*) or
quasi-existential (e.g., *ležat'* 'lie', *ostat'sja* 'remain') verbs sometimes
can.[19]

> *Combined Rule of DG #3*: NOM Antecedents can support DO
> Ellipsis only if selected by an existential or quasi-existential verb,
> never if selected by a lexical verb.

Examples (22) and (23) illustrate this contrast. When the antecedent is
the subject of the lexical verb *igrat'* ('play'), DO ellipsis is impossible,
but when the antecedent is the subject of *byt'* ('be'), DO ellipsis is
possible:[20]

---

[19] For further discussion of the existential use of lexical verbs see Babby
(1980).

[20] For reasons of space, different functions of *byt'* are not pursued here. For
discussion, see Chvany (1975).

(22) *Moi   vnuki*   igrajut   v   podvale.
     my   grandchildren$_{NOM}$ are-playing   in   basement.

     Privedi   *ix/*[e]*   sjuda,   požalujsta.
     Bring   *them/*[e]$_{ACC}$*   here,   please

     'My grandchildren are playing in the basement. Bring them here, please.'

(23) *Moi   sapogi*   v   podvale.   Prinesi   (*ix*)
     my   boots$_{NOM}$ in   basement.   Bring   (*them*)$_{ACC}$

     sjuda,   poalujsta.
     here,   please

     'My boots are in the basement. Bring them here, please.'

Example (24) shows optional DO ellipsis when the antecedent is the subject of quasi-existential *ostat'sja* 'remain'.

(24) U   nix   ostalsja   *naš*   *komp'juter.*   Zaberem
     at   them   remained   our   computer$_{ACC}$ we'll-pick-up

     (*ego*)   na   sledujuščej   nedele.
     (it)$_{ACC}$ next   week

     'Our computer remained at their house. We'll pick it up next week.'

Crucially, in order for DO ellipsis with a NOM antecedent to be possible, the clause complex must semantically/functionally be of the [Assertion + Elaboration] type, since this clause relationship is highly ellipsis promoting. Ellipsis with a NOM antecedent is consistently blocked in all types of coordinate configurations.

There is a syntactic explanation for why only (quasi-)existential subjects support DO ellipsis. Existential and quasi-existential verbs are unaccusative verbs whose surface subjects occupy DO position at an early stage of the derivation. In other words, existential subjects originate in the ideal position for a DO-ellipsis antecedent. Thus, if ellipsis potential is established prior to syntactic movement (as was suggested earlier with respect to sentences containing subordinte clauses and GPs),

the ability of existential subjects to antecede DO ellipsis is explained.[21]
In fact, it is possible that the ability of a subject to support DO-ellipsis in
the succeeding clause might be a good test for unaccusativity in Russian.

Apart from being subjects, NOM NPs can present a person or thing
as a discourse theme upon which the following sentence comments. By
singling out the NP as a discourse theme, such configurations promote
DO ellipsis potential on the level of discourse, as in (25)-(27).

25) «*Večnyj   student*!   Uže   dva   raza   uvol'njali
     eternal   student$_{NOM}$ Already   two   times   expelled$_{3.PL.}$

     (*ego*)   iz   universiteta».[22]
     (*him*)$_{ACC}$ from   university

     "'An eternal student! They've already expelled him from the
     university twice.'"

(26) Vot   <Smotri,> *bužmanik*. Kto-to   poterjal   (*ego*).
     here-is <look,>   wallet$_{NOM}$ someone   lost   (*it*)$_{ACC}$

     "'Here's <Look,> a wallet. Someone must have lost it.'"

(27) «*Čto   èto*?»   -- «*Zajac*.   Moj   brat   (*ego*)   pojmal».
     what   (is)-that -- hare$_{NOM}$ My   brother   (*it*)$_{ACC}$ caught

     "'What's that?' 'A hare. My brother caught it.'"

The ellipsis-promoting discourse properties of topic-like NOM NPs are
captured in Combined Rule of DG #4.

> *Combined Rule of DG #4*: NOM Antecedents that function as
> Discourse Themes often support DO Ellipsis.

4. Conclusions

This paper has outlined an approach to DO ellipsis that incorporates
syntactic, lexico-semantic, and functional aspects of the language system.
An attempt has been made not only to explain patterns of DO ellipsis, but

---

[21] The similarity between DOs and existential subjects in Russian is discussed
in Chvany (1975).

[22] Cited from A. Čexov's *Višnevyj sad* (pp. 555-606 in *Izbrannye proizvedenia
v trex tomax, tom III*, Moskva: Xudožestvennaja literatura, 1967). The DO was
ellipted in the source text.

also to formulate generalizations that give non-native speakers of Russian some power to predict the elliptability of Russian DOs in various types of configurations. Although the rules proposed here do not comprehensivly capture native speaker intuitions regarding DO ellipsis, they do, I believe, argue for the fact that progress can be made in this area. Future work on this topic will undoubtedly include adding to and amending the rules proposed here, as well as placing them in a weighted hierarchy of the type currently being developed in Optimality Theoretic approaches to syntax.

References

Babby, L.H. (1980). *Existential Sentences and Negation in Russian*. Ann Arbor: Karoma Publishers, Inc.

Babby, L.H. and S. Franks (1998). 'The syntax of adverbial participles in Russian revisited', *Slavic and East European Journal*, vol. 42, #3: 483-515.

Bailyn, J.F. (1995a). *A Configurational Approach to Russian 'Free' Word Order*. Doctoral dissertation, Cornell University.

Barbosa, Pilar, Danny Fox, Paul Hagstrom, Martha McGinnis, and David Pesetsky, eds. (1998). *Is the Best Good Enough? Optimality and Competition in Syntax*. Cambridge, Mass.: The MIT Press.

Chvany, C.V. (1975). *On the Syntax of BE-Sentences in Russian*. Cambridge, Massachusetts: Slavica Publishers.

Halliday, M.A.K. (1994). *An Introduction to Functional Grammar*. New York: Arnold.

Huang, C.T.J. (1984). 'On the distribution and reference of empty pronouns', *Linguistic Inquiry* 15: 531-74.

Massam, D. and Y. Roberge (1989). 'Recipe context null objects in English', *Linguistic Inquiry* 20: 134-139.

McShane, M.J. (1998a). *Ellipsis in Slavic: the Syntax-Discourse Interface*. Doctoral dissertation, Princeton University.

———. (1998b). Looking past case (ms).

———. (1998c). Direct Object Ellipsis in Slavic: a Cross-Linguistic Analysis (ms).

Quirk, R., S. Greenbaum, G. Leech, and J. Svartvik (1972). *A Grammar of Contemporary English*. London: Longman.

Williams, E.S. (1977). 'Discourse and logical form.' *Linguistic Inquiry* 8: 101-139.

Yokoyama, O.T. (1986). *Discourse and Word Order.* Amsterdam: John Benjamins .

Computing Research Lab
Box 3CRL
New Mexico State University
Las Cruces, NM 88003

Polish Voicing Assimilation and Final Devoicing:
A New Analysis*

Rami Nair
Northwestern University

The purpose of this paper is to examine Polish voicing assimilation and word-final devoicing in the light of a newly proposed syllable structure for Polish within the Moraic and Optimality Theory framework. We will see that reference to the syllable structure is necessary in order to be able to formulate rules of the voicing assimilation and word-final devoicing in Polish. This analysis differs from previous syllable-based analyses (Bethin, 1984, Gussmann 1992) as well as analyses couched in terms of the adjacency of laryngeal nodes (Lombardi 1991, 1995, Rubach 1996).

We argue that this analysis is superior to the ones proposed earlier in that (a) it has a uniform treatment for both regressive and progressive assimilation, (b) it unifies the related voicing phenomena of final devoicing and consonant voicing assimilation, (c) it ties together phonetic and phonological information to make predictions about cases that have not been adequately described in previous literature, and (d) it is complete and straightforward.

We present the data on voicing phenomena in Polish in section 1. In section 2 we present a brief description of the Moraic and Optimality Theory framework in which the new analysis of Polish voicing phenomena is proposed. In section 3 we propose a new syllable structure for Polish, with a focus on moraicity and related constraint which we call VOICEDOMAIN. Finally, in section 4 we discuss the role of the constraint VOICEDOMAIN in voicing assimilation and final devoicing.

1. Polish Voicing Assimilation and Word-Final Devoicing: Data

Polish has regressive voicing assimilation which applies to obstruents alone. (It is also claimed to have limited progressive assimilation, which will be discussed below.) Thus, in a C_1C_2 cluster, such that C_1 and C_2 are obstruents, the voicing of C_2 will determine the voicing of C_1:

(1) a. łó/dk/a $\rightarrow$ łó[tk]a 'boat' (cf. ó/d/eczka, 'boat, dim.')

    b. li/t͡ʂb/a $\rightarrow$ li[d͡ʑb]a 'number' cf. li/t͡ʂ/ebnik, 'numeral')

Sonorants usually do not participate in the regressive voicing assimilation. Except in a limited number of cases which we will discuss shortly, they neither trigger voicing assimilation nor are they affected by it:

(2) a. sukie/nk/a $\rightarrow$ sukie[nk]a, *sukie[ŋk]a 'dress'

    b. o/kn/o $\rightarrow$ o[kn]o, *o[gn]o   'window'

Polish also has word-final voicing neutralization: i.e. obstruents devoice word-finally:

(3) zja/zd/ $\rightarrow$ zja[st] 'congress' (cf. zja/zd/y, 'congress, pl.')

Again, sonorants remain unaffected by word-final devoicing, except when preceded by an obstruent, in which case both the obstruent and the sonorant get devoiced (Gussmann 1992). We also argue that sonorants preceded by a sonorant such as /n/ in *hymn* 'hymn' (4b) are subject to final devoicing:

(4) a. se/n/ $\rightarrow$ se[n], *se[n̥] 'dream'

    b. hy/mn/ $\rightarrow$ hy[mn]???, *hy[m̥n̥], hy[mn̥]??? 'hymn'

    c. bó/br/ $\rightarrow$ bó[pr̥], * bó[br], * bó[pr] 'beaver'

Revoicing of obstruents may occur in rapid speech if followed by a voiced obstruent across a word boundary (in Cracow Polish obstruents also revoice when followed by a vowel or sonorant consonant):

(5) zja/zd/ # /v/arszawiaków $\rightarrow$ zja[zd] [v]arszawiaków
                                          'congress of Warsawites'

    zja/zd/ # /p/artyjny $\rightarrow$ zja[st] [p]artyjny
                                          'party congress'

Finally, Polish has progressive voicing assimilation which applies to either of the two fricative obstruents /ź/ (spelled *rz* versus *z*) and /v/, and is triggered by the obstruent preceding them. Thus, in a C_1C_2 cluster where C_1 is an obstruent and C_2 is either /ź/ or /v/, the voicing of C_1 determines the voicing of C_2:

(6) a. p/ź/odek → p[ş]odek 'ancestor'
    b. w/ź/ody → w[z]ody 'ulcer, pl.'
    c. t/v/ój → t[f]ój 'your'
    d. d/v/a → d[v]a 'two'

The palatal voiced fricative /ź/ is a result of obstruentization of a palatal trill (which survived in other Slavic languages such as Russian; compare Russian '/grib/' with Polish '/gźib/' 'mushroom'), while the /v/ is described as an obstruentized form of a sonorant.

2. A Constraint-Based Approach

The new analysis proposed for Polish voicing phenomena is set within the framework of the Moraic and the Optimality Theory. Within the moraic theory, the nucleus of a syllable (and depending on the language also the coda consonants) are assigned weight-bearing units called the moras.

(7) a.   σ   b.   σ   c.   σ

       μ μ   μ   μ μ

    C V C   C V C   C   V

  Moraic Nucleus and Coda   *Moraic Nucleus*   *Long Vowel*
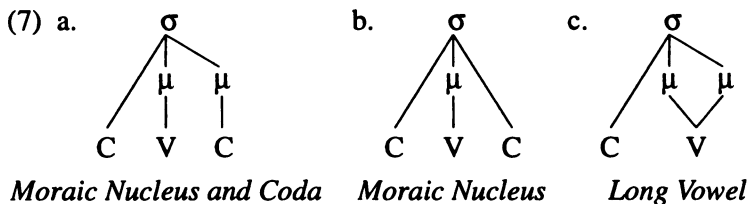
Many weight-sensitive languages count moras in order to assign stress or tone in a prosodic word. A syllable with a single mora is counted as light, while that with two moras is counted as heavy. Additionally, in selected languages, syllables with three moras are counted as superheavy. Hindi serves as an example of a trimoraic language, where the heaviest syllable in the word is stressed, and in the case of a tie, the non-final syllable is stressed.

    Moraic theory also allows us to give a simple explanation for phenomena such as compensatory lengthening. In forms such as /kilni/ 'to

hear' from the language Komi (Harms 1968), /l/ is deleted and the medial vowel /i/ is lengthened to render /ki:ni/. In terms of the moraic theory, /l/ is dominated by a mora (because it is in the syllable coda). When /l/ gets deleted due to a phonological process, the mora stays behind and is taken over by the vowel, rendering it long /i:/. The loss of onset, however, which in no language is ever dominated by a mora, does not result in compensatory lengthening. This has been shown via crosslinguistic studies by Hayes (1989) and McCarthy and Prince (1986).

Finally, moraicity may be linked not only with syllable weight, but also with sonority. Sonorous segments such as vowels are universally moraic. They are also voiced. Hence, there maybe a correlation between moraicity and voicing. Also, not all consonants in all languages may be dominated by a mora. In languages such as Japanese (Ito 1988), only sonorant consonants and geminates may be dominated by a mora, while in Hindi, all coda consonants fitting the syllable template are dominated by a mora, irrespective of their sonority. We will see that Polish exhibits a very strong link between sonority, moraicity and voicing.

The Optimality Theory (OT) developed by Prince and Smolensky (*to appear*) is a theory of constraints interacting with each other. The theory claims that there exist constraints on the well-formedness of a phonological form. The constraints are violable and have to be ranked with respect to each other. This ranking differs from language to language and is, in fact, what makes languages differ from each other. Correct ranking of candidates is necessary in order to choose the best output candidate from among the candidates generated by an underlying function called GEN. The output that violates the least number of highly ranked constraints is considered optimal. Although the constraints are ranked with respect to one another, they all apply to an output form simultaneously, and not in cycles as is customary in lexical phonology.

The advantage of an OT-based constraint analysis is that all constraints apply simultaneously in order to select the optimal form and there is no need to go through stages of derivation, as has been customary in generative and lexical phonology.

3. The Syllable Structure of Polish

Let us now look at Polish syllable structure and its role in defining the constraint called the VOICEDOMAIN, which we argue is the domain to

which word-final devoicing and voicing assimilation in Polish apply. We propose a Maximal Syllable Template for Polish of the shape CCCVCCC. This claim is made on the basis of Polish phonotactics (Bargielowna 1950) which allows words such as /gʐmɔt/ 'thunder' and /zɛmst/ 'revenge, pl. gen.', where the onset and the coda of the two respective syllable-words obey the Sonority Sequencing Principle (SSP). We argue that the two consonant positions adjacent to the vowel are reserved for sonorants while the two consonant positions furthest away from the vowel are reserved for obstruents. The medial slots can be occupied either by sonorants or obstruents. If there are not enough segments in a given syllable to fill these slots, they simply remain empty.

(8)

$$
\begin{array}{ccccccc}
 & & & \sigma & & & \\
 & & & \mu' & & & \\
 & & & \mu & & & \\
C & C & C & V & C & C & C \\
[-son] & [\pm son] & & [+son] & & [\pm son] & [-son] \\
g & \textctz & m & ɔ & & t & \text{'thunder'} \\
z & & & \varepsilon & m & s & t & \text{'revenge, pl. gen.'}
\end{array}
$$
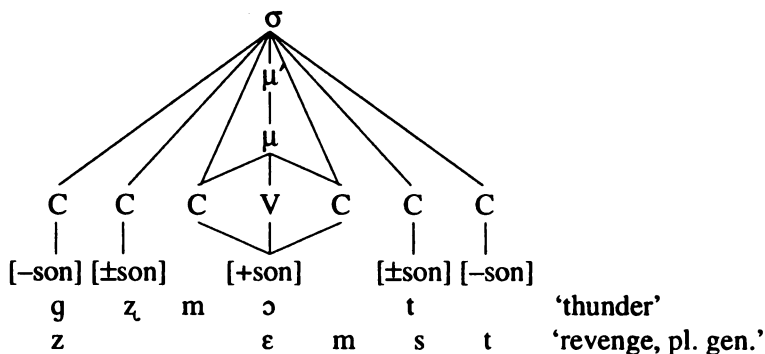
The main claim that we make here is that the vowel as well as the adjacent sonorants are dominated by a mora, i.e. they are moraic. No other segment in any other syllable position may be dominated by a mora. The moraic status of selected sonorants in a syllable is heavily dependent on the immediate presence of the vowel.

Rubach and Booij (1990a,b) propose that the Polish syllable follows the Maximal Onset Principle (MOP), and that it adheres to the SSP. We agree with their proposal and additionally argue that the sonority scale in Polish is expanded to its maximum, as can be seen in (9) on the following page.

In other words, Polish maintains a difference in sonority between plosives and affricates, affricates and fricatives, fricatives and nasals, nasals and liquids, liquids and glides, and glides and vowels. There is, in fact, yet another category that falls between fricatives and nasals on the

(9)

Sonorants				Obstruentized Sonorants	Obstruents		
				/v/, /ʐ/			
Vowels	Glides	Liquids	Nasals		Fricatives	Affricates	Plosives

Most sonorous ◄——————————► Least sonorous
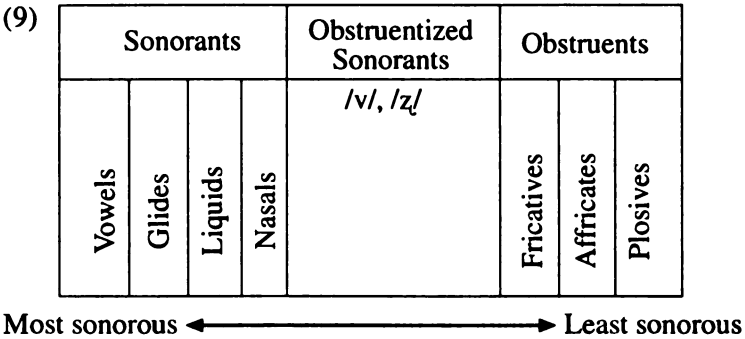
the sonority scale. These are the obstruentized sonorants /v/ and /ʐ/. As was mentioned in section 1, /v/ in Polish is claimed to have historically evolved from /w/ (Kantor (1967); see Rubach (1996) for an alternative account), while /ʐ/ is an obstruentized form of the palatalized /r/.

Kurylowicz (1952) and later Gussmann (1992) noticed that the consonant clusters that superficially seem to violate sonority as /drgn-/ in the word *drgnanć* 'to quiver' shown in (10), can be divided into two clusters /dr/ and /gn/, which individually obey the SSP. The 'double' onsets thus formed independently never violate sonority sequencing. This holds true for consonant clusters in any word position. We will argue here that the 'extra' or 'stray onset' formed for each such cluster (such as /drgn/ in (10) below), forms a degenerate syllable, i.e. a syllable that has no nucleus, and consists solely of a well-formed onset.

(10) /drgnɔɲt͡ɕ/ 'to quiver'   PrWd (Prosodic Word)
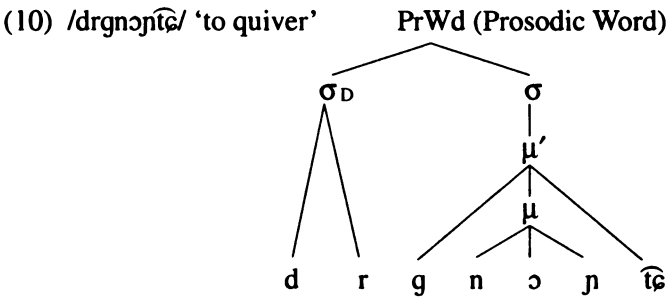
Since degenerate syllables are vowelless and have no nucleus, the sonorant, which is the most sonorant part of such a syllable, is not dominated by a mora.

(11) illustrates how we would treat the words *teatr* 'theater' and *krnombrny* 'unruly'. The sonority reversals /tr/, /kr/ and /br/ form degenerate syllables.

(11)
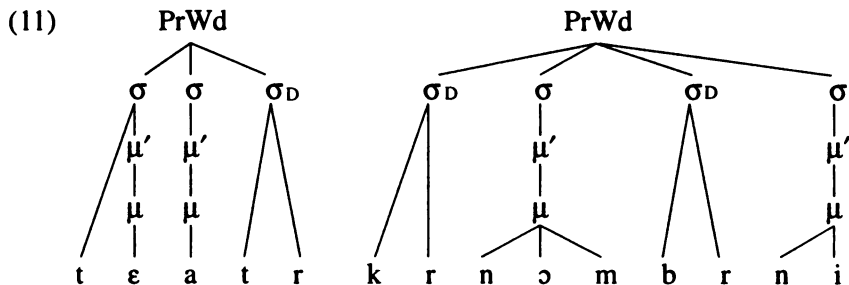
The introduction of degenerate syllables to the analysis of Polish is an improvement over previous analyses such as that of Rubach and Booij (1990a,b). By positing degenerate syllables for all sonority reversals we are able to make predictions about Polish phonotactics and, therefore, drastically reduce the type of consonant sequences that may be found in a prosodic word. To be even more precise about the effect of degenerate syllables on phonotactics, we also claim that a word may not have two adjacent degenerate syllables. Finally, we claim that degenerate syllables are treated uniformly by the stress rules in that they may never bear lexical stress, as can be seen in (12):

(12) /teatr/ 'theater' → [[té]$_\sigma$[a]$_\sigma$[tr]$_{\sigma D}$]$_{PrWd}$, *[[tɛ]$_\sigma$[á]$_\sigma$[tr]$_{\sigma D}$]$_{PrWd}$

/krtaɲ/ 'larynx' → [[kr]$_{\sigma D}$[tá]$_\sigma$]$_{PrWd}$, *[[kɾ]$_{\sigma D}$[taɲ]$_\sigma$]$_{PrWd}$

Thus, under the new analysis of the Polish syllable structure proposed, all sonority violating material must form degenerate syllables. We claim that these syllables are vowelless and hence do not bear a mora. The mora may only be projected by a vowel and may dominate the vowel along with the sonorants adjacent to it.

4. Voice Assimilation and Word-Final Devoicing

In order to apply either the constraint VOICEASSIMILATION or WORD-FINAL DEVOICING to a Prosodic Word in Polish, it is first necessary to define what we call a VOICEDOMAIN. This is the domain to which both of these phonological processes apply and can be defined as the "consonant or sequence of adjacent consonants not dominated by a mora".

It was mentioned earlier that vowels and sonorants that are adjacent to vowels are moraic and hence are always rendered as voiced. All the remaining segments belong to the VOICEDOMAIN and their surface voicing does not always correspond with the underlying voicing (the underlying voicing becomes apparent especially in intervocalic position). Thus moraicity is associated with obligatory voicing, and the lack of moraicity is associated with unstable voicing. These relationships follow from the very nature of mora, which is always associated with the nucleus and hence the most sonorant (and therefore voiced) part of the syllable. It is then no accident that the processes of word-final devoicing and voice assimilation affect only those parts of the prosodic word where the mora has the least influence.

(13)   VOICEDOMAIN: a consonant or a sequence of consonants, none of which is directly dominated by a mora.

Some examples of a VOICEDOMAIN are clusters such as /drk/ as in /jɛndrka/ 'Andy, gen.' and /t/ in /kɔnt/ 'corner', which are depicted in (14). In all the clusters listed as VOICEDOMAINS, none of the consonants is dominated by a μ node, that is, none of them is moraic.

(14)
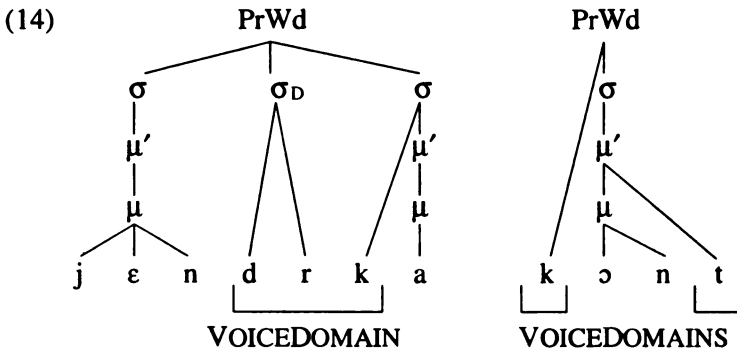
4.1. Word-Final Devoicing

Having described the VOICEDOMAIN, we can now define WORD-FINALDEVOICING as the application of the feature [+voiceless] to the entire word-final domain. This rule may thus apply equally to obstruents or sonorant consonants as long as they are free from being dominated by a mora.

(15)   WORD-FINAL DEVOICING: The feature [+voiceless] is applied to
       the entire word-final VOICEDOMAIN.

Due to WORD-FINAL DEVOICING all the consonants in the VOICE-
DOMAIN will be rendered as [+voiceless], hence the resultant phonetic
rendition of examples like /tr/ in /teatr/ 'theater', /ɕɲ/ as in /pʲɛɕɲ/ 'song'
and /t/ as in /kɔnt/ 'corner' will be as follows:

(16)   /teatr/   →   [teatr̥]
       /pʲɛɕɲ/   →   [pʲɛɕɲ̥]
       /kɔnt/   →   [kɔnt]
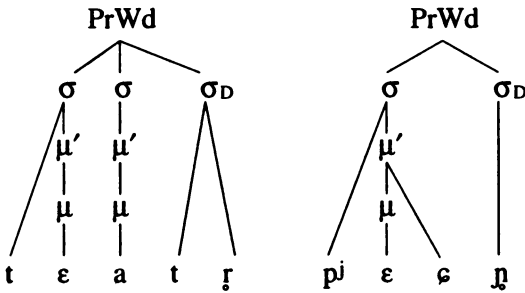
However, in words such as /sɛn/ 'dream' and /bal/ 'ball', /n/ and /l/ are
dominated by the mora, and so they do not devoice.

(17)
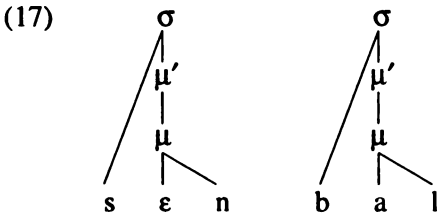
With the help of the new VOICEDOMAIN and WORD-FINAL DEVOIC-
ING we predict that the second sonorant in a sonorant–sonorant cluster at
the end of a word will be rendered as [+voiceless]. Thus a word like
/himn/ is expected to be rendred as [himn̥].

4.2. Voice Assimilation

Similar to WORD-FINAL DEVOICING is VOICE ASSIMILATION, which
is the spreading of the underlying voicing feature of the rightmost obstru-
ent within a VOICEDOMAIN.

(18) VOICEASSIMILATION: The [voice] feature of the rightmost
      obstruent in a VOICEDOMAIN is applied to the entire
      VOICEDOMAIN.

Again, this allows both obstruents as well as sonorants to be affected by
the assimilation rule, but only obstruents are able to trigger it. In /jɛntr̥ka/
and /wutka/ in (19), /k/ is the rightmost obstruent of a VOICEDOMAIN,
and so it triggers the voicing assimilation in these words.

(19)
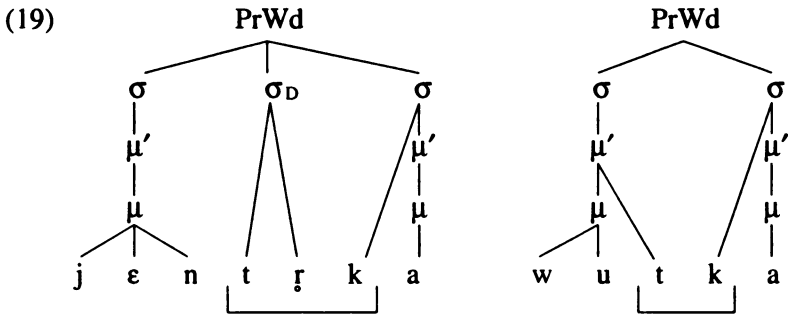
We defined obstruents above as consisting of plosives, affricates and
fricatives with the exception of /v/ and /ʐ/. However, we do not include
/v/ and /ʐ/ directly into the category of sonorants either. We claim that
these obstruentized sonorants (they evolve historically from the glide /w/
and the palatalized trill /rʲ/ respectively) are too sonorant-like to be able
to trigger voicing assimilation and too obstruent like to be dominated by
μ when adjacent to a vowel. Hence their special borderline status.

    As a result, /v/ and /ʐ/ undergo voicing assimilation without trig-
gering it.

(20) /pʐi/ 'next to' → [pʂi]
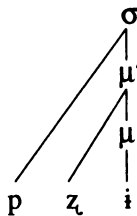
In VOICEDOMAINs of the type /pʐ/ as in /pʐi/ 'next to', /p/ and not /ʐ/ is
counted as the rightmost obstruent, and it is the voicing property of /p/,

which is [+voiceless], that is applied to the entire VOICEDOMAIN /pʐ/, resulting in [pʂ].

The way the VOICEDOMAIN and the VOICEASSIMILATION constraints work makes it superfluous to specify the direction of application of the constraint, as it applies to the entire VOICE-DOMAIN all at once. This analysis of voicing assimilation is then superior to many previous analyses in that it unifies what has traditionally been split into regressive and progressive voicing assimilation in Polish.

Neither of the constraints, VOICEDOMAIN or VOICEASSIMILATION are violable: they are always applied and hence ranked on top with other non-violable constraints.

The analysis of Polish progressive assimilation has been provided above assuming that such a process actually exists. However, it is altogether possible that in synchronic Polish, clusters such as *prz* in *przy* 'near, next to' and *tw* in *twoj* 'your' are underlyingly voiceless. The assumption that the clusters *prz* and *tw* in *przy* and *twoj* respectively are underlyingly voiceless is a feasible one, as no alternating forms of these words exist that would prove otherwise. If we assume that this is indeed the case, we eliminate the necessity of proposing special treatment of the phonemes /v/ and /ʐ/. At the same time we treat the two historically different /ʐ/s that exist in Polish as phonetically and phonologically equivalent units.

5. Conclusion:

To conclude, we have seen above that a syllable-based analysis couched in the Moraic and Optimality Theory framework provides us with a fairly simple and complete analysis of the voicing phenomena in Polish. This analysis is superior to previous analyses not only due to its simplicity and completeness, but also because it ties together regressive and progressive voicing assimilation as well as word-final devoicing. It also takes into consideration phonetic data, which is especially important in the light of current efforts to synthesize human speech.

References

Bargielowna, M. 1950. "Grupy fonemów spółgłoskowych współczesnej polszczyzny kulturalnej." *Biuletyn Polskiego Towarzystwa Językoznawczego* 10, 1–25.

Bethin, Christina Y. 1984. "Voicing assimilation in Polish." *IJSLP* XXIX, 17–32.

Gussmann, Edmund. 1992. "Resyllabification and delinking: the case of Polish voicing." *Linguistic Inquiry* 23, 29–56.

Harms, Robert. 1968. *Introduction to phonological theory*. Englewood Cliffs, N.J.: Prentice-Hall.

Hayes, Bruce. 1989. "Compensatory lengthening in moraic phonology." *Linguistic Inquiry* 20, 253–306.

Ito, Junko. 1988. *Syllable theory in prosodic phonology*. New York: Garland.

Kantor, Marvin. 1967. "Phonological rewrite rules for the derivation of Contemporary Standard Polish." *Scando-Slavica* XIII, 211–20.

Kuryłowicz, J. 1952. "Uwagi o polskich grupach spółgłoskowych." *Biuletyn Polskiego Towarzystwa Językoznawczego* 12, 221–32.

Lombardi, Linda. 1995. "Laryngeal neutralization and syllable well-formedness." *Natural Language and Linguistic Theory* 13, 39–74.

———. 1991. "Laryngeal features and laryngeal neutralization." Amherst: University of Massachusetts Ph.D. dissertation.

McCarthy John & Alan Prince. 1986. *Prosodic morphology*. Waltham, MA: Brandeis University ms.

Prince, Alan & Paul Smolensky. to appear. *Optimality theory: Constraint interaction in generative grammar*. Cambridge: MIT Press.

Rubach, Jerzy 1996. "Nonsyllabic analysis of voice assimilation in Polish". *Linguistuc Inquiry* 27, 69–110.

Rubach, Jerzy & Geert E. Booij. 1990a. "Edge of constituent effects in Polish". *Natural Language and Linguistic Theory* 8, 427–63.

———. 1990b. "Syllable structure assignment in Polish." *Phonology* 7, 121–58.

Program of African and Asian Languages,
Northwestern University,
1859 Sheridan Rd. #356
Evanston, IL 60208
rnair@nwu.edu

Copula Inversion Puzzles in English and Russian*

Barbara H. Partee
University of Massachusetts at Amherst

1. Puzzles

Controversies and puzzles concerning possible inversion around the copula in English might be illuminated by comparison with some aspects of the behavior of Russian copular sentences. The puzzles I am concerned with arise in the context of the phenomenon of connectivity in specificational pseudoclefts in English, whose challenging nature was made clear by Higgins (1973). The approach of Williams (1983), which was given a formal semantic analysis in Partee (1986), analyzes specificational copula sentences as an "inverted" form of predicational sentences, allowing *be* to be unambiguous and deriving the relevant ambiguity of copular sentences from the possibility of the precopular (surface subject) NP being either the "real" subject or the (moved) predicate; a similar proposal was made to account for different phenomena in Russian as early as Chvany (1975). Recent work by Heycock and Kroch (1998, in press) argues against inversion in English copular sentences.

In Russian, the distribution of instrumental and nominative case in copular sentences gives clear evidence of the existence of "inverted" copular sentences; this suggests that there might be evidence in Russian which could help to cast light on the situation in English, perhaps supporting the postulation of inversion in some English copular sentences, where the evidence is less straightforward.

In the end, I come to the conclusion that Russian and English are indeed quite different in this respect, and that the sort of inversion posited by Williams (1983) and Partee (1986) does not occur in English, although comparable inversion may very well occur in Russian. A second look at some of the puzzling properties of copular sentences explored by Higgins (1973) suggests that they may reflect interactions of syntactic, semantic, and pragmatic properties and distinctions, which different languages may, not surprisingly, carve up in different ways. No current analysis that I am aware of captures all of these phenomena fully satisfactorily, but some of the pieces of the puzzle are becoming less puzzling, and copular sentences continue to be an inviting domain for cross-linguistic studies in syntax, semantics and information structure.

1.1. Connectivity and the Predicational/Specificational Distinction

Williams (1983) and Partee (1986), like many other authors, follow Higgins (1973) in holding that the difference between predicational and specificational pseudoclefts, illustrated by (1) and (2) respectively, should follow from and be accounted for in the same manner as the difference between predicational and specificational copular sentences more generally. Because specificational pseudoclefts show distinctive "connectivity" effects, the analysis of pseudoclefts plays an important role in the evaluation of proposals for the treatment of copular sentences. At the outset we review the predicational/specificational distinction (Akmajian 1970) and the criteria for it (Higgins 1973).

(1)   **Predicational pseudocleft:** What John is is a danger to him.

For instance, perhaps John is a bodyguard, and being a bodyguard is a danger to John; in other words, it is John's job or situation that is a danger. The predicate "is a danger to him" is predicated of the referent of the free relative *what John is*.

(2)   **Specificational pseudocleft**: What John is is a danger to himself.

The special semantic property of the specificational pseudocleft is that it is approximately synonymous (differing in ways that relate to information structure, uniqueness, and presupposition) with the simple sentence

(3)   John is a danger to himself.

So being a danger to himself is somehow predicated of John, not of the referent of the whole free relative as in the predicational pseudocleft. These sentences are called "specificational" because, as described by Higgins, they specify the "value" of the description given in the free relative. To analyze (2) on its own terms, rather than as a "transform of" or "reconstruction into" something like (3), it would seem that we should analyze (2) as some kind of *identity* sentence, perhaps asserting identity of properties: the property that is "what John is" is the property of being a danger to himself. (We discuss how to achieve that in Section 2.4.)

The special syntactic property of specificational pseudoclefts is the "connectivity" effects they exhibit. The distribution of reflexive and non-reflexive pronouns in specificational pseudoclefts is the same as that in their simple-sentence counterparts, as illustrated in (2) and (3) above. This property of specificational pseudoclefts has presented a great challenge to explanation, since the overt configuration of the reflexive and its antecedent in the pseudocleft does not conform to the usually obligatory c-command environment for reflexivization. There are other connectivity effects in specificational pseudoclefts as well, including phenomena involving the licensing of negativity polarity items, and the government of case in languages like German, illustrated below with examples from Iatridou and Varlokosta (1998).

(4) Wa   Hans   essen   wollte   war   einen   Apfel.
     what Hans   eat   wanted   was   an   apple-ACC
     'What Hans wanted to eat was an apple.' (specificational)

(5) Was   Hans   essen   wollte   war   ein   Apfel.
     what Hans   eat   wanted   was   an   apple-NOM
     'What Hans wanted to eat was an apple.' (predicational)

Here are further examples of predicational and specificational copular sentences; we turn below to criteria for distinguishing them.

Predicational copular sentences:

(6) a. Helen is a teacher.
     b. My best friend is tall.
     c. Bill is my best friend.
     d. What I'm giving to Sean is in the car.

Specificational copular sentences:

(7) a. The only thing he eats is junk food.

b. The number of planets is nine. (Higgins 1973)

c. My best friend is Bill.

d. What I don't like about John is his tie. (Higgins 1973)

Ambiguous pseudoclefts and ambiguous copular sentences:

(8) a. What John is is a danger to everyone.

b. What John is is unusual.

c. The owner is a friend of Bill's.

d. Bill's best friend is Mary's teacher.

1.2. Distinguishing Predicational and Specificational Pseudoclefts

Following Higgins, connectivity effects are generally taken to be the clearest distinguishing criterion for specificational pseudoclefts, but of course not all sentences include the sorts of elements that would provide such evidence. Other criteria offered by Higgins include the following; some are limited to pseudoclefts, others apply to other copular sentences.

Paraphrase tests: The specificational pseudocleft is approxi mately paraphrased by its simple-sentence counterpart. The predicational pseu- docleft has paraphrases that show that its free relative *wh*-clause has an ordinary "referential" meaning, and the post- copular constituent is pre- dicating something of that referent. Higgins also points to the "list-like" quality of specificational sentences and offers the following paraphrase of a specificational pseudocleft like (2): 'John is the following: a danger to himself.'

Raising and Subject-V inversion tests: Only in predicational pseudoclefts can the *wh*-clause undergo certain transformations that are normal for subjects of sentences, such as subject-raising with *seem, appear, turn out* and subject-Aux inversion in questions.

(9) a. Is what John is a danger to him?

b. *Is what John is a danger to himself?

(10) a.   What John is seems to be a danger to him.

     b.   *What John is seems to be a danger to himself.

We will return to these properties and their significance for analyses of copular sentences in Section 4. Here we note that Higgins showed that connectivity is not limited to pseudoclefts, and the existence of specifica- tional copular sentences like those below precludes an account of connectivity by syntactically deriving pseudo clefts from their non- pseudoclefted counterparts.

(11) a.   The only thing that the missile damaged was itself.

     b.   The only woman that no Englishman$_i$ will invite to dinner is his$_i$ mother. (Jacobson 1994)

Higgins posited a *be* of identity for specificational pseudoclefts (while distinguishing specificational copular sentences from Identity sentences; see Section 4) and a *be* of predication for predicational pseudoclefts. Williams (1983) and Partee (1986) offered an alternative account using a single *be*, plus some type-shifting, and with the possibility of inversion around *be*. These analyses, and subsequent discussion, form the back- ground for the present work.

1.3. Copula Inversion Puzzles

The puzzles raised by copular sentences are interrelated and difficult to separate into discrete questions, but may be roughly divided into three families of questions about English copular sentences, plus a family of cross-linguistic questions.

(12)   In sentences of the form NP_1 *be* NP_2 in English, is there ever "inversion around *be*"? That is, is there ever evidence that NP_2 is the "underlying subject"?

The answer is probably "yes" for Russian, and not only for *be*, but it is a much more controversial question for English. This question can take various forms in various theories: it may be a question about deep and surface structure, LF, some lexical shift in argument-structure of *be*, or other possibilities. The Williams-Partee account proposed that *be* always takes two arguments of types e and $<e,t>$ (or more generally X and $<X, t>$), but that sometimes NP_1 is the predicative, or $<X, t>$, argument. Thus

in the context of that particular type-theoretic claim about the argument structure of *be* , the question is whether NP_1 can be the "predicative argument". In a theory in which the two arguments of *be* may be of the same semantic type, e.g. both of type *e*, the question of possible inversion must necessarily take a different form. In such theories, as well as in theories which make no essential use of semantic types, the question may be framed syntactically, as it is in Chvany (1975) and Moro (1991), where it is proposed that *be* underlyingly takes a small clause comple-ment, and "inversion" is the result of raising the second rather than the first constituent of the small clause into the position of the subject of *be*.

Subquestions include the following:

a)   What would count as evidence?

b)   If there is such inversion, is it only with *be*?

c)   What licenses it, what constrains it, what are its functions?

d)   If there is no such inversion, what is going on in the sentences that have made some of us think that there *is* inversion?

(13)   Is there a distinction between a *"be* of identity" and a *"be* of predication", or do copular sentences expressing identity and predication involve the same *be*?

(14)   What is the best explanation of the "connectivity effects" found in some copular sentences? Which copular sentences show such effects, and why?

(15)   Cross-linguistically, how are copular verbs to be described? Do they have their own argument-structure, what determines the cases of their "arguments", what determines agreement in copular sentences, how many different sorts of copula are there, and are there general principles that "insert" copulas in sentences with no "deep-structure" verbs at all?

One may take two different kinds of perspectives in exploring such questions cross-linguistically. First, within a given language, we may consider a given copula form: can it be given a unified analysis? Second-ly, across languages, from a typological and functional perspective, we may consider "kinds of sentences" and how they are expressed in differ-ent languages. With respect to various kinds of *be*-sentences and their

relatives (such as *have*-sentences), we may consider semantic types such as existential, predicational, specificational, and identificational (or equative) sentences, and ask, as in the work of Freeze (1992), which ones are most often alike or related.

The structure of the rest of the paper is as follows. Section 2 reviews some existing analyses of English copular sentences, some of which invoke multiple *be*'s and some of which have claimed the existence of "inversion" around the copula, in order to account for the distinction between "predicative" and "specificational" sentences and the phenomenon of connectivity. In that section I raise the issues of non-lexical *be* and type-driven interpretation. Section 3 discusses objections to inversion analyses of English copular sentences raised by Heycock and Kroch (1998, in press) and others.

In Section 4 I discuss types of NPs and their "referential status", and the role of such distinctions in the semantic and pragmatic classifications of copular sentences, including the issue of the relationship of subjecthood to topichood. In that section I introduce some comparison with Russian, where most, perhaps all, authors do classify some copular sentences as having NP$_2$ as subject. Returning to and augmenting some of Higgins's original observations, I will question Heycock and Kroch's identification of Higgins's "specificational" type of copular sentence as "equatives".

In the final Section 5 I will review where we stand with respect to the desideratum of accounting for the given distinctions among copular sentences without identifying distinct verbs *be* and also without positing inversion in English.

2. Analyses of Copular Sentences

Note: in this paper, the question of "how many *be*'s" is limited to questions about copular *be*, and to classifications into such types as predicational and specificational, equative and identificational. No claims are being made about the status of other kinds of *be*, such as auxiliary verb(s) *be*, and the "active verb" *be* of example (16) below, discussed in Partee (1976); but see Déchaine (1995) for a proposal unifying all of these.

(16) John is being mean, and Sam is being stupid.

2.1. A "Cassic" Two-*Be* Option

The two-*be* account has a long history and may be considered the "traditional" account. On this account there is a *be* of predication and a distinct *be* of identity, distinguished by the types of their arguments.

The *be* of predication, invoked for examples like those in (6) above, takes two arguments of types *e* and *<e,t>* (or more generally *X* and *<X,t>*), syntactically producing sentences of the form *NP is Pred*. These are often referred to as ordinary "predicational" sen tences. The Pred may be an AP, a PP, or another NP, and perhaps other things as well. The semantics of this verb *be* is: $\lambda P \lambda x[P(x)]$, i.e. it simply applies the predicate to the subject. Note also that since the expression above is equivalent to $\lambda P[P]$, this *be* is simply an identity mapping on predicates, contributing no content of its own.

The *be* of identity takes two arguments of type *e*, or more generally of type *X* (with possibly some constraints on the value of *X* in both cases[1]), producing sentences of the form *NP is NP*. The semantics of this verb be is: $\lambda x \lambda y[x=y]$, i.e., it asserts the identity of its two arguments.

(17) a. Clark Kent is Superman.

  b. The murderer is Jones.

There is overlap in sentences of the form "NP_1 is NP_2", which may be "ambiguous". We will return to this issue.

(18) a. One of his best friends was the poet Samuels.

  b. Jones was Smith's murderer.

  c. The pitcher is my brother.

  d. Her best friend is a dancer.

The examples in (19) illustrate the type-liberality of *be*-sentences, and the fact that the two constituents surrounding the copula need not be just NPs of type *e* and ordinary predicates of type *<e,t>*.

---

[1] Heycock and Kroch (in press) suggest that while *X* includes predicate types, it does not include the type of generalized quantifiers.

(19) a. From Amherst to Baltimore is about 350 miles.
      b. More expensive isn't always better.
      c. What he did was run away.
      d. (55 miles per hour is 88 kilometers per hour.
      e. Electronically is usually fastest.

Higgins's account of pseudoclefts made use of the two kinds of *be*, and he convincingly argued that the specificational/predicational distinction should be applied to copular sentences in general.

2.2. One-*Be* Approaches

Montague (1973) analyzed *be* as a transitive verb, with a cleverly constructed meaning which yielded a predicative reading when combined with an indefinite NP and an identity reading when combined with a definite NP. His analysis provided a leading example of how differences in interpretation can result from interaction of different complements with an unambiguous verb meaning, but arguments against this particular account are given in Partee (1987).

Partee (1986,1987) argued for a single *be,* of predication. I argued there that apparent identity sentences result from the type-shifting of a name or other referential NPs to a corresponding predicative reading. This account follows that of Williams (1983) in claiming that sometimes it is actually the *predicative* argument that appears as NP_1 with *be* in English: this is possibly a unique rule for this verb, since English word order is normally fixed. More details of this "inversion" analysis are given in 2.4., and arguments against it are reviewed in Section 3.

2.3. Non-Lexical *Be* and Zero-*Be* Approaches

Various authors have proposed that one or both kinds of *be* are forms that appear on the surface but are not underlying lexical verbs at all. Some authors have a "zero-*be*" approach in which there is no lexical verb *be* of either type. This is most similar to a "one-*be*" approach, but with an "empty" *be*. Other authors have what is superficially a "one-*be*" approach, with just one lexical *be*, and with the "other" *be* absent from deep structure (or other relevant "underlying" or "LF" level); this is similar to a "two-*be*" approach in distinguishing the two kinds of *be*, except that it regards one of them as "not really there" on the relevant level.

In the Slavic literature, it has long been noted that insofar as differences in the semantics of different copular sentences can be predicted from differences in the semantics of the "arguments" of the copula, it should not be necessary to posit ambiguities in the copula itself. This argument can be found in Chvany (1975) who distinguishes a lexical existential *be* in Russian from an absent copula, the latter occurring both in predicative and in identity sentences; and also in Padućeva and Uspenskij (1979), who note that there is no language- internal evidence for a distinction in Russian among copular sentences expressing set inclusion, set membership, and identity.

As we review arguments for and against inversion in English, it will become increasingly clear that the real argument is between a one-*be* and a "no-*be*" analysis, with less of the explanatory weight on an analysis of *be* itself and more weight on the interpretations of the constituents it connects (attributive vs. referential use of NPs, etc.), and on the principles of type-driven translation and of information structure (topic-comment structure.)

2.4. Analyses with Inversion around the Copula

The principal motivation of Partee (1986, 1987) was to identify the types of English NPs and the principles governing the type-shifting possibilities within the family of NP interpretations. A second goal was to provide a semantic formalization of the proposals of Williams (1983) for an unambiguous *be*, with its welcome corollary of the possibility of an account of the differences between predicational and specificational pseudocleft sentences with an unambiguous *be*, independently motivated NP types, and with "inversion around *be*" as the only ingredient of the analysis not having strong independent motivation.

If there is just a single *be*, it seems that it must be a *be* which takes two arguments of types e and $<e,t>$ (or X and $<X,t>$), i.e., the "predicational" *be*. On the Williams-Partee account, the apparent instances of a *be* of identity, as in (17a,b) above, still involve the *be* of predication, but one of the NPs is shifted from its basic entity-denoting reading to an "identity predicate" of the form $\lambda x[x = a]$.

The positing of the possibility of inversion around *be* means that on this account, there is always an X-type argument and an $<X,t>$-type

argument, but that either one may appear as NP_1, subject to whatever constraints may govern inversion.

Inversion is posited for specificational sentences, like (2) and (7a-d) above, and non-inverted order is assumed for sentences (1) and (6a-d); (8a-d) above are ambiguous. Whenever the post-copular phrase is clearly predicative, the order is non-inverted. When both the pre- and post-copular phrases are definite, potentially referential, NPs, then the order is potentially at issue, and inverted order is taken to correspond to specificational interpretation. In specificational sentences, NP_1 gives an attributive, or indirectly referential, or concealed-question description of a referent,[2] and the post-copular ("referential") NP_2 "specifies" the "identity" of NP_1 by providing a referent that is presumably "known" or directly accessible to the hearer. We return to the inversion issue in Section 3.

We review here briefly the semantics of pseudoclefts of Partee (1986), with added notes reflecting subsequent work by others. The principal ingredients are the following:

(i) Independently motivated type-shifting principles. Among the most important ones are the following.

(20) **ident:** turns an e-type expression into an $<e,t>$ expression, mapping an individual onto (the characteristic function of) its singleton set, or equivalently, mapping John onto the uniquely characterizing property of being identical to John.

ident $(\mathbf{j}) = \lambda x[x = \mathbf{j}]$

(21) **iota:** from $<e,t>$ to e. Maps a property P onto the unique entity that has P, if there is such an entity. A possible interpre tation of the definite article in English, or of the unexpressed definiteness "operator" in Slavic languages without articles.

iota$(P) = \iota x[P(x)]$

---

[2] This is the characterization of NP_1 in the work of Williams, Partee, and Heycock and Kroch; we return in Section 4 to Higgins's own characterization of NP_1 in specificational sentences as "superscriptional" rather than attributive.

(22)   **nom, pred** from Chierchia (1984). **Nom** maps a (predicative)
       property onto its individual correlate, e.g. the denotation of $<e,t>$
       blue to the denotation of the "name" *blue* of type e. The operation
       pred is the inverse. The symbols used in the formulas below are
       $\cup$, $\cap$ for **pred, nom** respectively.

(ii)   A single *be* of predication, whose arguments are of types e and
       $<e,t>$, in either order, as described above. Apparent cases of
       identity, with two arguments of type e, involve shifting one of the
       arguments to type $<e,t>$ either by **ident** or by **pred**.

(iii) An account of the possibility of quantifying into and relativizing
       out of Pred-NP position. This begins with an observation from
       Ross (1969), that English *that* can be, among other things, a pro-
       predicate.

(23)   They said Mary was beautiful, and she is that.

It has also been noted in the literature that the use of *that* and *what* to
"denote" unambiguously human referents is diagnostic of a predicate-
type use. The examples below are from Williams (1983).

(24)   a.   What did John become? A doctor.
       b.   #What did John talk to? A doctor.

Partee (1986, 1987) formalized this phenomenon by positing a pro-form
that$_i$, interpreted as an e-type variable x_i restricted to range over (entity-
correlates of) properties, the same sorts of things denoted by e-type ex-
pressions like *this color*, or the nominalized version of *blue*, as handled
in Chierchia (1984). Such "attribute expressions" can be predicativized
by Chierchia's **pred** operator. In the case of *that$_i$*, this gives us an $<e,t>$
predicate expression whose interpretation is $\cup x_i$. I assumed that the
predicativization rule creates a complex but non-island structure [$_{Pred}$[$_{NP}$
that$_i$]] of type $<e,t>$, containing within it the e- type [$_{NP}$ *that$_i$*] in a
position accessible to quantification and relativiza tion. This gives an
explanation of the possibility of relativizing and quantifying into pre-
dicate position, but only for "property" expressions. This handles not
only the pseudocleft and related data, but also the possibility of property-
quantification in sentences like the following:

(25)   Fred is everything I wanted him to be.

The structure underlying the free relative *what John is* is then as in (26), paraphrasable as "John has the property denoted by x_i."

(26)   John is that$_i$: $^\cup x_i(\mathbf{j})$

The rule for free relatives, which is given in somewhat different forms in different works, gives a definite description interpretation for *what John is*, of type *e*. Partee (1986) used the simple iota-operator, as shown below; more sophisticated analyses make use of Link's supremum operation (Jacobson 1994) or Rullmann's maximality operator (Sharvit (to appear)).

(27)   [$_{NP}$ what John is]$_e$: $\iota x[^\cup x(\mathbf{j})]$

Now consider an ambiguous pseudocleft such as (28).

(28)   What John is is unusual.

Williams 1983 and Partee 1986 claim that copular sentences always exemplify one of the two patterns *e___* *<e,t>* or *<e,t>___e*. On its predicative reading, (e.g. John is a skydiver, and being a skydiver is unusual), the free relative has its basic type *e* interpretation, as given above, and the predicate has its basic *<e,t>* reading, and there is no inversion. The resulting interpretation is simply:

(29)   unusual'($\iota x[^\cup x(\mathbf{j})]$)

Partee's (1986) semantics formalizes Williams's claim that the specificational reading of (28) involves a role reversal of the two parts, with the free relative shifted to a predicative reading of type *<e,t>* by the operation **ident** and the adjective nominalized to type *e* by the operation **nom**. (30) is an "uninverted" specificational sentence, showing normal subject-predicate order, but with the same operations of **ident** and **nom** figuring in its derivation.

(30)   Unusual is what John is.

The result of shifting the free relative *what John is* by the operation **ident** is given in (31), paraphrasable as "the property of being the property that John has". Note that the **ident** operation puts the identity relation into the

shifted meaning of NP_2; this is what allows us to dispense with a separate *be* of identity.

(31) $\lambda y[y = \iota x[^\vee x(j)]]$

Applying the predicativized free relative to the nominalized property *unusual*, for both (28) and (30), gives us the semantic result below, which can be simplified as shown, modulo a uniqueness presupposition missing from (34). Line (33) says that the property 'unusual(ness)' is the property that John has.

(32) $\lambda y[y = \iota x[^\vee x(j)]](^\cap unusual)$

(33) $^\cap unusual = \iota x[^\vee x(j)]$

(34) *unusual*(j)

The equivalences shown give the core of a semantic explanation of syntactic connectedness; satisfying fuller accounts which use many of the same ingredients are given by Jacobson (1994) and Sharvit (to appear). See also Heycock and Kroch (in press); they disagree with parts of this account, but their account is in many respects compatible with this one. All four accounts depend crucially on the fact that identity shows up as the relation connecting the parts; they differ in how the identity relation enters the semantic interpretation compositionally, and exactly what the semantic interpretation of the free relative and the other constituent is.

For Williams (1983) and Partee (1986), although not for Jacobson (1994) or Sharvit (to appear), inversion around the copula was a crucial ingredient of the story, as was the fact that the copula itself is unambiguous and demands one *e*-type argument and one *<e,t>*-type argument. But in what follows, we will see reasons to question the necessity and desirability of these two assumptions.

3. Arguments against Inversion in English

3.1. The Ungrammaticality of True Predicates in Subject Position

Heycock and Kroch (in press) argue that specificational sentences are equatives, with two arguments of type *e* (more generally, of type *X*, for a restricted range of *X*.) One of their strongest arguments against treating specificational sentences as inverse predicational sentences is that there

are no well-formed examples of unambiguously predicational sentences in which the predicate occurs in subject position.

This is a serious argument. Heycock and Kroch believe that the type structure in copular sentences may be e ___ e , i.e. an e-type argument on each side of the copula, or (in predicational sentences) e ___ $<e,t>$, but never, as Williams (1983) and Partee (1986) claim for specificational sentences, of the pattern $<e,t>$ ___ e.

As Heycock and Kroch (in press) emphasize, it is certainly an argument against the Williams-Partee approach if there are no examples which independently exemplify the pattern $<e,t>$___e; in all the examples offered by Williams and Partee, the initial supposedly $<e,t>$ expression is a type-shifted version of an e expression.

Partee (1986) indeed noted that among unexplained phenomena on this approach is the lack of ambiguity of sentences like (30), which is unambiguously specificational, contrasted with the ambiguity of (28), which may be either specificational or predicational.:

Heycock and Kroch (in press) note that, as (30) shows, there is no blanket prohibition against APs as subjects of *be*, only against unambiguously *predicative* APs in subject position. Their examples (35), (36) show similar asymmetries with NPs, which cannot be preposed when they must be interpreted as predicational.

(35) a.   John is a doctor.

       b.   *A doctor is John.

(36) a.   John is the one thing I have always wanted a man to be. [e.g., honest.]

       b.   *The one thing I have always wanted a man to be is John.

       c.   The one thing I have always wanted a man to be is honest.

The last example shows clearly that the "preposability" of an expression, or possibility of inversion around the copula, depends not on the form of the expression but on its interpretation as referential or predicative. This is a strong argument against Williams' and Partee's analysis of specificationals as inverted predicatives.

3.2. Apparent Inversions in English: Not into Subject Position?

Of course there are sentences in English that clearly involve predicate fronting, and Partee (1998) suggested that these provide independent evidence for inversion around the copula.

    (37)   In the bathroom are seventeen sculptures.

But Heycock and Kroch note that such locative inversion, as well as some other types of inversion that they discuss, has properties that distinguish it from the putative predicate inversion of Williams and Partee. In particular, the clearly attested inversions do not show any evidence of being inversion into subject position; number agreement continues to be with the post-copular phrase in examples like (37), which is not the case for specificational sentences. This is true even when the inverted element is an NP, as in the following example from Heycock and Kroch (in press), who cite Birner (1992).

    (38)   Also a menace to our society are/*$^?$is factory closings and
           declining standards.

As Heycock and Kroch (1998) note, Italian clearly has "scrambling" possibilities for equative sentences, as shown by Moro (1991), but they argue that English does not.

3.3. Williams's Counterarguments

Williams (1997) argues that there are no equative sentences, maintaining the claim that all copular sentences are asymmetrically predicational, with specificational sentences amounting to "inverted" predicational sentences. What Williams means here by "predicational" is not completely clear. On the one hand, his principal explication is that "one end of the relation is a theta-role donor, and the other a receiver" (Williams 1997, p.323), an explication which one might expect to represent in type-theoretic terms as I have done above, the 'donor' being of type e and the 'receiver' of type $<e,t>$. On the other hand, when discussing copular sentences containing two proper names, Williams allows that the predicate may itself be "referential", not requiring the kind of type-shift effected by an operator like **ident**. He asserts that in general, "The semantic content of the asymmetry [of the predication

relation] is epistemic priority based on "directness of acquaintance", a notion that would not seem directly applicable to expressions of type <*e,t*> at all.

Williams notes that the account of connectedness effects given by Heycock and Kroch (to appear), involving "iota conversion", has much in common with the account involving lambda conversion offered by Williams (1983) and Partee (1986), but disagrees with Heycock and Kroch's contention that the asymmetry observed in predicational sentences is different in kind from the asymmetry observed in specifica-tional (for them equative) sentences. We focus on the issue of the nature of the asymmetry in copular sentences in Section 4.

4. Kinds and Uses of NPs and Kinds of Copular Sentences

4.1 Distinctions among NPs in Type-Theoretic Frameworks

Distinctions among the semantic interpretation and pragmatic force of various NPs in various contexts have long been a major topic of study. In particular, the question of the "referential" role or status or interpretation of NPs has been one of the driving issues first in the separation of semantics from syntax and later in debates about the semantics-pragmatics interface.

The dispute between Williams (1997) and Heycock and Kroch (1998, to appear) seems to rest in part on the fact that the nature of the distinction between predicational and specificational (and other) copular sentences is still not clear. On the type-theoretic reconstruction of Sec-tion 2, I suggested one clear distinction between types of copular sen-tences: are the terms connected by the copula both of type *e*, or is one of them of type <*e,t*>? (Or more generally, are both terms of some same type *X*, or is one an *X* and the other an <*X,t*>?)

On the type-theoretic reconstruction, *e* is the type for "referential" expressions, and expressions of type <*e,t*> cannot be said to be referential in any clear sense. (We ignore quantificational NPs, analyzed as type <<*e,t*>,*t*>.) Among *e*-type NPs, type theory does not give us an obvious way of calling some NPs "more referential" than others, and although the type-shifting operator **ident** gives us a way of shifting an *e*-type NP to type <*e,t*> so as to analyze a sentence like (17a), repeated below as (39), as formally predicational, it does not offer any explanation

of why we would choose to shift one name rather than the other in such a sentence, nor any basis for the intuition of Williams (1997) that relative degree of referentiality has something to do with epistemic priority.

(39)   Clark Kent is Superman.

Every author who wrestles with the problem of the classification of different kinds of copular sentence is faced with the question of the referential status of the two elements in identity sentences, and it seems clear that we have to pay attention not only to semantics but to pragmatics. At this point the work of Padučeva and Uspenskij (1979, 1997) on Russian binominative sentences is directly relevant.

4.2. Relative Referentiality and Russian Binominative Sentences

Padučeva and Uspenskij (1979) address the problem of identifying the subject in Russian binominative sentences. Russian, unlike English, sometimes shows clear morphological evidence of inversion in copular sentences, because in some cases one of the arguments is nominative and the other instrumental. In those cases it is quite generally agreed that the subject is the one marked nominative and is the "referential" argument, while the one marked instrumental is understood predicatively. And in Russian, there are cases where the instrumental NP is sentence-initial, the nominative NP sentence-final.

The central concern of Padučeva and Uspenskij (1979, 1997) is Russian binominative sentences, copular sentences with two NPs both marked nominative. The earlier paper is concerned with finding criteria for identifying one NP or the other as subject; they argue that the principal criterion concerns "degree of referentiality", a notion that has both semantic and pragmatic aspects. (Note that Donnellan's distinction between referential and attributive uses of definite NPs can be said to concern principally NPs which we would semantically analyze as type e; for other types, such as predicative type $<e,t>$ or quantificational type $<<e,t>,t>$, one can either call them all attributive or, probably better, say that the question does not arise.) They make a number of fine-grained distinctions in the roles of the "arguments" of the copula, including degree of referentiality, status as "known" or "familiar" in various senses, etc., and identify various kinds of topicalization and focalization phenomena that can trigger inversion from the basic subject-first word

order. These issues are particularly sensitive in the case of "identity sentences".

In their later paper they address the problem of agreement for the copula: on their analysis, the copula does not always show agreement with the argument they have identified as subject, nor does it always agree with the argument that comes first in the sentence. They propose a set of principles to predict the actual patterns of agreement that are found, with the preference for agreement with the subject just one of the factors. Clearly the relation of number agreement to subjecthood is more complex in Russian than in English.[3]

4.3. Inversion in Russian and Not in English

The chart below is an English condensation of the chart in which Padučeva and Uspenskij (1979) summarize the four main cases of binominative sentences (Padučeva and Uspenskij 1979, p.354). In the chart, I and II refer to what we are calling NP_1 and NP_2. They give more examples in each row than we have included here.

(40)	**Status of I**	**Status of II**	**Subj:**	**Examples**
(i)	Referential NP	Predicative NP	I	(41), (42)
(ii)	Quantif. NP	Predicative NP	I	(43)
(iii)	Attributive NP	Purely ref. P	II	(44)
(iv)	Predicative NP	Quantif. NP	II	(45)

---

[3] Wayles Browne (in press) adds both cross-linguistic data and a range of problems and hypotheses concerning number agreement and other puzzling properties of Slavic copular sentences, particularly South Slavic

Roger Higgins (p.c.) has been collecting examples of English sentences, spoken and written, which show number agreement with the postcopular NP in specificational sentences, as in (i), showing that the situation in English is not entirely simple either.

i) The one thing I want to add are individual constants. [N.Belnap, 1978, oral]

ii) What makes something a pencil are superficial characteristics such as a certain form and function. [S Schwartz 1978, in *Phil.Rev. 87*, p.571]

(41) On   vrač.
     he-NOM   doctor-NOM
     'He is a doctor.'

(42) Juvelir   Fužere –   vladelec   ètogo   osobnjaka.
     jeweler-NOM Fužere   owner-NOM this-GEN   mansion-GEN
     'The jeweler Fužere is the owner of this mansion.'

(43) Zdes' každaja   fraza –   jarkaja   podrobnost'.
     here   each   phrase-NOM   bright   detail-NOM
     'Here each phrase is a bright detail.'

(44) Vladelec   etogo   osobnjaka   – juvelir   Fužere.
     owner-NOM this-GEN mansion-GEN jeweler-NOM Fužere
     'The owner of this mansion is the jeweler Fužere.'

(45) Aksioma –   Źto   istina,   prinimaemaja   bez
     axiom-NOM   Źto   truth-NOM,   accepted   without
     dokazatel'stv.
     proof
     'An axiom is a truth accepted without proof.'

They discuss the traditional test (similar to but not identical to the two
tests mentioned by Chvany 1975) of looking for the closest paraphrase
one of whose NPs is in the instrumental, and concluding that the
corresponding NP in the original sentence is the non-subject. They note
that even if the test is normally a reasonable diagnostic, a linguist still
needs to ask why such a test should work. It is not true that an NP in the
instrumental always denotes a "temporary" attribute. It is probably rather
the case that the choice of which of two NPs to put into the instrumental
(if either), *like* the decision which of two nominative NPs to consider the
subject, reflects the relative denotational status of the two NPs.

They note that it is not always possible to put one of the NPs into the
instrumental; and they argue that even when you can, it is not true that
that NP is always the predicative one.

The clearest case of inversion around the copula in their analysis is
line (iii) in (40), which amounts to an inversion of line (i). (The relation
of line (iv) to line (ii) is less clear and I will not discuss it.) They have

nice discussion of the fact that the change in word order is accompanied by a subtle change in denotational status, connected with the fact that the predicative NP, when it is moved into the sentence-initial position (assuming neutral intonation), gains a presupposition of existence. Note: it need not be a definite NP; they observe that both definite and indefinite NPs (notionally; this may be unmarked in Russian) gain an existence presupposition in sentence-initial position which they lack in post-copular position. (This is shown, for instance, by the negation test, and was discussed in earlier work of Paduceva's. This also fits Hajicová's (1984) analysis of allegation and presuppo sition and their connection with Topic-Focus structure.)

As a result of the additional existence presupposition in line (iii), both NPs in (iii) have an existential presupposition: NP_1 because of its position (some would say because it is subject, others because it is topic), NP_2 because of its own semantic content. (If NP_2 didn't, we would presumably have a case of line (i), not line (iii).) If either of the NPs in (iii) is definite, it also gets a uniqueness presupposition; if indefinite, not.

In lines (i) and (ii), the relation expressed is set membership or set inclusion; these are not linguistically differentiated. In line (iii) the relation is identity. But as they note, identity is not a straightforward relation; in order for an identity sentence to be informative, as discussed by Frege, it must be almost a metalinguistic assertion, or at least the informative value will in some sense come from the use of two distinct characterizations of a single entity. These sentences in line (iii) seem to be just the "specificational" copular sentences of Higgins (1973). Both NPs are referential in one sense, but the first NP is "attributively used" and the second one is "purely referential." On the Williams-Partee analysis of corresponding sentences in English, NP_1 is the surface syntactic subject but was the "underlying" predicate and is still the $<e,t>$ element and so semantically still the predicate. (Since in Russian the first NP does not always have nominative case and does not always govern agreement, there is less motivation for calling that the surface subject position.)

Comparing the work of Paduceva and Uspenskij (1979, 1997) and Chvany (1975) with the arguments of Heycock and Kroch (to appear), it seems most reasonable to conclude that Russian does have inversion around the copula and English does not. That is, Russian has equative

sentences in which the post-copular NP is really the subject in every sense, and English does not. Lingering doubts that need to be more fully resolved concern the English equivalents of Russian sentences whose pre-copular NP could be in the instrumental.

4.4. Type Distinctions, Referentiality, and Topicality

I believe that one of the shortcomings of the analysis of Partee (1986) was the attempt to explain the difference between predicative and specificational copular sentences using nothing more than semantic types and syntactic structure (initial position and/or subjecthood). Consider again the specificational sentences of (7). On the Williams-Partee analysis, NP_1 is a predicate, which on the formalization of Partee (1986) means it is of type $<e,t>$. On the Heycock and Kroch analysis, both NP_1 and NP_2 are of type e, but NP_1 is attributive and NP_2 is referential. (This agrees with Padučeva and Uspenskij's diagnosis of the cases in line (iii) of chart (40).) The occurrence of the less referential NP as NP_1 in specificational sentences, whether it is subject (as in English) or not (as in Russian), seems to be conditioned in part by its topicality, as noted by Sgall (1995), Percus (p.c.), Heycock and Kroch (in press), and others.

So at this point, recognizing that semantic type distinctions are only one part of the story, let's recast the question about whether there is ever inversion around *be* into several different questions. One is the type question: is NP_1 ever of type $<e,t>$, NP_2 of type e? In Russian, as we have seen, the answer seems to be "yes", particularly when NP_1 can be instrumental; but in those cases, NP_1 is not the subject. For English, at this point the answer to this question seems to be "no".

Another is the question of how to characterize the nature of the asymmetry in case NP_1 and NP_2 are both type e (or both X), since that now seems more plausible for the specificational sentences. There are certainly strong intuitions that in specificational sentences NP_2 is the 'more referential' one, and in almost all cases of specificational sentences there is an alternative word order possible with NP_2 first and NP_1 second. And we have noted that for specificational pseudoclefts, such an alternative word order is possible even when the non-free-relative term is not an NP, as in (30); this is the word order which Williams and Partee consider basic.

The contrast "more referential, less referential" shows up informally in many descriptions.In copular sentences, NP_1 is "nor mally" more referential than NP_2. In general, subjects are "normally" more referential than non-subjects, topic is "normally" more referential than focus, expressions of type e are normally more referential than those of type $<e,t>$.

In the cases of putative inversion, NP_1 is usually understood to be less referential than NP_2; that is one of the chief intuitive diagnostics. One encounters various discussions of what more/less referential means here: relatively direct acquaintance (Williams), rigid designation (Percus), presupposed familiarity (Heycock and Kroch). It isn't simply uniqueness, since in many specificational sentences both NPs have a uniqueness presupposition. Several authors have noted the similarity to Donnellan's referential/attributive distinction; Heycock and Kroch explicitly invoke it.

The relevance of the topic/focus distinction is also made explicit by a number of authors, including Sgall (1995), Heycock and Kroch (in press) and Percus (1997). Subjects are normally topics, but subjects can often be focused in English by means of stress and intonation. But it seems that when there is "inversion", NP_1 is invariably topic, and trying to focus it leads to anomaly. Example (46) is from Williams (1997); (47) completes the picture.

(46) Is the mayor Sam?

    a) No, the mayor is Pete.

    b) *No, the FIRE CHIEF is Sam.

    c) No, Sam is the fire chief.

(47) Is Sam the mayor?

    a) No, Sam is the fire chief.

    b) No, PETE is the mayor.

    c) No, the mayor is Pete.

The question in (46) is in specificational form; note that the question itself would be anomalous with focal intonation on the subject, unlike that in predicational (47), which has a well-formed variant with focus on the subject. Similarly, the answer (46b), a specificational sentence with focus on the subject, is ill-formed, whereas predicational (47b) is well-formed.

Thus it seems that the discourse function of "inversion" is to topic-alize the less referential NP. We have tentatively concluded that there isn't really inversion in English; but there is an asymmetry which leads to the "intuition of inversion". Orin Percus (p.c.) has articulated it as a restriction that the less referential NP (the "mask" in his terms) can "invert" only when it's topical, and only when the relation is the relation of identity, not predication.

Thus on a non-inversion account such as Heycock and Kroch's, we might say that what is going on in English is that the generalization that the more referential NP is normally the subject is overridden by the desire to make the topic the subject. Both Williams for English and Padučeva and Uspenskij for Russian state the generalization that the more refer-ential NP is the subject. For Russian, that may indeed be a valid general-ization, and one of the crucial differences may be that Russian has the word-order freedom to prepose a less referential but topical NP and post-pose a more referential but focal NP without having to make the pre-posed NP (i.e., NP_1) the subject. But English does not have that freedom, so the only way to get the topical NP into initial position is to make it the subject.[4] *Be* does not passivize; but when it can be interpreted as expressing identity, it doesn't need to. See Heycock and Kroch (1998) for a similar argument about why Moro (1991) may be correct about inversion in Italian without his arguments carrying over to English.

The relationship between a pair of "uninverted" and "inverted" copular sentences in English like (36) and (30), then, would not be a case of any syntactic rule or of two surface structures with a common deep structure or common LF, but more akin to the difference in choice of expression in a pair like (48a-b).[5]

(48) a. The house is near the field.

b. The field is near the house.

---

[4] Here I follow one of Vilém Mathesius's (1907–1910) insights about the importance of theme-rheme structure for understanding the comparative syntax of Czech (or Russian) and English. Petr Sgall (p.c.) notes that English still has traces of post-verbal subjects and preverbal non-subjects in presentational and other sentences, but that these are waning.

[5] Except that in (48a-b) the most relevant additional factor is "figure-ground" asymmetry rather than topic-focus asymmetry.

4.5. Higgins' "Superscriptional" Uses of NPs

But we have not yet done justice to further subtleties of interpretation that have been observed by Higgins and by others. If one reviews the discussion of Higgins (1973), one sees that even the distinction between predicative and equative sentences invoked by Heycock and Kroch (to appear) does not adequately capture Higgins's distinctions: Higgins distinguished specificational sentences from both predicative sentences and identity sentences.[6]

Higgins notes that there are specificational sentences, including both pseudoclefts and other copular sentences, whose subject term can never be used referentially in a predicative or other sentence.

(49)   What I don't like about John is his tie. (Higgins 1973, p.133)

As Higgins notes, the free relative in (49), "simply cannot be used as an alternative description which can be used to refer to John's tie in the same was as *the lurid thing John's wearing round his neck* can be. This is, of course, valuable evidence that the Specificational reading of a copular sentence is not the expression of some kind of identity." As Higgins also notes, an NP like *what I don't like about John* can indeed be used as the heading of a list; and Higgins likens specificational sentences to lists, with the less referential NP (his "Superscriptional NP") functioning as the "heading" of a list, and the more referential NP (his "Specificational NP") specifying a (or the) item on the list. (Williams's (1997) terminology of "description" and "item" is close to the spirit of Higgins.)

Higgins also mentions but does not extensively discuss the existence of specificational sentences with indefinite NP_1, indefinite NP_2, or both. Some examples of these are given in (50).

(50)   a.   One thing John is is proud of himself.

b.   Another thing John is is hard on himself.

c.   One friend of mine you could talk to is Diana.

d.   Another threat to the stability of the government is a recent rumor of another impending devaluation.

---

[6] In fact, Higgins went further and tentatively distinguished "identity" sentences from "identificational" sentences, a distinction I will not try to reproduce here.

Similar examples can help to show that Superscriptional NPs do not simply have the distribution of predicative NPs in predicational sentences.

(51) a.   One friend of mine is my old friend Beth.

     b.   *$^?$A friend of mine is my old friend Beth.

     c.   *$^?$My old friend Beth is one friend of mine.

     d.   #My old friend Beth is a friend of mine. [redundant]

While (51a) is a natural specificational sentence that might be used when beginning to answer a request to tell something about your friends, (51b) with a simple indefinite NP as subject is somehow anomalous. (51c) is an attempt to reverse the word order of (51a), and it is also anomalous unless it can also be read as specificational. (51d), the same with plain indefinite article, is grammatically impeccable, but functionally very different from (51a): rather than having a possible specificational use, it is simply a redundant and therefore odd-sounding predication.

The determiner *one* in the examples in (50) and (51) does not seem to be really quantificational (although certain other weak determiners including other numerals are also OK here); it contrasts with *another*, and seems consistent with Higgins's claim that these sentences are like the presentations of lists, not like truth-claims "about" either NP$_1$ or NP$_2$. Higgins gives examples and arguments showing that superscriptional (uses of) NPs differ from attributive (uses of) NPs, as well as distinguishing them from referential and from predicative NPs.

A number of authors who favor a "zero-*be*" or "one-*be*" ap proach, from Chvany (1975) to Heycock and Kroch (in press), relate copula sentences to small clauses. We should ask which overt "small-clause" constructions, if any, permit the kinds of NPs which seem to be restricted to "superscriptional" uses, while recognizing that restrictions on the occurrence of such NPs may reflect pragmatic factors, if the discourse function of specificational sentences is special, as Higgins suggests.

(52) a.   #I consider one/another friend of mine you could talk to John Smith.

     b.   ??I consider John Smith one/another friend of mine you could talk to. (Maybe possible, but not "specificational"?)

(52) c. #One/another friend of mine you could talk to remains John Smith.

      d. #John Smith remains one/another friend of mine you could talk to.

      e. #?That makes one/another friend of mine you could talk to John Smith.

      f. ?That makes John Smith one/another friend of mine you could talk to.

      g. ?That makes proud of yourself one/another thing you should try especially hard not to be.

Small-clause and raising constructions with *consider* and *remain* seem quite bad. The best seem to be those with *make*; interestingly, they are best when the NPs are in the order posited as more basic in the Williams-Partee analysis, supporting the intuition that specificational sentences are in a sense "inverted". Heycock and Kroch (to appear) note that *make* is a verb which allows "equative" small clauses, unlike *consider* and others which only allow predicative small clauses.

   These small-clause observations together with Higgins's original observations suggest that specificational sentences may be best thought of as very similar to if not a subclass of identity sentences, usually occurring "inverted" in that the "less referential" but more topical NP is usually chosen as the subject (a choice which is apparently resisted in overt small clauses), and with the possibility of a special discourse ("list-presenting") function which may help to account for some of the restrictions on the NPs that can occur within them.

   I do not consider the issue settled, however. On the one hand, the distinction between predicative NPs, of type $<e,t>$, and referential but attributive NPs, of type e but with different referents in different possible situations, is formally large but notionally less so, and languages may easily have operations shifting expressions from one of these types to another.[7] And even more importantly, any serious analysis of the syntax,

---

[7] Incorporation analyses of 'weak NP' objects such as those of McNally (1995) and Van Geenhoven (1996) illustrate this possibility, as does the proposal of Zimmermann (1993) to treat the objects of verbs like *seek* as property-expressions.

semantics, and pragmatics of pseudoclefts and of specificational sentences must occur in the context of a fuller specification of theoretical and descriptive assumptions than we have committed ourselves to here.

4.6. Connectivity Again

There have been three main approaches to semantic connectivity.[8] The first, incomplete, Williams-Partee approach was outlined in Section 2; it used lambda-conversion but did not fully explain why this particular instance of equivalence via lambda-conversion counted as such "strong" equivalence as to yield the connectivity effects.

The second, articulated initially by Jacobson (1994) and modified by Sharvit (to appear), explains the strength of the equivalence by providing "functional" readings for the crucial NPs, similar to the functional readings discussed by Engdahl and others in the case of "functional questions", or which show up in the famous Geach example (53).

(53)   The woman every Englishman worships above all others is his mother.

Jacobson makes central provision for functional readings in her variable-free semantics; not only for examples like (53) but also for the semantics of reflexive pronouns and other replacements for "bound-variable anaphora". Sharvit makes use of a variant of von Stechow's "layered traces" to capture functional readings. On both versions of this approach, the identity relation expressed somewhere in the sentence (whether by the copula or packed into a predicative expression via a type-shifting operation like **ident**) connects expres sions of functional type in a way that gives a direct and principled account of the connectivity facts. Ignoring interesting differences between them, I would say that the Jacobson-Sharvit account is the best supported account currently available.

---

[8] I take Higgins to have shown that no purely syntactic approach to connectivity by reconstruction can succeed; whether the syntactic aspects of connectivity can be treated as parasitic on a basically semantic approach I do not know.

A fourth semantic approach has come to my attention too late to address; Yael Sharvit (handout, 1999) has made me aware of the manuscript Schlencker (ms. 1998), which argues for a "question-in-disguise" semantics of Superscriptional NP and an "answer-in-disguise" semantics for the Specificational NP. Sharvit argues against this approach.

The third account is Heycock and Kroch's; they make use of the identity reading of the copula and the iota-expression that interprets the free relative of a pseudocleft, and accomplish something similar to the lambda-conversion of Williams and Partee but with possibly better motivation. However, their use of the iota-expression suggests that their account is dependent on the definiteness of both terms of a specificational sentence. If there are specificational sentences involving indefinite terms, as the examples in (50) and (51) suggest, it is not clear how Heycock and Kroch will be able to accommodate them.[9]

All three approaches make use of the identity relation, suggesting that in some sense it is true that specificational sentences are identity sentences. But the approaches differ interestingly in where they locate the identity relation compositionally, in the copula or in a (shifted) predicative NP; only on Heycock and Kroch's approach is it essential that specificational sentences be analyzed as identity sentences.

4.7. Languages without Specificational Pseudoclefts

Recent work by Iatridou and Varlokosta (1998) (I&K) adds more perspective. They note that many languages lack specificational pseudo-clefts, including Modern Greek, Polish, and Bulgarian. Among closely related languages, Brazilian Portuguese, Galician, and Spanish pattern with English, while Italian and Catalan are like Greek. They identify a crucial factor as the possibility of generating a free relative with a non-referential (predicative) reading: possible in the languages that do have specificational pseudoclefts, impossible in those that do not. Free relatives in Modern Greek, for instance, can be formed by two construc-tions, one analogous to (54a), the other to (54b), but neither allowing the kind of predicative or attributive or "superscrip-tional" reading that is possible with English (54c).

(54) a.   That which John ate

b.   Whatever John ate/ Everything John ate

c.   What John ate

---

[9] One possibility would be to try to analyze the relevant indefinite NPs as "specific" or otherwise close enough to definites to extend the analysis to them.

Their work adds evidence for the importance of "degrees of referen-
tiality" in the analysis of specificational sentences; it is interesting that
not all languages that have free relatives have the distinction between
predicational and specificational pseudoclefts, only those with "non-
referential" free relatives. They follow Williams and Partee in assuming
predicative readings for free relatives in specificational sentences; it
would be interesting to see whether the same account could be modified
to fit an approach on which free relatives in specificational sentences are
attributive definite NPs.

5. Capturing the Distinctions without Inversion and without Ambiguous *Be*

It would clearly be optimal to have an account in which there are not two
distinct *be*'s, and in which English has no special inversion rules with *be*
that don't operate more generally. In particular, English does not seem to
have movement of an initial non-subject into a real subject position with
be. And such an account seems within reach now.

   The best strategy may not a one-*be* approach with fixed types *e* and
<*e,t*> as in Williams and Partee, but a zero-*be* approach with fuller use of
type-driven translation, looking carefully at types, and at the semantics
and pragmatics of the two constituents that can appear with the copula.

   Heycock and Kroch (1998) also posit an unambiguous copula – in
that paper they make it clear that they want just one copula, unam-
biguous, itself semantically vacuous, a raising verb that combines with a
small clause. The ambiguity is in the small clause itself: small clauses
may be either predicative or equative. They have not settled how to re-
present this difference; they speculate that equative small clauses involve
some functional head, absent from the predicative cases. As noted in
Section 4.5, the marginally possible occurrence of uniquely "superscrip-
tional" NPs in equative small clause sentences with *make* seems to
support the small-clause aspect of Heycock and Kroch's analysis.

   It therefore seems that the one-*be* analysis of Williams (1983) and
Partee (1986) which required inversion should be replaced by a zero-*be*
analysis together with a fuller use of type-driven translation.

Another approach might be to challenge the inclusion of (50) and (51) as
specificational, as Iatridou and Varlakosta (1998) do.

So let us assume that either directly or via a small clause, the empty copula position is a position governing two arguments (or one internal argument and a subject). If the two constituents are of types X and $<X,t>$, type-driven translation will automatically treat the second as a predicate to be applied to the first. But if the two constituents are both of type X, type-driven translation by itself may not know what to do with them: there could be at least three very "natural" ways to combine two expressions of type X, especially if X is of a predicative type. The two constituents could be conjoined; one could be an intersective modifier of the other (this is almost a case of conjunction), or identity could be asserted to hold between them. For arguments of the copula, only the last-mentioned case seems a real possibility; if there is no actual copula, something in the structure needs to allow us to predict that. This is probably the motivation for Heycock and Kroch's assumption of an additional "functional head" in equative small clauses. Alternatively, on an account like Déchaine's (1995), if one of the X's is in a position where it is supposed to be predicated of the other, the identity relation may be the only available well-formed interpretation and therefore predictable.

Where do we stand on the asymmetry that Williams (1997) argued is observed in all copular sentences, whether "equative" or not? I believe that there can be pragmatic or information-structural asymmetry without necessarily being semantic type-theoretic asymmetry. I would suggest that Russian does but English does not obey a principle articulated by Williams (1997) and by Padučeva and Uspenskij (1979), namely that in a copular sentence, the more referential NP is always the subject. We have argued above that in English, the subject may be the less referential NP if that NP is the topic. Williams is probably correct to insist that no copular sentence is understood as perfectly symmetrical in its two terms, even if those are two proper names or other parallel expressions; but it does not follow that that asymmetry must be reflected as a difference in semantic types.The types could be X and X, and the asymmetry could lie in topic-focus structure. The differences in presumed degree of familiarity or directness of acquain tance, for which there is so far no strong theoretical underpinning, seem as likely to follow from topic-focus structure as from differences of semantic type.

The puzzles of inversion around the copula are by no means all resolved. But the investigation has led us to some interesting specula-

tions about cross-linguistic semantic and pragmatic issues. There are well-known syntactic distinctions among languages in the realm of copular sentences: how many distinct copulas, how number agreement works, the "case" of predicate nominals, the presence of various deictic-like expletive elements, and whether the language allows postnominal subjects in copular sentences to a greater extent or in a different way than in other sentences. So it is already relatively clear that different languages may express semantically equivalent propositions in different syntactic structures. With the study of specificational copular sentences we may have entered a domain in which pragmati-cally equivalent meanings may find expression in different languages in different semantic structures.

References

Akmajian, Adrian. 1970. "On deriving cleft sentences from pseudo-cleft sentences". *Linguistic Inquiry* 1, 149–68.

Bach, Emmon. 1967. "*Have* and *be* in English syntax". *Language* 43, 462–85.

Birner, Betty. 1992. *The Discourse Function of Inversion in English*. Ph.D. dissertation, Northwestern University.

Chierchia, Gennaro. 1984. *Topics in the Syntax and Semantics of Infinitives and Gerunds*. Ph.D. dissertation, University of Massachusetts, Amherst. Amherst:GLSA.

Chvany, Catherine V. 1975. *On the Syntax of BE-Sentences in Russian*. Cambridge, MA: Slavica Publishers.

Déchaine, Rose-Marie. 1995. "One *be*". In *Linguistics in the Netherlands 1995*, ed. M. den Dikken and K. Hengeveld, 73–88. Amsterdam/ Philadelphia: John Benjamins Publishing Company.

Engdahl, Elisabet. 1986. *Constituent Questions*. Dordrecht: Reidel.

Freeze, Ray. 1992. "Existentials and other locatives". *Language* 68, 553–95.

Groenendijk, Jeroen and Martin Stokhof. 1983. "Interrogative quantifiers and Skolem functions". In *Connectedness in Sentence, Discourse and Text*, Tilburg Studies in Language and Literature 4, ed. K.Ehlich and H.van Riemsdijk, 71–110. Tilburg: Tilburg University.

Hajičová, Eva. 1984. "On presupposition and allegation". In *Contributions to Functional Syntax, Semantics and Language Comprehension*, ed. Petr Sgall, 99–122. Amsterdam: John Benjamins.

Heycock, Caroline and Anthony Kroch. 1998. "Inversion and equation in copular sentences". In *Papers in Linguistics* 10, ed. Artemis Alexiadou, Nanna Fuhrhop, Ursula Kleinhenz, and Paul Law, 71–87. Berlin: Zentrum fuer allgemeine Sprachwissenschaft.

———. (in press) "Pseudocleft connectivity: Implications for the LF interface level". To appear in *Linguistic Inquiry* 30.3, 1999.

Higgins, F.R. 1973. *The Pseudo-cleft Construction in English*. Ph.D. dissertation, Cambridge, MA: MIT. Published by Garland Press, New York, 1979.

Iatridou, Sabine and Spyridoula Varlokosta. 1998. "Pseudoclefts cross-linguistically". *Natural Language Semantics* 6, 3–28.

Jacobson, Pauline. 1994. "Binding connectivity in copular sentences". In *Proceedings of SALT IV*, eds. M.Harvey and L.Santelmann, 161–78. Ithaca, N.Y.: Cornell University.

———. 1996. "The syntax/semantics interface in categorial grammar". In: *The Handbook of Contemporary Semantic Theory*, ed. S. Lappin, 89–116. Oxford: Blackwell Publishers.

Mathesius, Vilém. 1907–1910. "Studie k dějinám anglického slovosledu". *Věstník České akademie* 16, 1907, 261–75; 17, 1908, 195–216; 18, 1909, 1–12; 19, 1910, 125–30.

McNally, Louise. 1995. "Bare plurals in Spanish are interpreted as properties". In *Formal Grammar*, ed. G.Morrill and R.Oehrle,197–222. Barcelona: Universitat Politécnica de Catalunya.

Montague, Richard. 1973. "The proper treatment of quantification in ordinary English". In *Approaches to Natural Language*, ed. K.J.J. Hintikka, J.M.E. Moravcsik, and P. Suppes, 221–42. Dordrecht: Reidel. Reprinted in Montague (1974), 247–70.

———. 1974. *Formal Philosophy: Selected Papers of Richard Montague*, edited and with an introduction by Richmond Thomason. New Haven: Yale Univ. Press.

Moro, Andrea. 1991. "The raising of predicates: copula, expletives and existence". In *MIT Working Papers in Linguistics Volume 15: More Papers on Wh-Movement*, ed. Lisa L.S. Cheng and Hamida Demirdash, 119–81. Cambridge: MIT.

Padučeva, E.V. 1979. "Topic and focus in Russian bi-nominative sentences". *SMIL, Journal of Linguistic Calculus,* No. 3–4, 29–48.

Padučeva, E.V. and V.A. Uspenskij. 1979. "Podležaščee ili skazyemoe? (Semantičeskij kriterij različenija podležaščego i skazyemogo v binominativnyx predloženijax)", *Izvestija Akademii Nauk SSSR, Serija Literatury i Jazyka* 38.4, Moscow. 349–60.

———. 1997. "Binominativnoe predloženie: problema soglasovanija svjazki". In *Oblik slova. Sbornik statej pamjati D.I Šmeleva.* Moscow, 1997. 170–82.

Partee, Barbara. 1986. "Ambiguous pseudoclefts with unambiguous *be*". In *Proceedings of NELS 16*, ed. S.Berman, J.Choe, and J.McDonough, 354–66. Amherst: GLSA.

———. 1987. "Noun phrase interpretation and type-shifting principles". In *Studies in Discourse Representation Theory and the Theory of Generalized Quantifiers*, GRASS 8, ed. J.Groenendijk, D. de Jongh, and M.Stokhof, 115–43. Foris: Dordrecht.

———. 1998. "Some continuing puzzles about the valency of 'be'". In *Issues of Valency and Meaning: Studies in Honour of Jarmila Panevová,*ed. Eva Hajicova, 27–37. Prague: Charles University Press.

Partee, Barbara and Mats Rooth. 1983. "Generalized conjunction and type ambiguity", In *Meaning, Use and Interpretation of Language*, ed. R. Bäuerle, C. Schwarze, and A. von Stechow, 361–83. Berlin:Walter de Gruyter.

Percus, Orin. 1997. "Prying open the cleft". In *Proceedings of NELS 27*, ed. K.Kusumoto, 337–51. Amherst: GLSA.

Peregrin, Jaroslav. 1996. "Topic and focus in a formal framework". In *Discourse and Meaning: Papers in Honor of Eva Hajičová*, ed. B.Partee and P.Sgall, 235–54. Amsterdam: John Benjamins.

Ross, J.R. 1969. "Adjectives as Noun Phrases". In *Modern Studies in English: Readings in Transformational Grammar,* ed. D.Reibel and S.Schane. Englewood Cliffs, N.J.: Prentice-Hall.

Sgall, Petr. 1995. "Subject/predicate and topic/focus". *The Moscow Linguistic Journal* 2, 361–70.

Sharvit, Yael. To appear. "Connectivity in specificational and predicational sentences". To appear in *Natural Language Semantics.*

Szabolcsi, Anna. 1987. "Bound variables in syntax: are there any?" In *Proceedings of the 6th Amsterdam Colloquium*, ed. J. Groenendijk et al. Amsterdam: ITLI, University of Amsterdam.

Šatunovskij, Il'ja B. 1996. *Semantika Predloženija i Nereferntnye Slova: Značenie, Kommunikativnaja Perspektiva, Pragmatika*. Moskva: Škola "Jazyki Russkoj Kul'tury".

Van Geenhoven, Veerle. 1996. *Semantic Incorporation and Indefinite Descriptions: Semantic and Syntactic Aspects of Noun Incorporation in West Greenlandic*. Ph.D. dissertation, University of Tübingen.

Williams, Edwin. 1983. "Semantic vs. syntactic categories". *Linguistics and Philosophy* 6, 423–46.

———. 1997. "The asymmetry of predication". *Texas Linguistic Forum* 38, 323–33.

Zimmermann, Thomas Ede. 1993. "On the proper treatment of opacity in certain verbs". *Natural Language Semantics* 1, 149–71.

Dept. of Linguistics
226 S. College
University of Massachussetts
Amherst, MA 01003
partee@linguist.umass.edu

On-Line Processing of Russian Scrambling Constructions: Evidence from Eye Movements During Listening

Irina A. Sekerina
University of Pennsylvania

1. Introduction

The central issue in current work on sentence processing is to explain how readers and listeners recover the linguistic structure of a sentence and how they coordinate different types of constraints to resolve numerous local ambiguities that arise during on-line comprehension. There are two competing classes of models in sentence processing: modular and interactive. According to the modular approach, processes which construct syntactic structure of a sentence operate independently from other processes in comprehension, which are responsible for semantic and pragmatic interpretation of a sentence in discourse. In contrast, the interactive models assume that syntactic interpretation takes places with respect to a reader or listener's knowledge of the contents of the prior discourse, which forms the context in which the sentence is processed. Thus, in the modular structure-based Garden-Path model (Kimball 1973; Frazier and Fodor 1978; De Vicenzi 1991; Frazier and Clifton 1996, among others), context does not influence the initial preferences in resolving local ambiguities as the syntactic structure is being built by the parser but only later gets incorporated into semantic interpretation. In the interactionist Constraint-Based model (MacDonald, Pearlmutter, and Seidenberg 1994; Tanenhaus and Trueswell 1995, among others), the parser is capable of coordinating the linguistic properties of the message with information from the context to determine processing commitments, on which it bases its ambiguity resolution strategies.

Traditionally, it has been difficult to observe contextual effects in studying language comprehension due to several factors. First, referential properties of the language are difficult to observe. Second, it is usually the case that language processing is investigated under artificial conditions, i.e., reading of either isolated sentences or short paragraphs. Finally, even when contextual information is presented, its use in reading

is mediated by working memory, and only some subjects make effective use of contextual constraints (Just and Carpenter 1980). Recently, a new on-line technique has been developed which records the subject's eye movements using a head-mounted eye-tracking system (Tanenhaus et al. 1996), making it possible to visually monitor the subject's interpretation of the context while spoken language is being processed. Subjects' eye movements are monitored as they respond to spoken instructions to move around objects on a table or flat shapes on a vertical board. This technique provides a new means of examining the moment-by-moment processes of subjects' spoken language comprehension, in the relatively natural situation of acting upon spoken instructions. Section 2 presents a short background on research on English in which the head-mounted eye-tracking technique was employed for the first time (Tanenhaus et al. 1996). These studies showed that by monitoring eye movements of adults during listening, much can be inferred about the processes underlying language interpretation. Section 3 reports the results of an experimental study of Russian in which this technique has been used to examine on-line processing of Scrambling constructions in this language while establishing reference in temporarily ambiguous contexts.

2. Establishing Reference in English (Tanenhaus et al. 1996)

Tanenhaus and colleagues used a head-mounted eye-tracking system very similar to the one used in the Russian experiment described below in Section 3. Subjects' eye movements were recorded using a light-weight adjustable ISCAN eye-tracking visor which looks like a helmet and consists of a monocle and two miniature cameras (see Figure 1 on the opposite page). One camera records the visual environment from the perspective of the subject's eye (the scene image), and the other camera records a close-up image of the eye. A computer analyzes the eye image in real-time, superimposing horizontal and vertical eye positions on the scene image. The scene image and the superimposed eye position, along with all auditory stimuli, are recorded on digital video tape.

Using this technique, Tanenhaus and colleagues (1996) studied how referents of definite nouns with adjectival modifiers are established in temporarily ambiguous visual contexts. The goal of the experiment was to find out whether the time necessary to identify such referents is

Figure 1. Head-Mounted Eye-Tracking
System at the University of Pennsylvania,
used in the Russian Experiment (Section 3)

affected by the point of disambiguation as determined by the
characteristics of the potential referents in different visual displays. Five
subjects listened to four critical commands illustrated in (1):

(1) a.   Touch the plain red square.

b.   Touch a plain blue triangle.

c.   Touch the starred yellow square.

d.   Touch the starred pink rectangle.

Each command was given in six types of visual displays (see Figure 2 on
the following page). Each display contained four blocks mounted vertic-
ally on a plastic board. The blocks differed in marking, color, and shape.

In non-homogeneous displays (top panel in Figure 2), the target 'the
plain red square' differs from all other objects in the display in either
marking, color, or shape. In homogeneous displays (bottom panel in
Figure 2), other objects in the display are identical to the plain red square
in either marking, color, or shape. The labels "Early", "Mid", and "Late"

NON-HOMOGENEOUS DISPLAY

| EARLY | MID | LATE |

HOMOGENEOUS DISPLAY

| EARLY | MID | LATE |
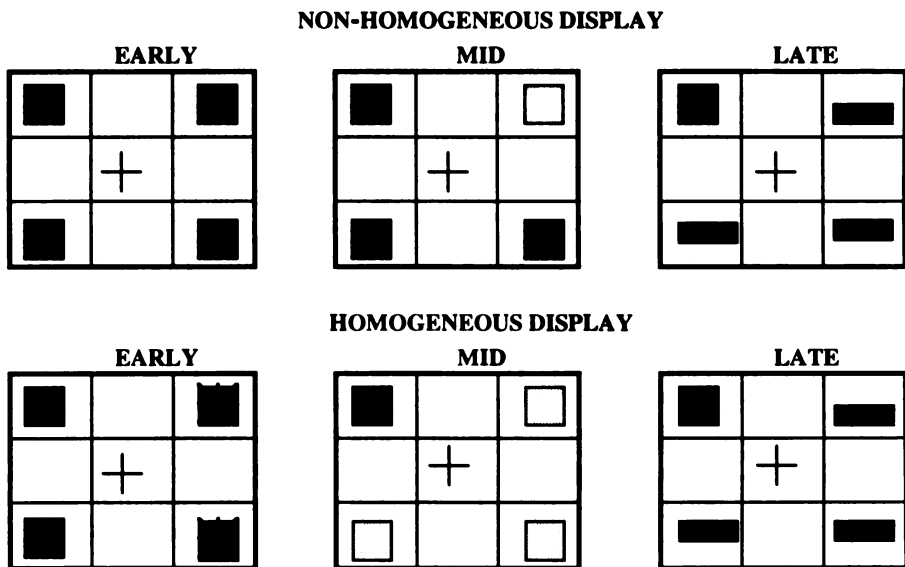
Figure 2. Types of Visual Displays in Tanenhaus et al. (1996: 27)

refer to the point of disambiguation in the instructions: early—on the first adjective, 'plain'; mid-way—on the second adjective, 'red'; and late—on the noun 'square'.

A hypothesis referred to by Tanenhaus et al. as "the Incrementalist Hypothesis" (1996: 18) was tested in this experiment. The Incrementalist Hypothesis states that when the context establishes the set of likely referents, reference should be established immediately as the speech is being processed. Specifically, in the Late Disambiguation display, interpretation need not to wait until the head noun in the NP is identified.

The launch times for 72 (out of 120) trials on which the subjects' first fixation was to the target ('the plain red square') were analyzed in a 2x3 ANOVA[1] factorially combining Homogeneity of Display and Point

---

[1] ANOVA, or analysis of variance, is a statistical procedure used to determine whether means from two or more samples are drawn from populations with the same mean. F1 means that ANOVA is based on the subjects' data, F2—on the items' data. The symbol "p" means probability and is statistically significant if less than 0.05. For basics of statistical analysis, see Ferguson and Takane 1989.

of Disambiguation. Both effects were significant, showing a main effect of Homogeneity of Display, $F(1,4)=13.03$, $p<.03$, and a main effect of Point-of-Disambiguation, $F(1,8)=5.94$, $p<.03$. Thus, subjects were quicker to fixate on the target object in the homogeneous displays than in the non-homogeneous ones. The point of disambiguation, as determined by the instruction in conjunction with the display, influenced when eye movements occurred: faster in the early point of disambiguation display, slower in the mid one. Crucially, although eye movements to the target in the late point of disambiguation display occurred even later, they still preceded the onset of the head noun.

In sum, Tanenhaus et al. (1996) found that adults' eye movements were closely time-locked with speech: subjects were typically launching eye movements to the intended referent within 300 msec of the onset of the disambiguating word, often before the end of that word. The resolution of reference was shown to involve a continuous integration of the linguistic information together with information present in the context.

3.   Establishing Reference in Russian Scrambling Constructions: An Eye Movement Study

3.1. Russian Word Order

Russian is a language which exhibits a rich morphological system of case marking. Subjects usually appear in the Nominative case, direct objects in the Accusative, and indirect objects in the Dative case. Thus, grammatical relations are reflected by the case marking and arguments can be freely ordered. In a three constituent sentence consisting of the subject, the verb, and the direct object all six combinations of these constituents are possible: SVO, SOV, OSV, OVS, VSO, and VSO.

Within the classical generative grammar framework (Chomsky 1986), different word orders in Russian are argued to be derived via movement referred to as *Scrambling* (Ross 1967). The treatment of Russian Scrambling within the framework of generative grammar (King 1995; Bailyn 1995), adopted as a background syntactic analysis for the purposes of this article, is quite different from the functional analysis of word order in Russian. In traditional Soviet, Russian and Prague School literature on word order in Russian and other Slavic languages, word

order variants are related to the context in which they are appropriate. The context determines the bipartite division of every sentence into given and new information, the division known as the *Functional Sentence Perspective* (see Adamec 1966, Yokoyama 1986 for details). Bailyn (1995) discusses functional approaches to word order in Russian (see Chapter 3) and shows that while it is necessary to identify proper discourse conditions, as functional accounts do, it is not enough. Word order variations cannot violate principles of grammar, including movement constraints. In this sense, functional and generative grammar approaches to word order complement each other and are justified as legitimate ways of studying the same phenomenon.

A movement analysis of Scrambling in Russian presupposes that there is an underlying structure and order of the Russian clause and that phrases are scrambled from their base-generated positions into landing positions higher in the clause to derive various surface word orders. Two principal types of clause-internal Scrambling can be identified in Russian: phrasal XP-Scrambling, and Split Scrambling. *XP-Scrambling,* illustrated in (2a), has been argued to represent an operation which moves a maximal projection (XP) from its base position to a landing position higher in the clause and which obeys restrictions of a familiar nature, for example, island constraints (see Bailyn 1995, esp. Chapter 2):

(2a) | *Sobaku* | kupili | naši | sosedi | *deševo.* |
|---|---|---|---|---|
| dog$_{ACC}$ | bought | our | neighbors$_{NOM}$ | cheaply |

'Our neighbors bought the dog cheaply.'

(2b) | *Šumnuju* | kupili | naši | sosedi | *sobaku.* |
|---|---|---|---|---|
| loud$_{ACC}$ | bought | our | neighbors$_{NOM}$ | dog$_{ACC}$ |

'Our neighbors bought the loud dog.'

Split Scrambling, illustrated in (2b), is defined as an operation which breaks up NPs and PPs and moves one or both of their subparts into different positions in the sentence, thus deriving discontinuous constituents in which modifiers of all kinds are separated from the N head by other constituents in clause.

Word order variation in Russian makes it an interesting test ground for predictions of the theory of sentence processing. Although Russian is

generally considered within the generative grammar framework to be an SVO, right-branching language (like English; cf., however, King 1995 for an alternative view), it exhibits rich inflectional morphology with overt Case markers (like German) and free word order often thought of as discourse-oriented (like Japanese). On the other hand, unlike English, it is a Scrambling (i.e., free word order) language, and unlike German and Japanese, it is not verb- or head-final. In addition, it allows Split Scrambling, i.e., discontinuous NPs and PPs. Split Scrambling constructions were used as experimental materials in the Russian experiment reported below.

This experiment was designed to investigate three specific questions. The first of these was whether there is evidence in Russian (as has been shown for English) for incremental use of contextually-defined constraints to establish referents for nouns modified by prenominal adjectives. The second issue was whether such prenominal adjective-plus-noun phrases are evaluated against general context, both linguistic and non-linguistic. How is reference for such NPs established? Could it be that it is not just on an incremental word-by-word basis, but perhaps on a finer, word-internal morphological subpart basis? The third goal of the experiment was to investigate whether the contrastive intonation facilitates the establishment of a referent in Split Scrambling constructions in Russian, thus making them less complex to process.

3.2 Method

Subjects. Sixteen volunteer subjects participated in this experiment, eight in each of the two versions of the experiment. All were undergraduate or graduate students at the University of Pennsylvania and native speakers of Russian who also spoke English as their second language. Typically, subjects took an hour and 15 minutes to complete the experiment.

Materials and Design. There were 24 experimental instructions involving a referential expression (noun) modified by an adjective. All the adjectives used in the experiment were color adjectives. Three types of visual displays were used in conjunction with instructions. Each display contained four shapes, two of which were the same shapes (see Figure 3).

POINT OF DISAMBIGUATION

UNAMBIGUOUS MID. DISAMBIG. LATE DISAMBIG.
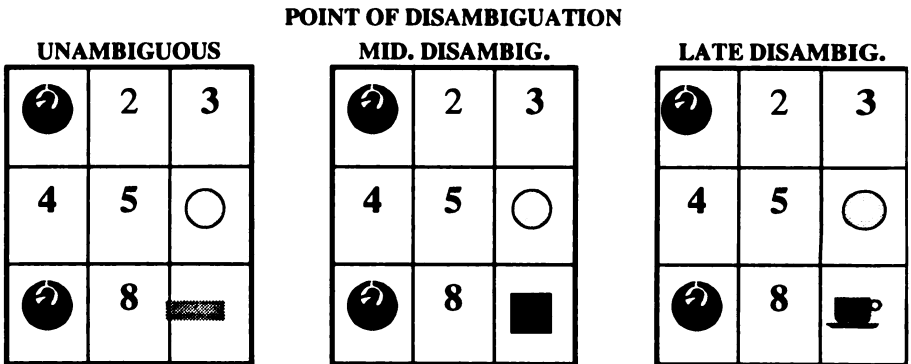
Figure 3. Three Types of Visual Displays Used in the Experiment

The sentences in (3) provide an example of the instructions which were designed in pairs and used in the displays illustrated in Figure 3, where (3a) contains XP-Scrambling while (3b) involves Split Scrambling:

(3) a. Požalujsta, *krasnuju* *ptičku* . položite
please red$_{ACC-FEM}$ bird$_{ACC-FEM}$ put
v poziciju 3.
in position 3

b. Požalujsta, *krasnuju* položite *ptičku*
please red$_{ACC-FEM}$ put bird$_{ACC-FEM}$
v poziciju 3.
in position 3

'Please, put the red bird in position 3.'

Informally, XP-Scrambling in (3a) requires an entire NP, the adjective and its head noun *krasnuju ptičku* 'the red$_{ACC-FEM}$ bird$_{ACC-FEM}$', to be scrambled as a unit; in contrast, Split Scrambling in (3b) splits the adjective and the head noun by placing at least one other constituent (e.g., the verb *položite* 'put') between them in the surface word order. Usually, the semantic content of the utterance is not altered by either type of Scrambling.[2]

---

[2] Although word order is free with respect to grammatical relations, it does alter the organization of a sentence on a communicative level, that is, its

For the Unambiguous display (the left panel in Figure 3), the target object *krasnuju ptičku* ('the red$_{ACC-FEM}$ bird$_{ACC-FEM}$') is the only red object, and the point of disambiguation at which there was sufficient lexical information to identify a single object as the target referent was right at the onset of the adjective 'red'. For the Mid Point-of-Disambiguation display (the middle panel in Figure 3), the point of disambiguation was the ending on the adjective *-uju* since the display contained another red object, *krasnyj kvadrat* ('the red$_{ACC-MASC}$ square$_{ACC-MASC}$)[3] but this object's grammatical gender was masculine in contrast to feminine gender of 'the red bird'. Finally, for the Late Point-of-Disambiguation display (the right panel in Figure 3), the head noun was the point of disambiguation, because the display now contained two feminine red objects, the target red bird and the distractor red cup.

Each target instruction as in (3a-b) was followed by an additional distractor instruction referring to other objects in the same display. In addition, 16 fillers were interspersed with 24 experimental trials, resulting in a total of 40 trials. Experimental and filler trials were assembled to form two versions of the experiment in a fully counterbalanced design. The instructions and the type of display (Figure 3) were reflected in an experimental design factorially combining Scrambling Type (XP-Scrambling vs. Split Scrambling) and Point-of-Disambiguation (Unambiguous vs. Mid vs. Late), resulting in six conditions, with four target instructions per condition (2 x 3 x 4).

Procedure. Subjects were run individually, seated in front of a vertical board placed on a table. They were given spoken instructions to move various flat objects around on the board. Subjects were instructed to keep their eyes closed until they heard the word *požalujsta* ('please'), which began the first (target) instruction in every trial. This was done so

---

Theme/Rheme partition. The Theme is the starting point of the utterance and is often known to the listener or can be determined from the surrounding context. The Rheme tells the listener something about the Theme, carries the main communicative load of the utterance, and contains new information. In neutral speech the Theme precedes the Rheme (see Yokoyama 1986).

[3] The Case marking on the phrase *krasnyj kvadrat* ('the red square') is, in fact, ambiguous between masculine inanimate Accusative and Nominative cases, but this morphological ambiguity is not relevant for the present discussion.

that subjects could not get acquainted with the display prior to the instructions. Their goal was simply to perform the instructions as naturally as possible. It is important to note here that there was no centrally located fixation cross, and subjects were free to look anywhere as soon as they opened their eyes.

Prior to the experiment a calibration procedure was performed for each subject. At the beginning of each trial, the four objects were verbally identified (without naming the colors) so that there was no confusion. The first (target) instruction in each trial started with the word *požalujsta* ('please'), while the second one began with the word *teper'* ('now'). For instance, a trial would consist of the following instructions for the left panel in Figure 3:

(4) Požalujsta, **krasnuju**   položite   **ptičku**   v   poziciju   3.
     please   red$_{ACC\text{-}FEM}$ put   bird$_{ACC\text{-}FEM}$ in   position   3

'Please, put the red bird in position 3.

Teper'   položite   žëltyj   krug   v   poziciju   8.
now   put   yellow$_{ACC}$ circle$_{ACC}$ in   position   8

Now put the yellow circle in position 8.'

All the instructions were produced by the experimenter live as they were read from the script during the experiment. Every effort was made to produce them with natural and consistent intonation.

While subjects followed the instructions to move objects around on the board, their eye movements were recorded using a light-weight ISCAN eye-tracking visor (Figure 1 above). The timing of eye movements relative to information in the speech stream was computed as follows: eye movement data for trials in which the initial fixation was to the correct object were analyzed from the video tape by identifying the beginnings of critical words for each trial, and noting the time lapse between the critical speech points and the onset of an eye movement to the intended object. Eye movement latencies were measured from the onset of the color adjective.

Digital video tapes of each subject's scene were analyzed by hand, using slow motion and freeze frame viewing of the tapes. The auditory commands to move objects were recorded on the auditory channel of the tape and were also analyzed. A single scorer analyzed the tapes.

3.3 Results

Two types of data were analyzed in the experiment: percentages of looks at different shapes, and eye movement latencies. Since subjects were free to look anywhere on the display without fixating on a central point, the first look could be to either the target (the red bird in Figure 3 above), the color distractor (the red cup), or any other object including the shape distractor (the blue bird).

Table 1 shows the percentages of trials in which subjects looked at the color distractor at any point during the trial.

Table 1. Percentages of Trials with a Look to Distractor
Anywhere in the Trial

	MID DISAMBIG.	LATE DISAMBIG.
XP-SCRAMBLING	68%	75%
SPLIT SCRAMBLING	66%	68%

The data indicate that subjects considered the color distractor (the competitor object), e.g., the red cup in Figure 3 above, in approximately 70% of all ambiguous trials, regardless of the point of disambiguation. Furthermore, it made no difference for subjects whether the instructions contained an XP-Scrambling (nonsplit) or Split Scrambling construction, since they tended to look at the distractor equally often in both. The analysis of variance supports these observations, since although there is a numerical difference in the Mid Point-of-Disambiguation Split condition, there are no statistically significant differences for either of the factors, i.e., Point-of-Disambiguation and Scrambling Type.

Table 2 on the following page shows percentages of trials in which subjects looked first at (a) Target, (b) Distractor, or (c) any Other object on the display. These data show that subjects tended to look at either the Target or the Distractor equally often in the Mid and Late Point-of-Disambiguation conditions. First looks to other objects on the display also occurred, but their percentages were extremely small.

Table 2. Percentage of Trials Depending on a First Look to Different
Objects: Target, Distractor, and Other

	UNAMBI-GUOUS	MID DIS-AMBIGUATION	LATE DIS-AMBIGUATION
XP-SCRAMBLING:			
TARGET	86%	43%	36%
DISTRACTOR	—	52%	59%
OTHER	14%	5%	5%
SPLIT SCRAMBLING:			
TARGET	100%	48%	55%
DISTRACTOR	—	45%	43%
OTHER	0%	7%	2%

For the percentages of first look to target, these data show a strong
main effect of Scrambling Type, $F(2,24)=38.74$ $p<.001$, as well as a main
effect of Point-of-Disambiguation, $F(1,12)=13.67$, $p<.005$, and no
interaction of Point-of-Disambiguation and Scrambling Type, $F<1$.
Figures 4 and 5 illustrate that subjects tended to launch their first eye
movement to the Target in the Split Scrambling conditions (48% and
55%, respectively), but that in the XP-Scrambling Condition they looked
first at the Distractor (52% and 59%).
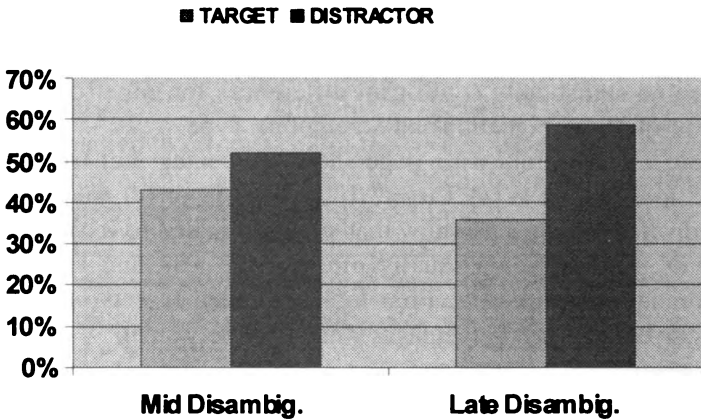
■ TARGET ■ DISTRACTOR

Figure 4. Percentages of First Looks at Target and
Distractor in XP-Scrambling Condition
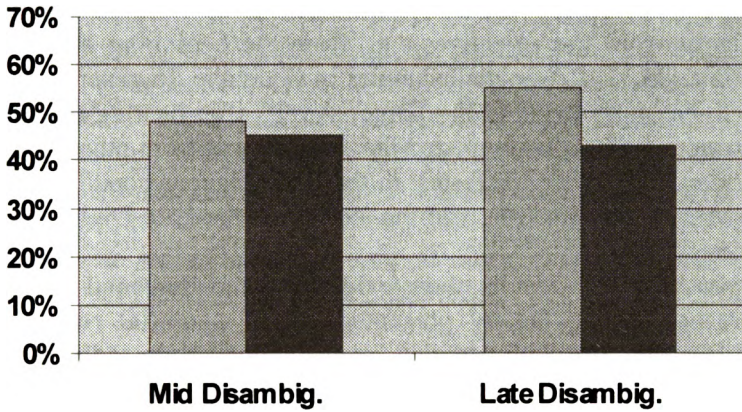
Figure 5. Percentages of First Looks at Target and
Distractor in Split Scrambling Condition.

For eye movement latencies, summary data are presented in Figure 6
below:
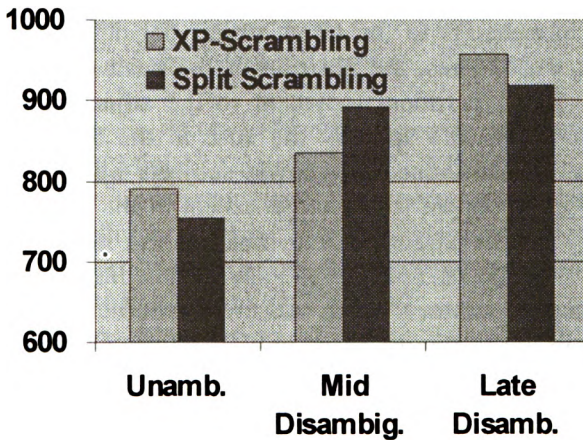
Figure 6. Mean Eye Movement Latencies (msec) to Target

Only data from trials in which the subject made an eye movement to the
Target were included in the analysis. Launch times were measured from
the beginning of the adjective, e.g., from the beginning of the word
krasnuju ('red$_{ACC-FEM}$') in the examples in (3) above. In general, subjects
initiated eye movements to the Target shortly after hearing the word in
the instruction that disambiguated the target object from other objects in
the display. They were the fastest in the Unambiguous condition, slower
in the Mid Disambiguation, and the slowest in the Late Disambiguation
conditions.

Discussion. The results show evidence for incremental processing
with respect to a visually presented set of potential referents. In
particular, the data indicate that nouns modified by adjectives are
interpreted incrementally. Subjects considered the distractor object as
soon as they started processing the adjective without waiting for the
disambiguating information. This was evident even in the Split
Scrambling conditions, where the head noun was separated from the
modifying adjective by the verb. These results support the conclusion
that the adjective-plus-noun phrase was interpreted incrementally on-line
with respect to all the potential referents in the visual model.

The point of disambiguation, as determined by the instruction in
conjunction with the display, clearly influenced when eye movements
occurred. Eye movements to the target object began shortly after the
disambiguating word. Thus, the position of the head noun which was
manipulated in the experiment (adjacent to the adjective in the XP-
Scrambling conditions and split by the verb in the Split Scrambling
conditions) made no difference. Moreover, subjects were even faster in
launching an eye movement to the target object in the Split conditions,
usually fixating on the target prior to hearing the head noun in the
instruction. This suggests that people have immediate access to the
intonationally-marked contrast which was present in the Split conditions,
as required by discourse requirements of contrastive function associated
with Split Scrambling constructions.

4. Conclusions

As was the case with the English experiment (Tanenhaus et al.
1996), the results of the Russian experiment are consistent with the
Incrementalist hypothesis: When the context presents the set of likely

referents, reference is established immediately as the speech is being processed, without delay. They provide compelling evidence for a processing model in which linguistic expressions are undergoing continuous, moment-by-moment interpretation, with immediate mapping onto a discourse model and potential referents (MacDonald, Pearlmutter and Seidenberg 1994; Tanenhaus and Trueswell 1995). They highlight the incremental and referential nature of spoken language comprehension and demonstrate that linguistic and visual information are rapidly integrated in real-time processing as argued by the interactionist constraint-based model of sentence processing.

References

Adamec, P. 1966. "Porjadok slov v sovremennom russkom jazyke." Prague: Academia.

Bailyn, J. 1995. "A configurational Approach to Russian 'Free' Word Order." Doctoral Dissertation, Cornell University.

Chomsky, N. 1986. "Barriers." Cambridge, Mass: The MIT Press,.

De Vincenzi, M. 1991. "Syntactic Parsing Strategies in Italian. The Minimal Chain Principle." Dordrecht : Kluwer Academic.

Ferguson, G. A. and Y. Takane 1989. "Statistical Analysis in Psychology and Education", 6th edition. New York: McGraw-Hill.

Frazier, L. and C. Clifton 1996. "Construal." Cambridge, Mass: The MIT Press,.

Frazier, L. and J. D. Fodor 1978. "The Sausage Machine: A New Two-Stage Parsing Model." *Cognition* 6, 291-325.

Just, M. and P. Carpenter 1980. "A Theory of Reading: From Eye Fixations to Comprehension." *Psychological Review* 87, 329-354.

Kimball, J. 1973. "Seven Principles of Surface Structure Parsing in Natural Languages." *Cognition* 2, 15-47.

King, T. H. 1995. "Configuring Topic and Focus in Russian." Stanford University: CSLI Publications.

MacDonald, M., N. Pearlmutter, and M. Seidenberg 1994. "The Lexical Nature of Syntactic Ambiguity Resolution." *Psychological Review* 101, 676-703.

Ross, J. 1967. "Constraints on Variables in Syntax." Doctoral Dissertation, MIT.

Tanenhaus, M. and J. Trueswell 1995. "Sentence Comprehension." J. Miller and P. Eimas (eds.) *Speech, Language, and Communication.* San Diego: Academic Press.

Tanenhaus, M. et al. 1996. "Using Eye-Movements to Study Spoken Language Comprehension: Evidence for Visually-Mediated Incremental Interpretation." T. Inoui and J. McClelland (eds.) *Attention and Performance XVI: Interaction in Perception and Communication.* John Benjamins.

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

The Institute for Research in Cognitive Science
3401 Walnut Street, Suite 400A
Philadelphia, PA 19104
sekerina@linc.cis.upenn.edu

From Instrument to Irrealis: Motivating Some Grammaticalized Senses of the Russian Instrumental*

Michael B. Smith
Oakland University

1. The General Issue and Some Relevant Data

It is well-known that the Russian instrumental (INST)[1] case manifests a wide variety of uses apart from its prototypical role in specifying the instrument used by an agent to effect an action (1):

(1) Ja pisal   na   doske   melom
    I   wrote   on   board   chalk-INST

    'I was writing on the board with chalk.'

Some extended or more abstract uses of the INST can be related relatively easily to the prototypical sense, such as its use to mark passive agents, the manner in which an action is effected, the apparent objects of some verbs (cf. Janda 1993) (see § 3.1 and 3.2).

But other common uses of the INST seem completely unrelated to the instrument notion shown in (1), including its use to mark second objects (2) (and predicate adjectives) and the INST of comparison (3) (cf. Janda 1993:171ff.):

(2) My   vybrali ego   prezidentom
    we   elected him   president-INST

    'We elected him president.'

(3) Anja   poet   solov'em   (Janda 1993:171)
    Anja   sings   nightingale-INST

    'Anja sings like a nightingale.'

---

[1] Only relevant cases will be indicated in the interlinear glosses using the following abbreviations: NOM (nominative), ACC (accusative), INST (instrumental).

Also puzzling is the setting INST, which indicates a spatial (4) or
temporal (5) setting for an action (cf. Janda 1993:164–170):

(4) Tak   poedem   polem,   lesom,   morem
    so   go   field-INST woods-INST   sea-INST

    'Let's go across/by way of the field, woods, sea.'

(5) Včera   večerom   my   rabotali v   magazine
    yesterday evening-INST   we   worked   in   store

    'Yesterday evening we were working in the store.'

I use Janda's term *setting INST* in agreement with her claim that it
evokes an aspect of the setting in which the action occurs (though she
does not adequately relate it to the apparent prototype in (1)).

   Finally, the predicate INST (used after certain verbs of being) is
usually found in non-present tenses and after infinitives, imperatives, and
participles. It generally signifies that the relationship between the subject
and the INST-marked NP is impermanent or transitory (NOM indicates a
permanent relationship).

(6) Ja   vsegda   xotel   byt'   inženerom
    I   always   wanted   be   engineer-INST

    'I always wanted to be an engineer.'

(7) On   staraetsja   vygljadet'   molodym
    he   try   look   young-INST

    'He's trying to look young.'

Traditional Russian grammars accentuate the notion of impermanence
and/or change associated with this predicate usage of the INST (cf.
Nakhimovsky & Leed 1980:223), but they fail to motivate why the
notion of impermanence is associated with INST.

   Previous attempts to account for the diverse uses of the INST in (2–
7) basically rely on the idea that the INST marks the nominals in
question as *peripheral* (rather than central) entities in the clause:
Jakobson (1936 [1971]) uses the feature [+peripheral] (*Randkasus*) to
represent this notion. Janda (1993:175ff.) treats such uses under the
general rubric of an *attributive* INST, with the notion "attributive"
apparently representing a grammaticalized sense very much like

Jakobson's notion of peripherality. These works (and traditional Russian grammars) fail to provide a convincing cognitive semantic *motivation* as to why INST (vs. another case) should be associated sometimes with the notion of a setting, and other times with the notions of *transitoriness, impermanence,* or *comparison* (other than to imply that the peripheral status of attributes in a conceptualization renders them somehow less permanent). In other words, previous analyses are not sufficiently *explanatory.*

The purpose of this paper is to explore and propose plausible semantic *motivations* for such uses of the Russian INST, using the framework of *cognitive grammar* described in Langacker (1987, 1991) and Lakoff (1987).[2] I will argue that all uses of INST in (2–7) can be motivated as meaningful, i.e. as semantic extensions from the prototypical sense in (1) (or one closely associated with it), and that its senses in (2–3) and (6–7) reflect the idea of impermanence which, at its most abstract, is reminiscent of the *irrealis* notion found in the verbal systems of some languages.

The analysis will also confirm that the grammaticalized uses of the INST reflect characteristics typical of grammaticalization processes. These include *persistence* (Hopper 1991), the tendency for grammaticalized forms to retain some properties of their original meanings and/or uses (cf. Lakoff's (1990) *invariance hypothesis*), and the tendency for grammaticalization to start with changes in meaning before changes in structure (Heine 1997:151).

To accomplish this it will be necessary to characterize aspects of the whole INST category, including senses closely related to the INST prototype, because the more abstract meanings only make sense when viewed against the background of the entire category. I will first introduce the theoretical framework I will be assuming.

2. Some Theoretical Background

2.1. Cognitive Grammar (CG) (Langacker 1987, 1991a, 1991b)

CG assumes that much of "grammar" is inherently meaningful, not autonomous or accidental (Langacker 1991b:338). While not denying

---

[2] For other CG work on case semantics see Smith 1987, 1993a, 1993b, and 1994.

that some aspects of grammar are probably arbitrary, CG claims that much morphosyntactic patterning can be semantically motivated (though not strongly predicted). CG adopts a conceptual view of meaning in which semantic structure is equated with conceptual structure.

The CG notion of *imagery* is fundamental: it refers to speakers' ability to construe an objective event or situation in different ways for grammatical coding purposes. Thus, the meaning of a linguistic predication involves not only its objective content, but also how that content is *construed* (an important notion for case semantics). Grammatical constructions involve the grammaticization (or encoding) of *conventional imagery*, and a grammar is defined as "a structured inventory of conventional linguistic units" (Langacker 1987:57). Accordingly, each individual sense of a case is assumed to be a conventional unit in a speaker's grammar.

Linguistic predications are defined through the imposition of a figure/ground organization on one or more cognitive *domains*. Within a given domain a particular subpart will be invoked for purposes of linguistic coding. This linguistically relevant subpart, the *scope of predication*, is "the array of content a predication specifically evokes for its characterization" (Langacker 1991a:4). The *profile* is the structure within the background (scope of predication) that is singled out for specific designation by a linguistic predication; the relation between the profile and background (*base*) of a predication determines its semantic value. The nature of an expression's profile determines it grammatical class. *Nominals* profile *things* (i.e. regions in some domain), and *verbs* and *adjectives* profile different kinds of *relations* among entities.

CG assumes that absolute predictabilty is unrealistic and unnecessary in showing that semantico-conceptual structure often shapes and *motivates* morphosyntactic structure, i.e. "[c]ognitive grammar does not claim that grammar is *predictable* from meaning, but rather that it is meaningful because it embodies and symbolizes a particular way of construing conceptual content" (Langacker 1991b:517).

2.2. Image Schemas

Lakoff and Johnson (1980), Lakoff (1987), and Johnson (1987) suggest that much of what we call "grammar" is organized around certain cognitively fundamental prelinguistic conceptions called *image schemas*

(such as source-path-goal and container-content) which are grounded in everyday physical or bodily experience. Image schemas are mental "structures for organizing our experience and comprehension" which lend "pattern and order to our actions, perceptions, and conceptions" (Johnson 1987:29). They can also be thought of as *experiential gestalts* that emerge throughout sensorimotor activity as we manipulate objects, orient ourselves spatially and temporally, and direct our perceptual focus for various purposes (Johnson 1991), and can serve as complex conceptual categories which are schematic for a variety of more specific notions or conceptualizations (subschemas) (Lakoff 1987).[3]

CG claims that speakers have the ability to relate and then metaphorically extend prelinguistic image-schematic conceptions, which are grounded in a concrete physical domain, to more abstract cognitive domains "that support the characterization of basic grammatical constructs" (Langacker 1991b:399) (e.g. one can project image schema structure into more abstract domains via metaphor).

2.3. How Actions and Events are Modeled within CG

The CG framework assumes that the prototypical way of organizing our conceptions of actions and events instantiates the source-path-goal and container-content image schemas, in which there is "the notion of an event occurring within a setting and a viewer (V) observing it from an external vantage point" (Langacker 1991b:286). This conceptualization is known as the *canonical event model* and is sketched in Figure 1 below.
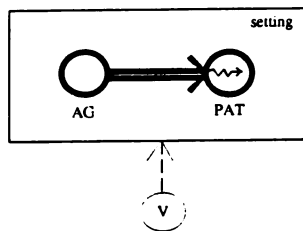

Figure 1. Canonical Event Model

The transmission of physical energy by the head of the *action chain* (typically an agent) is depicted by a double arrow in Figure 1, and the

---

[3] See Gibbs and Colston (1995) on the psychological reality of image schemas.

wavy arrow represents the change of state undergone by the entity which receives this energy (typically a patient).

The action chain in Figure 2 below represents a typical transitive event and illustrates the relationships among the main role archetypes along the action chain, where an energetic *agent* participant instigates an action which flows through an *instrument* and ends up at a *theme,* which is typically a patient, though it could be a mover, experiencer, or zero (i.e. essentially static with respect to the conceived event). The *experiencer* participant typically exhibits mental activity in response to the activity along the chain.
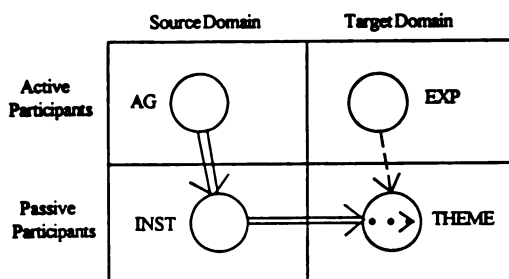
Figure 2. Relationships among Role Archetypes

2.4. Polysemy and the Network (Prototype) Model of Categorization

In contrast to the classical Aristotelian notion that all categories (including linguistic ones) have discrete boundaries, with category membership determined by a fixed set of necessary and sufficient conditions, CG adopts the *network (prototype) model* of categorization, in which the senses of a linguistic expression form a *radially structured category* consisting of a network of interrelated senses. Such complex conceptual categories often have a central (prototypical) sense from which other senses are linked via various kinds of well-known processes of semantic extension (such as metaphor and metonymy).

Grammatical categories such as cases are thus treated in CG as meaningful, but polysemous, despite the usual assumption that they are devoid of meaning.[4] Because languages have a limited inventory of case markers, an individual case commonly signifies a wide variety of dis-

---

[4] See Langacker (1991a:301ff.) for discussion about why this is usually assumed.

tinct, interrelated meanings. These meanings tend to cluster around pro-
totypical senses, but often include senses motivated as semantic exten-
sions from the prototype(s). Extended senses may develop due to a per-
ceived similarity between the prototype and other conceptualizations; the
perception of this similarity is then captured by higher order schemas.
Clear meaning relations usually exist between adjacent members of a
family resemblance category, but non-adjacent members may have little
in common with each other. Though the noncentral senses usually cannot
be predicted from the central senses, they are nonetheless not arbitrary,
but can be *motivated* as semantic extensions from more central senses
(cf. Lakoff 1987:460).

I will argue that the Russian INST case is a conceptual category
which subsumes multiple related meanings, and that its puzzling uses in
(2–7) represent extended senses that can be related to its more
prototypical sense via meaning chains (cf. Taylor 1995:99ff.).

3. Sketch of the Russian INST Category

3.1. Prototypical INST Sense

Following Langacker (1991b:404–5), I assume that the INST evokes "as
its base the schematic conception of an action chain involving an agent,
an instrument, and a theme". The prototypical sense of the Russian INST
is a *schematic nominal predication* whose basic conceptual structure is
depicted in Figure 3: "the schematic conception of an action chain serves
as its base, and within that base it designates [profiles] a participant
characterized in terms of the *instrument* role archetype" (Langacker
1991b:405). When the INST combines in construction with a suitable
nominal (to form a case–marked nominal) the resulting nominal will be
construed as being in this kind of configuration. Thus, it prototypically
marks an energy *conduit* on the action chain in a canonically-construed
event (cf. (1) above). Janda (1993:143ff.) also notes this conduit sense.
Boldface in the figure indicates profiling: i.e. that the INST case
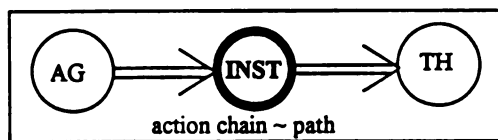*designates* the INST entity on the action chain.

Figure 3. Schematic prototypical sense of the Russian INST
(INST is construed as an action chain participant)
(adapted from Langacker 1991b:404)

3.1.1. Nonprototypical (Concrete) Instruments

The prototype sense of the INST (a physical conduit for an agent-induced energy flow) shown in (1) is easily extendable to entities construed as atypical kinds of instruments. An example is the INST in impersonals used to signify a kind of impersonal force of nature (cf. Smith 1994):

(8) Vetrom   sorvalo   kryšu
     wind-INST   tore-away   roof-ACC

     'The roof was torn away by the wind'; '(Some force) tore away the roof by means of wind.'

3.1.2. Abstract Instruments

The INST can be semantically extended to signify entities conceptualized as instrument-like in various kinds of abstract domains, including the INST of manner, in which the manner adverbial can be construed as a kind of abstract instrument:

(9) Ivan   govoril   gromkim   golosom
     Ivan   spoke   loud-INST   voice-INST

     'Ivan spoke with/in a loud voice.'

Also, the INST "objects" of some verbs are construable as abstract instruments in certain domains: cf. the intellectual domain in general (10a), where the INST "object" is viewed as a kind of abstract intellectual instrument or means by which interest is aroused; or the domain encompassing our knowledge of sickness (10b), where the INST NP is construed as the means by which Ivan became ill:[5]

---

[5] Cf. too *uvlekat'sja/uvlečsja* 'be carried away (by)', *zanimat'sja* 'be occupied with'.

(10) a. Ja   interesujus'   sportom
          I   be-interested-in   sports-INST
          'I'm interested in sports.'

      b. Ivan   boleet   grippom
          Ivan   is-ill   flu-INST
          'Ivan is ill with the flu.'

3.2. Extensions from the Prototype INST that Preserve Its Basic Structure

The prototype INST schema sketched in Figure 3 is conceptually complex, with numerous possibilities for semantic extension via inferences from the basic configuration. As a result, any of the following inferences can be drawn from this schema with respect to how the INST entity in this configuration is construed:

a) as a *conduit* for the flow of energy from the agent to the theme along the action chain, in which case its involvement is *bilateral* (i.e. it is affected by energy flow from upstream—its passive aspect—while simultaneously acting as a transmitter of energy to downstream participants—its active aspect).

b) as neither an energy source nor an energy sink (i.e. does not absorb energy).

c) as *controlled* or *dominated* by the agent (which emphasizes its passive nature).

d) as a non-agentive *source* of energy (which emphasizes its active nature).

e) sometimes as an *attribute* of the agent.

Later evidence will support my claim that a general inference can be drawn from the prototype INST configuration that is relevant for all uses of the case; this is the property of INST that manifests persistence (Hopper 1991). This inference, the *core schematic sense* of the Russian INST, holds that *some kind of directional path (in some domain) is construed to move relative to the INST entity* in all its uses.

Clearly, the prototypical sense of the INST strongly evokes both inference properties (a) and (b) above. Other characteristics of the INST

entity inferable from this configuration can be highlighted (and others downplayed) to motivate the use of the case in different constructions, while still keeping the basic background configuration constant. Though different uses of INST in various constructions might appear to be unrelated (or even contradictory), they can be motivated as involving different aspects of the prototype configuration shown in Figure 3.

3.2.1. The INST case can evoke notions of source or cause

This sense highlights the prototypical INST's function as an intermediate source of energy flow (its active nature), while downplaying its affectedness (its passive nature), though both aspects are still present to some degree (both are within the case's scope of predication). This sense is sketched in Figure 4; the boldface brackets identify the specially focussed portion of the basic configuration.
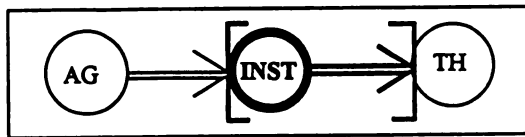
Figure 4. INST is construed as a source or cause

Emphasis on the instrument's active role in an event leads to a semantic extension from INST's prototypical sense to one that can mark entities construable as sources of some kind. Sometimes the cause notion is also operative (and it may not always be possible or even necessary to disentagle the two to motivate the use of INST).

    One use of this extended sense of INST is to mark passive agents (which are a kind of energy source): passive agents are construed as atypical kinds of agents (they are nonfocussed and can usually be omitted).

(11) Ètot   pis'mo   napisano   mnoj
     that   letter   written   me-INST
     'That letter was written by me.'

The source INST also marks "objects" construed as sources (or causes) of some kind (the following examples are from Pulkina (1984:98–99).[6]

(12) a. My   naslaždaemsja   vesennim   solncem
        we   enjoy   spring-INST   sunshine-INST
        'We enjoy spring sunshine.' (i.e. Sunshine is a source/cause of our enjoyment)

     b. Etot   rebenok   uvlekaetsja   šaxmatami
        this   child   be-fascinated   chess-INST
        'This child is fascinated by chess.' (i.e. Chess causes the fascination)

The INST complement of the adjective *dovolen* 'be satisfied with' also evokes the source-cause notions. In (13) the INST entity is construed as the source or cause of someone's satisfaction:[7]

(13) Ja byl očen' dovolen   koncertom
     I was very satisfied   concert-INST
     'I was very satisfied with the concert.'

3.2.2. Verbs with INST Objects Evoking Domination or Control

When emphasis is placed on inference (c) above from the INST prototype schema, the case can highlight the passive nature of the entity, i.e. the sense that it is controlled or governed by the agent (see Figure 5). Even though the INST-marked entity is construed as controlled or governed, it is still a transmitter of energy to downstream participants along the action chain.

---

[6] Cf. also *pol'zovat'sja* 'use, enjoy' ('use' sense also evokes control), *gordit'sja* 'be proud of', *ljubovat'sja* and *vosxiščat'sja* 'admire', *zanimat'sja* 'be occupied with', *bolet'/zabolet'* 'be ill/fall ill'. The use of INST with these verbs likely cross-cuts both the INST (§ 3.1) and source senses, since it is not always possible to separate one sense from another. Such data exemplify multiple motivations for the INST.

[7] The use of INST with the adjectives meaning 'rich' (*My živem v oblasti bogatoj zolotom* 'We live in a region rich in gold') and 'poor' (*Pustynja bedna rastitel'nost'ju* 'The desert is poor in plant life') also likely exemplifies the source notion: i.e., gold is the source of the riches and lack of plant life is the cause of the poorness.
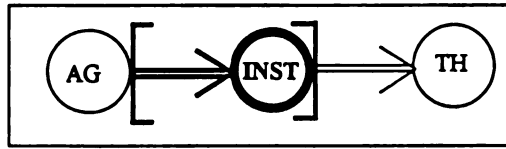
Figure 5. INST is construed as under domination or control

INST is thus motivated with the verbs in (14) below, because the "objects" are controlled by the agent and are also entities in the source domain (i.e. connected to the agent) which facilitate energy flow (see also Janda (1993:147–148)).

(14) a. brosat'kamnjami   'to throw (with) stones'

  b. požat'plečami   'to shrug (with) one's shoulders'

In (15) the INST focusses attention on an entity as dominated or governed by the agent without particularly highlighting its potential as an energy transmitter. In such cases the notion of domination alone is enough to motivate INST.[8]

(15) a. Prezident   upravljaet   stranoj
       president   governs   country-INST

       'The president governs the country.'

  b. *On   ovladel   novoj   professiej*
       he   mastered   new-INST   profession-INST

       'He has mastered a new trade.'

3.3. Construal of the INST Entity as the Setting for the Action (Rather than as a Participant on the Action Chain) ·

Janda rightly recognizes another sense of INST in which INST-marked nominals can evoke the *setting* within which an event occurs (cf. the canonical event model in Figure 1) and examples (4–5). She notes that this sense of INST "has been generalized to the point at which it serves

---

[8] Cf. also *rukovodit'* 'to lead, supervise', *komandovat'* 'to command', *zavedovat'* 'to be in charge of'', *obladat'* 'to have, possess', *vladet'* 'to be able, to use', *pol'zovat'sja* 'to use' (Pulkina (1984:98). Janda's (1993:161) explanation for INST here is obscure.

no longer as a conduit for the action, but rather as a spatial or temporal backdrop. It has in effect merged with the setting" (Janda 1993:164ff.).[9]

What is there about the prototypical sense of the INST which is compatible with the setting sense? Recall that the prototypical INST configuration in Figure 3 evokes the idea of energy flow *through* the INST entity (1), which is construed as a participant on the action chain that is typically wielded and/or controlled by an agent. The setting INST preserves the idea that the INST-marked entity is a *conduit* for energy flow, but it loses all other properties and/or inferences associated with typical instruments. Also, the particular nature of the conduit changes (it is now construed as a region or setting rather than as a participant controlled or affected by the agent), and now the energy may be construed to flow completely within the INST-marked entity (rather than through it). The sequence of diagrams in Figure 6 illustrates this process.
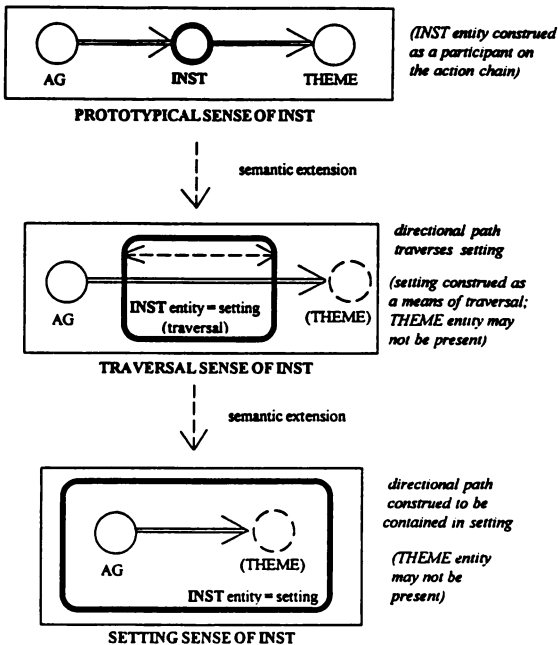

Figure 6. Construing the INST entity as a setting

---

[9] Janda never explains the motivation for this shift in meaning (i.e. it is not clear what it means for the INST case to "merge" with the setting).

A first step toward realizing the setting INST is for the INST-marked nominal designating a setting to be construed as a physical area or region that serves as a means of getting somewhere (a facilitative function reminiscient of typical instruments), as shown in (4) above. Here the INST nominal profiles a setting by way of which the directional action of going is construed to occur. I will call this the *traversal sense* of INST; it represents an intermediate stage in the development of the full setting sense of the INST.

The next step toward grammaticalization of the setting usage is for the conduit notion from inference (a) to become paramount. When this happens, the setting is no longer construed as being traversed, but rather as a region completely within which the action is construed to take place. Following Janda (1993), I will call this the *setting sense* of INST. Note that in (16) below (from Janda 1993:166) the setting is construed as a spatial region.

(16) Oni   prošli   prostornoj   svetloj   komnatoj
      they went-thru   spacious-INST bright-INST room-INST
      'They walked through a spacious, bright room.'

The setting can also be viewed as a temporal region within which the action occurs, which involves construing this grammaticalized sense of the case against the temporal domain. Sentences (5) above and (17) below illustrate this usage (cf. Janda 1993:168).

(17) V   Sibiri   očen'   xolodno   zimoj
      in   Siberia   very   cold   winter-INST
      'In Siberia it's very cold in/during the winter.'

3.4. Extension of INST to Grammaticalized Senses Evoking Impermanence or Transitoriness, Inceptive Change, and Irrealis

We can now treat the puzzling uses of the INST noted in §1 above. I will argue that all reflect a set of closely related senses which evoke such notions as *impermanence, transitoriness*, *change* (inception of a state), and even the *irrealis* mood found in some languages.[10] These uses

---

[10] While Jakobson (1936 [1971]) notes the impermanence sense of INST, he makes no mention of an *irrealis* sense (which to my knowledge has never before

clearly represent a major semantic shift away from the prototype to senses seemingly unrelated to the instrument notion. But a connection can be made to the more central senses of the INST category—i.e. they can be motivated as members of the category—because they all somehow evoke the *core schematic sense* of INST: some kind of directional path is construed to move relative to the INST entity in some domain.

These grammaticalized senses can be motivated via meaning chains (cf. Taylor 1995) from the prototypical INST sense depicted in Figure 3. This sense, which evokes the notion of the instrument as a conduit for the transmission of physical energy along the action chain from agent to patient, is sketched in the upper left diagram in Figure 7. The conduit notion also evokes the idea of a *directional path (trajectory)* along which the energy is construed to move with respect to the instrument.
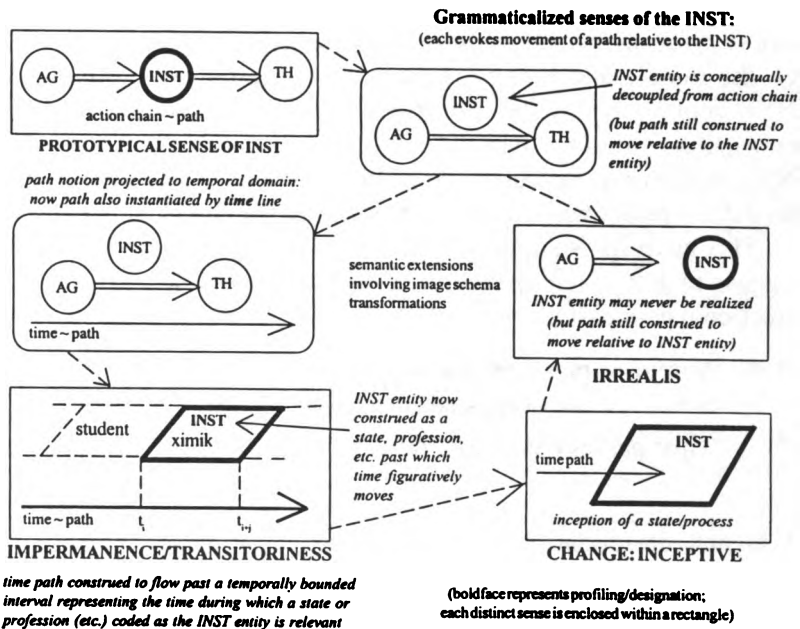

Figure 7. Semantic extensions of INST involving impermanence, change, and irrealis

been proposed for INST case). He also does not show how these extended senses are semantically related to (and derivable from) the INST prototype.

Part of the rich encyclopedic knowledge speakers have about paths or trajectories is that they are ever-changing and not static. The grammaticalized impermanence, change, and irrealis-like senses could thus evoke *image schema transformations*[11] in which the concrete path-like aspect of the trajectory schema in the prototype sense of INST is downplayed in favor of a well-known property of paths: their impermanence. A meaning chain, consisting of a series of metonymically linked senses representing part of the speakers' knowledge of the INST category, might look something like this:

> conduit for path/trajectory ⇨ impermanence/transitoriness
> ⇨ change (inceptive) ⇨ irrealis.

The *impermanence/transitoriness* sense of the INST can be motivated via an image schema transformation in which the INST entity is, in a sense, conceptually decoupled from the action chain itself and *the path is projected to the temporal domain* and instantiated as a time line (cf. the middle and lower diagrams on the left side of Figure 7). The INST entity can now be construed as a temporally bounded interval representing the time during which a state or profession, coded in the INST, is relevant. Because time continually moves past the INST entity, the state or profession is construed as temporary and/or impermanent.[12]

This analysis is supported by the following *time metaphors,* which suggest that Russian speakers can construe time as flowing along a directional path past an observer:[13]

(18)   Vremja   proxodit/prošlo/proletelo
       time   passes/passed/flew (by)

       'Time passes/has passed/flew by.'

---

[11] Mental operations which allow speakers to relate different, though conceptually similar, configurations as aspects of the same basic image schema (cf. Lakoff 1987: 106ff.)

[12] Independent evidence for grammaticalizing the impermanence/transitoriness notions is found in the well-known distinction in meaning between some long and short form adjectives, e.g. *bol'noj* 'sickly' vs. *bolen* 'sick' (i.e., at present).

[13] Thanks to Maria Risov for these data and her intuitions about their interpretation.

The *change* sense of the INST can be motivated as an extension of the impermanence sense when the focus is on the inception of the time at which one enters into a particular state or profession, as shown in lower right-hand corner of Figure 7. The *irrealis* sense can then be motivated as an extension from the change sense as the limiting case when the likelihood of the realization of the state or profession profiled by the INST entity is construed as open to doubt (as in the future tense and after some modals and verbs expressing desire).[14]

Once these grammaticalized senses develop, they can be used to signify a variety of relationships which appear to have nothing at all in common with the prototypical instrument notion, such as comparison in sentence (3). Indeed, in some cases it is possible that more than one of them might motivate INST simultaneously. Let us now examine additional data illustrating how these grammaticalized senses of the Russian INST can be used.

3.4.1. INST Predicate Nominals after Verbs of Being

The impermanence sense of INST found with predicate nominals and adjectives following the verb *byt'* 'to be' and other verbs of being in non-present tenses (and after infinitives and participles) is well-known. I claim that in the future tense and in some desire .and judgment contexts the INST also evokes the proposed irrealis sense, as already shown in (6–7) above. Note, for example, how in (6) the subject's desire to be an engineer is not necessarily realized, nor is the subject's attempt to look young in (7).

Nominative (NOM) case can be used in these constructions with strong characterizations and with nouns having "evaluative meaning" (Nakhimovsky and Leed (1980:219)). Clearly NOM accentuates permanence in contrast to the impermanence evoked by INST, as shown in the following pair of sentences:

---

[14] Or the irrealis sense might simply be a direct extension of the image schema transformation which decouples the INST-marked entity from the action chain: conceptual separation of the two is what evokes irrealis. Either avenue of semantic extension seems plausible (and potentially relevant).

(19) a. Petja   byl   nastojaščij   diplomat
         Petja   was   real-NOM   diplomat-NOM

         'Petja was a real dipomat (he was a diplomatic person).'

    b.   Petja   byl   diplomatom   vo   vremja   vojny
         Petja   was   diplomat-INST in   time   war

         'Petja was a diplomat during the war.' (impermanence)

In (20–21) the INST-marked predicate nominals evoke the *irrealis* (and probably also the *inceptive change*) notion after *byt'*, since there is doubt as to whether the persons will become doctors.

(20) Po-mojemu   Nadja   budet   xorošim   vračom
     to-me   Nadja   will-be good-INST   doctor-INST

     'I think Nadja will become a good doctor.'

(21) Ja   ne   xoču   čtoby   moj   syn   byl   vračom
     I   not   want   so-that my   son   was   doctor-INST

     'I don't want my son to become a doctor.'

The irrealis sense of INST also occurs with other verbs of being.[15]

(22) On   sčitaetsja   prekrasnym   rabotnikom
     he   is-considered   excellent-INST   worker-INST

     'He is considered to be an excellent worker.'

(23) Moskva   mne   kazalas'   očen'   bol'šim   gorodom
     Moscow   me   seemed   very   large-INST   city-INST

     'Moscow seemed to me (to be) a very large city.'

3.4.2. The Use of INST to Mark Second "Objects" (or Complements)

This use of INST usually evokes impermanence or change. Thus, in (2) above the person elected president was not always (and will not always be) president, and in (24) below the face looks funny only while someone wears the glasses.

---

[15] Other verbs of being evoking impermanence, change, or irrealis that govern INST include: *stat'* 'to become', *stanovit'sja* 'to become', *okazat'sja* 'to turn out', *javljat'sja* 'to be', *vygljadet'* 'to look, appear'.

(24) Eti   očki   delajut   ego   lico   smešnym
      these   glasses   make   his   face   funny-INST

      'These glasses make his face funny.'

3.4.3. The INST of Comparison

This use of the INST can be motivated semantically as evoking the
grammaticalized senses of impermanence and irrealis, since the idea of
comparison illustrated in sentence (3) represents a situation in which two
(often disparate) entities are momentarily brought together conceptually
for some purpose, without the idea that the entities are construed as
permanently united in any way. Thus, the comparison of the subject to a
nightingale in (3) does not entail the permanent identity of the two, nor
does comparison of Vanja's appearance to that of a wolf entail that he is
a wolf in (25).

(25) Vanja   smotrit   volkom   (Janda 1993:171)
      Vanja   looks   wolf-INST

      'Vanja looks like a wolf.'

4. Conclusions

A cognitive semantic analysis offers a means of coherently
explaining the bewildering array of seemingly unrelated uses of the
Russian INST. A conceptualist, meaning-based approach *motivates* the
various uses of the INST case as semantic extensions from more
prototypical senses (though absolute predictability is not possible).
Consequently, the INST case is *polysemous*: its senses are members of a
complex conceptual category, with extended senses radiating outward
from more prototypical ones in a complex semantic network. Certainly
this approach is superior to alternatives which would, at best, simply
ignore whether the varied uses of the INST case are interrelated, or, at
worst, conclude that many uses of the case are simply arbitrary and
semantically empty.

References

Gibbs, Raymond W., Jr. and Herbert L. Colston. 1995. "The cognitive psychological reality of image schemas and their transformations." *Cognitive Linguistics* 6, 347–378.

Heine, Bernd. 1997. *Cognitive Foundations of Grammar.* New York/ Oxford: Oxford University Press.

Hopper, Paul J. 1991. "On some principles of grammaticalization." In *Approaches to Grammaticalization,* Vol. 1., ed. Elizabeth Traugott and Bernd Heine, 17–35. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Jakobson, Roman. 1936. "Beitrag zur allgemeinen Kasuslehre: Gesamtbedeutung der russischen Kasus." *Travaux du Cercle Linguistique de Prague* 6, 240–288. [Reprinted in: *Selected Writings II.* The Hague: Mouton, 1971, 23–71.]

Janda, Laura A. 1993. *A Geography of Case Semantics. The Czech Dative and the Russian Instrumental.* Berlin/New York: Mouton de Gruyter.

Johnson, Mark. 1987. *The Body in the Mind.* Chicago: The University of Chicago Press.

Johnson, Mark. 1991. "Knowing through the body." *Philosophical Psychology* 4, 3–18.

Lakoff, George. 1987. *Women, Fire, and Dangerous Things: What Categories Reveal About the Mind.* Chicago: University of Chicago Press.

―――. 1990. "The invariance hypothesis: is abstract reason based on image-schemas?" *Cognitive Linguistics* 1, 39–74.

Lakoff, George and Mark Johnson. 1980. *Metaphors We Live By.* Chicago: The University of Chicago Press.

Langacker, Ronald W. 1987. *Foundations of Cognitive Grammar, Vol. I: Theoretical Prerequisites.* Stanford: Stanford University Press.

―――. 1991a. *Concept, Image, and Symbol: The Cognitive Basis of Grammar.* (Cognitive Linguistics Research 1.) Berlin: Mouton de Gruyter, 209–260.

―――. 1991b. *Foundations of Cognitive Grammar, Vol. II: Descriptive Application.* Stanford: Stanford University Press.

Nakhimovsky, Alexander and Richard Leed. 1980. *Advanced Russian.* Columbus, OH: Slavica Publishers, Inc.

Pulkina, I. M. 1984. *A Short Russian Reference Grammar.* Moscow: Russky Yazyk.

Smith, Michael B. 1987. *The Semantics of Dative and Accusative in German: An Investigation in Cognitive Grammar.* Doctoral dissertation, University of California, San Diego.

———. 1993a. "Aspects of German Clause Structure from a Cognitive Grammar Perspective." *Studi Italiani di Linguistica: Teorica e Applicata* 22, 601–638.

———. 1993b. "Cases as Conceptual Categories: Evidence from German." In *Conceptualizations and Mental Processing in Language* (Cognitive Linguistis Research, 2), ed. Richard A. Geiger and Brygida Rudzka-Ostyn, 531–565. Berlin/New York: Mouton de Gruyter.

———. 1994. "Agreement and iconicity in Russian impersonal constructions." *Cognitive Linguistics* 5, 5–56.

Taylor, John R. 1995. *Linguistic Categorization: Prototypes in Linguistic Theory* (2nd edition). New York: Clarendon Press/Oxford.

Michael B. Smith
Department of Linguistics
Oakland University
Rochester, MI 48309
smith@oakland.edu

Michigan Slavic Publications

FASL Proceedings New & Recent

FASL 5 | The Indiana Meeting, 1996

ed. by Martina Lindseth and Steven Franks

Alter
Babko-Malaya
Bar-Shalom
Beard
Borovikoff
Bošković
Budzhak-Jones
Feldstein
Fowler
Georgopulos
Junghanns
Laurençot
Progovacer
Snyder
Juner
Schoorlemmer
Stepanov
Stjepanović
Szczegielniak

K. Alter, Russian Prosody: Phrasing and Tonal Structure; *O. Babko-Malaya*, On Aspect and Case in Russian; *E. Bar-Shalom & W. Snyder*, Optional Infinitives in Russian and their Implications for the Pro-drop Debate; *R. Beard*, How Many Declensions? *N. Borovikoff*, Negated Adjunct Phrases are REALLY the Genitive of Negation; *Ž. Bošković*, Fronting Wh-Phrases in Serbo-Croatian; *S. Budzhak-Jones*, Wackernagel Phrase Conditioning of Long Head Movement in Hutsul; *R. Feldstein*, On the Relations between Russian Desinences and Stress Patterns; *G. Fowler*, Toward a Rapprochement between Form and Intuition: Approaches to the Russian Double Nominative Construction; *U. Junghanns*, On the So-called *èto*-cleft Construction; *E. Laurençot*, On Secondary Predication and Null Case; *L. Progovac*, Slavic and the Structure for Coordination; *C. Rudin*, AgrO and Bulgarian Pronominal Clitics; *M. Schoorlemmer*, Russian *-sja* and the Affix-Clitic Distinction; *A. Stepanov & C. Georgopoulos*, Structure Building and the Conceptual Interface: an Analysis of Russian Long Distance WH-Questions; *S. Stjepanović*, Is Inherent Case Structural? *A. Szczegielniak*, Deficient Heads and Long Head Movement in Slovak

FASL | *Proceedings*
New & Recent

FASL 4 | *The Cornell Meeting, 1995*

ed. by Wayles Browne, Ewa Dornisch, Natasha Kondrashova, and Draga Zec

Alexandrova
Avrutin
Babby
Bailyn
Billings
Brown
Burton
Comrie
Dornisch
Embick
Franks
Golden
Izvorski
Junghanns
Krapova
Park
Polinsky
Robblee
Rohrbacher
Sekerina
Zlatić

Galia Alexandrowa, Pronominal Clitics as G(eneralized) F(amiliarity)-Licensing AGR[0]; *S. Avrutin and B. Rohrbacher*, Null Subjects in Russian Inverted Constructions; *Leonard Babby*, Nominalization in Russian; *John F. Bailyn*, Genitive of Negation is Obligatory; *Loren Billings*, Negated Prepositional Phrases in Slavic; *Sue Brown & Steven Franks*, The Syntax of Pleonastic Negation in Russian; *Bernard Comrie*, Formal Approaches to Slavic Languages: Achievements and Limitations; *Ewa Dornisch*, Auxiliaries and Functional Projections in Polish; *D. Embick & R. Izvorski*, Participle-Auxiliary Word Order in Slavic; *Marija Golden*, Multiple Wh-questions in Slovene; *R. Izvorski*, Subject Free Relatives in Null-Subject Languages: Evidence from Slavic; *U. Junghanns & G. Zybatow*, Syntax and Information Structure of Russian Clauses; *Iliyana Krapova*, Auxiliaries and Complex Tenses in Bulgarian; *Hong-Keun Park*, Epenthesis in Polish: Constraint Interactions Sensitive to Level Distinctions *Maria Polinsky*, American Russian: Language Loss Meets Language Acquisition *K. E. Robblee & M. W. Burton*, Sonorant Voicing Transparency *Irina A. Sekerina*, Scrambling and Configurationality: Evidence from Russian Syntactic Processing *Larisa Zlatiæ*, Process Nominals and Anaphor Binding in Serbian

FASL Proceedings
New & Recent

FASL 3 The College Park Meeting, 1994

ed. by Jindřich Toman

**Babby
Billings
Dimitrova-
Vulchanova
Filip
Fowler
Franks
Giusti
Holloway King
Lindseth
Rudin
Schoorlemmer
Schütze
Slabakova
Vakareliyska
Vrzić
Yadroff**

Leonard H. Babby, Inflectional Morphology and Theta Role Suppression; *Loren Billings & Catherine Rudin*, Optimality and Superiority: A New Approach to Overt Multiple Wh-ordering; *Hana Filip*, Integrating Telicity, Aspect and NP Semantics: The Role of Thematic Structure; *George Fowler*, An Articulated Theory of Aspect and Prefixation in Russian; *Giuliana Giusti & Mila Dimitrova-Vulchanova*, Quantified Noun Phrase Structure in Bulgarian; *Tracy Holloway King*, Structuring Negation in Slavic; *Natalia Kondrashova*, The Russian Copula: A Unified Approach; *Martina Lindseth & Steven Franks*, Licensing and Identification of Null Subjects in Slavic; *C. T. Schütze*, Serbo-Croatian Clitic Placement: An Argument for Prosodic Movement; *Roumyana Slabakova*, Bulgarian Psych-Verbs; *Cynthia Vakareliyska*, Evidence from Aphasia for a Subject Slot in Bulgarian; *Zvjezdana Vrzić*, Categorial Status of the Serbo-Croatian "Modal" *da*; *Michael Yadroff*, SpecAspP and Case Assignment.

Babby
Bailyn
Bański
Borschev
Brown
Caink
Citko
Franks
Fried
Hermans
Hyde
Jakab
Kavitskaya
Komar
Krapova
Kupść
Lavine
McShane
Nair
Partee
Petkov
Sekerina
Smith