Raising doubts about Russian impersonals

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Abstract

The Russian data presented in Perlmutter and Moore (2002) seem to call into question the standard analysis of raising within Head-driven Phrase Structure Grammar (HPSG): In Russian, the case marking of the raising target and raising pivot does not seem to be shared. In this paper, we show that the phenomena described by Perlmutter and Moore can receive another analysis, fully compatible with HPSG's theory of raising. We argue in addition that our account leads to a slightly simpler model of the Russian data than Perlmutter and Moore's. Crucially, our analysis is only available if we avail ourselves of a rich network of language-specific constructional schemata, a stance recently advocated within HPSG, following the lead of Construction Grammar.

The Head-driven Phrase Structure Grammar analysis of raising, as presented in Pollard and Sag (1994), differs from other constraint-based lexicalist frameworks (e.g., Construction Grammar or Lexical-Functional Grammar)[1]) in distinguishing between raising and control structures. In the case of control, only the index of the controller is identified with the index of the control target (making control an instance of binding). In the case of raising, the entire *synsem* of the raised NP or raising pivot is identical to the embedded predicate's subject argument's *synsem* or raising target. Thus, in Figure 1, which represents part of the lexical entry of raising verbs, the first member of the ARG-ST list (corresponding to the subject in Nominative-Accusative languages) is identified with the first member of the argument structure of the second member of the ARG-ST (the verbal complement), as indicated by $\boxed{1}$. As a consequence, the case value of these two *synsems* must be identical (what we informally represented through an identically named variable x).

One advantage of this hypothesized difference between raising and control is that it immediately accounts for the transmission to the raising pivot of the quirky case assigned to the raising target by the embedded verb in languages like Icelandic (see Sag *et al.* (1992)). However, the Russian data presented in a recent paper (Perlmutter and Moore (2002)) seem to call this analysis into question. In Russian, the case marking of the raising target and raising pivot does not seem to be shared, contra the standard Head-driven Phrase Structure Grammar analysis (henceforth, HPSG). In this paper, we show that the phenomena described by Perlmutter and Moore can receive another analysis, fully compatible with HPSG's theory of raising. We argue in addition that our account leads to a slightly simpler model of the Russian data than Perlmutter and Moore's. Crucially, this analysis is only available if we avail ourselves of a rich network of language-specific constructional schemata, a stance recently advocated within HPSG, following the lead of Construction Grammar (see Sag (1997), Ginzburg and Sag (2001), and Kathol (2001), among others).

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[1]This is not true, though, of Categorial Grammar (e.g., Jacobson (1990) and work based on it), which aims to account for the same kinds of differences that the HPSG account focuses on.

$$\left[\text{ARG-ST} \left\langle \boxed{1}\Big[\text{HEAD} \big[\text{CASE } x\big]\Big], \Big[\text{ARG-ST} \left\langle \boxed{1}\big[\text{HEAD} \big[\text{CASE } x\big]\big]\right\rangle\Big]\right\rangle\right]$$

Figure 1: The (simplified) argument structure of a subject-to-subject raising verb

In the following section we present the Russian data from Perlmutter and Moore's paper. We then present our analysis. In the conclusion we compare it with Perlmutter and Moore's account, and speculate about which other phenomena typically treated in terms of lexical requirements might be more amenable to a constructional account.

1 The Russian data

Perlmutter and Moore's paper is concerned primarily with the interaction of infinitival and impersonal constructions in Russian. Russian raising structures are only discussed to the extent they provide evidence for Perlmutter and Moore's theory of zero expletives. But their analysis of raising, if correct, would challenge HPSG's theory of raising structures. Perlmutter and Moore provide convincing evidence for the following generalizations about Russian:

   a. The subjects of infinitival clauses are datives. (Comrie (1974))

   b. Infinitival clauses must have an expressed subject.

   c. Impersonal clauses have a silent expletive subject.

   d. This subject must be in the nominative case.

Sentence (1) below illustrates the claim that the subject of infinitival clauses is dative (see Perlmutter and Moore's paper for a list of infinitival clauses and their functions in Russian and Moore and Perlmutter (2000) for compelling evidence that the dative pronoun *mne* is indeed the subject of the infinitival verb). The sentences in (2) show that the complement of an *infinitival* purpose clause cannot leave its subject (here, *nam*) unexpressed, in contrast to that of *finite* purpose clauses (here, *my*). Finally, the contrast between sentences (3-a) and (3-b) shows that the expletive subject of impersonal clauses must be silent.

(1)   Mne   ne   sdat'   èkzamen
      me-DAT NEG pass-INF exam-ACC
      'It's not (in the cards) for me to pass the exam.'

(2)   a.   čtoby   (my)   uexali   na vokzal
           in.order we-NOM go.out-SUBJNCT to railway-station
           'in order that we go out to the railway station'

    b. čtoby   *(nam) uexat'   na vokzal
        in.order us-DAT go.out-INF to railway-station
        'in order for us to go out to the railway station'

(3)   a. Na Gavajax ne   morozit.
        in Hawaii NEG freeze-3SG
        'It doesn't freeze in Hawaii.'

    b. *Na Gavajax ono   ne   morozit.
        in Hawaii it.NOM NEG freeze-3SG
        'It doesn't freeze in Hawaii.'

These four facts together entail that impersonal clauses cannot be infinitival, since the expletive subject of impersonals must be nominative and the subject of infinitival clauses must be dative. Interestingly, though, impersonal infinitival phrases *can* felicitously serve as complements of raising predicates, provided the "surface position" of the raised expletive is the subject of a finite clause (and hence receives nominative case). Sentence (4) illustrates this case. The raising verb *načalo* 'begin' takes a nominative subject, as is generally the case for finite forms of verbs. Since the raised expletive is now in a "position" in which it receives nominative case, generalization d. is not violated and the sentence is grammatical.

The grammaticality of example (4) contradicts the predictions of HPSG's analysis of raising, at least if we adopt Perlmutter and Moore's analysis of the Russian data. The case of the (unexpressed) expletive raising pivot is nominative, as is required of the subjects of impersonal clauses by generalization d. The case of the raising target must be dative, by generalization a. The *synsem* values of the raising pivot and target cannot therefore be structure-shared, as the HPSG analysis demands, because the values of their CASE attributes conflict.

(4)   Borisa   načalo   tošnit'.
       Boris-ACC began-NEUT nauseate-INF
       'Boris began to feel nauseous.'

2   It is not so bad, after all

Perlmutter and Moore's data is not as damaging for the standard HPSG treatment of raising as it seems. As we show in this section, their analysis of the Russian data relies on an implicit assumption regarding the structure of Russian clauses. We show that a theoretically articulated theory of clause structure need not (in fact, should not) espouse this assumption.

2.1   Changing the underlying assumptions

The Russian data are entirely compatible with the HPSG analysis of raising, provided we do not subscribe to Perlmutter and Moore's assumption that the infinitive

complement of raising verbs is a *clause* and that we restrict generalization a. to the *expressed* subjects of infinitival verbs. Generalization a., as Perlmutter and Moore express it, refers to an intuitive notion of clause, not spelled out in detail. It amounts to grouping together, as members of this pretheoretical notion of clause constructs of type *head-subject-phrase* (root clauses, questions, purpose and temporal clauses) and VPs with unexpressed subjects (complements of raising predicates and obligatorily controlled complements). Although many claim that these two classes of construct form a natural class (see Chomsky (1981) for a defense of this view), this hypothesis has been disputed by advocates of constraint-based lexicalist theories since at least Bresnan and Kaplan (1982) and Gazdar *et al.* (1985). Under this alternative, controlled complements are treated as subjectless XCOMPS or VPs. Independently of this general theoretical difference as to whether these two kinds of constructions are both instances of the category of clause, there is Russian-internal evidence that the two behave differently, as Perlmutter and Moore themselves implicitly admit. First, the (unexpressed) subject of the controlled VP sometimes takes the case of the controller. Sentence (5) illustrates this pattern. The secondary predicate *sam* 'alone' agrees in case with the controller of the unexpressed subject of the VP *pojti na večerinku*, namely *Ivan*.

(5)   Ivan   xočet [PRO pojti na večerinku sam]
      Ivan.M.NOM want PRO to.go to party   alone.M.NOM
      'Ivan wants to go to the party alone.' (From Franks (1995))

Second, the subject of the VP complement of the raising predicate takes the case of the raising pivot, as sentence (4) illustrates.

To reflect the difference between the two kinds of infinitival "clauses" Perlmutter and Moore discuss, we modify generalization a. as a'. below, and add the hypothesis in e. Under our alternative analysis, descriptive generalization b. receives a different interpretation than that of Perlmutter and Moore. We model generalization b. as the effect of a constraint on the type *head-subject-phrase*, not as a property of all maximal projections headed by an infinitival verb.

a'. The *expressed* subjects of infinitival clauses are datives.

e. Root, question, purpose, and temporal clauses are *head-subject-phrase*s; the complement of raising verbs is a VP, i.e. either a *head-complement-phrase* or a *head-adjunct-phrase* (standard HPSG fare).

As the next section demonstrates, this revised, narrower generalization is all that is needed to bring the Russian data in compliance with the HPSG analysis of raising.

2.2   The technical details

We model the Russian data with three constraints, which account for generalizations a' through e. above.

Constraint (6) models generalization c.[2] It says that any impersonal verb (a member of the category of lexemes denoted by the type *impersonal-verb*) subcategorizes for an unexpressed expletive subject (i.e. a subject whose semantic CONTENT is *expletive* or not referential) and bears on all verbs that participate in an impersonal argument structure. (We assume, following Miller and Sag (1997) and Ginzburg and Sag (2001) that *pro* subjects are modeled through a particular kind of non-canonical *synsem*, as indicated in (6) by the type *pro-ss* of the sole *synsem* member of the SUBJECT list.)

$$(6) \quad \textit{impersonal-verb} \Rightarrow \left[\text{SUBJ} \left\langle \begin{bmatrix} \textit{pro-ss} \\ \text{CONTENT} \quad \textit{expl} \end{bmatrix} \right\rangle \right]$$

Constraint (7) models generalizations a'. and b. It requires of a structure that is an infinitival *head-subject-phrase* that its subject be dative. The constructional nature of this constraint (i.e., the fact that it pertains to a category of phrase-structural configurations) properly restricts generalization a. to *expressed* subjects, as in our revised generalization a'., at least under the typical HPSG hypothesis that phrase-structurally projected subject requirements cannot be silent (with the possible exception of traces of extracted constituents).

$$(7) \quad \begin{bmatrix} \textit{hd-subj-ph} \\ \text{HEAD} \quad \textit{infin} \end{bmatrix} \Rightarrow \left[\text{DTRS} \left\langle \begin{bmatrix} \text{CASE} \quad \textit{dat} \end{bmatrix}, \dots \right\rangle \right]$$

In other words, constraint (7) trades Perlmutter and Moore's descriptive observation based on a pre-theoretical notion of clause for a constraint that bears only on phrases composed of an (expressed) subject and a phrasal head.

Constraint (8) models the Russian-specific morphological generalization d. by requiring semantically expletive *synsem*s to bear nominative case.

$$(8) \quad \begin{bmatrix} \text{CONTENT} \quad \textit{expl} \end{bmatrix} \Rightarrow \begin{bmatrix} \text{CASE} \quad \textit{nom} \end{bmatrix}$$

Additionally, the contrast between the simplified entry for *čtoby* 'in order to' in (9) and the entry for raising verbs such as *perestavat'* 'stop' given in (10) embodies our hypothesis e. The entry in (9) subcategorizes for an infinitival clause (an infinitival verbal projection whose subject and complements requirements are saturated), whereas the entry in (10) subcategorizes for an infinitival VP (an infinitival verbal projection whose complements requirements are saturated, but whose subject requirement is not).

$$(9) \quad \begin{bmatrix} \textit{čtoby} \\ \\ \text{ARG-ST} \left\langle \begin{bmatrix} \text{SUBJ} \quad \langle\rangle \\ \text{COMPS} \quad \langle\rangle \\ \text{HEAD} \quad \begin{bmatrix} \text{VFORM} \quad \textit{inf} \end{bmatrix} \end{bmatrix} \right\rangle \end{bmatrix}$$

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[2]To avoid clutter, the representation of our constraints does not respect HPSG's feature geometry. Nothing substantive hinges on this strictly editorial simplification.

(10)
$$\begin{bmatrix} \textit{perestavat'} \\ \text{ARG-ST} \quad \left\langle \boxed{1}, \begin{bmatrix} \text{SUBJECT} \ \left\langle \boxed{1}\begin{bmatrix} \text{HEAD} \ \textit{noun} \end{bmatrix}\right\rangle \\ \text{HEAD} \quad \begin{bmatrix} \text{VFORM} \ \textit{inf} \end{bmatrix} \end{bmatrix} \right\rangle \end{bmatrix}$$

Together, these constraints provide for an easy explanation of the contrast in grammaticality of sentence (4) and sentences (3-b) or (11) (below). Sentence (4) is grammatical because the complement of *načalo* 'begin' is a VP whose (unexpressed) expletive subject can bear the nominative case of the raising pivot, since the need for a dative subject is only relevant to phrases of type *head-subject-phrase*, i.e. of phrases with a saturated subject requirement. Sentences (3-b) and (11), on the other hand, are ungrammatical because *čtoby* subcategorizes for a clause, i.e. a verbal projection in which the verb's subject requirement *must be* expressed and no subject is expressed.[3]

(11) *čtoby Borisa tošnit' zimoj
in.order Boris-ACC nauseate-INF winter
'in order for Boris to feel nauseous in the winter'

3 Conclusions and Implications

The following table compares the statements needed to model the Russian data under Perlmutter and Moore's and our analyses.

Perlmutter and Moore	Koenig and Davis
All subject (expressed or unexpressed) of infinitival verbs are dative	Only expressed subjects of infinitival verbs are dative
PRO subjects can sometimes bear the case of their controller	N/A
pro cannot be dative	N/A

   Our answer to Perlmutter and Moore's challenge to the HPSG analysis of raising relies on two important hypotheses about natural languages:

1. Verbal complements may be VPs or clauses;

2. Natural languages include language-specific constraints on phrase-structural configurations (e.g., in Russian, the subjects of infinitival *head-subject-phrase*s are dative).

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[3]The verb *tošnit'* in (11) is exceptional in that the experiencer, here *Boris*, must appear in accusative case; its subject is an (unexpressed) impersonal element. But since the complement clause is infinitive, it requires a dative, and hence expressed, subject.

Does the analysis we propose compare favorably to Perlmutter and Moore's? Since the two analyses are equivalent descriptively, a definitive answer to this question is unlikely. We merely make two remarks here. First, our analysis account for why control and raising structures appear to be exceptions to Perlmutter and Moore's generalization a. In our analysis, they are not exceptions, because this generalization only pertains to subject-predicate constructs, while raising and control verbal complements are VPs, not subject-predicate constructs. Of course, Perlmutter and Moore may be able to explain these exceptions (in terms, for example, of a reduced set of functional projections for raising and control verbal complements), but it remains true that only generalization a'. receives direct observable evidence.

Second, crosslinguistic evidence may favor the kind of analysis we are proposing. Russian makes a comparison based on descriptive adequacy between the two analyses difficult, since expletive subjects, which must be both nominative and unexpressed, are ruled out in infinitival clause environments. French, however, provides more fertile grounds for such a comparison. French expletives must be both nominative and expressed. Consider (12) (Perlmutter and Moore's examples (79) and (80)):

(12) a. Il   pleut.
          *(EXPL.NOM) rain.3SG-PRST.
          It rains.
      b. J' entends   pleuvoir
          I hear.3SG-PRST rain.INF
          I hear it rain.
      c. *Je l'   entends   pleuvoir
          I EXPL.ACC hear.3SG-PRST rain.INF
          I hear it rain.

Sentence (12-a) shows that French expletives must be expressed. The contrast between sentences (12-b) and (12-c) shows that there are no accusative expletives in French. To generalize their analysis to French, Perlmutter and Moore must posit both that French nominative expletives must be *expressed* and that French accusative expletives must be *silent*. Such a proposal is suboptimal on two counts. First, French is not a *pro*-drop language; positing silent expletives in infinitival clauses is therefore not otherwise motivated. Second, Perlmutter and Moore's proposal does not account for the fact that an expletive is unexpressed in only those very contexts in which an *expressed* expletive is impossible. Additional data further question such an analysis. Consider the following examples.

(13) a. Que vous partiez   est nécessaire.
          that you leave.SUBJ is necessary
          'For you to leave is necessary.' (sic)

    b.   Il   est nécessaire que vous partiez.
         EXPL is necessary that you leave.SUBJ
         'It is necessary for you to leave.'

(14)   a. *Que vous partiez   est grand temps.
          that you leave.SUBJ is big   time
          'For you to leave is high time.' (sic)
    b.   Il   est grand temps que vous partiez.
         EXPL is big   time that you leave.SUBJ
         'It is high time for you to leave.'

Sentences (13) show that the predicate adjective *nécessaire* 'necessary' allows its sentential complement to both be extraposed and occur in subject position. Sentences (14) show that, in contrast, the predicate nominal *grand temps* 'high time' requires its sentential complement to be extraposed. Compare now sentences (15) and (16).

(15)   George trouve nécessaire que vous partiez.
       George finds   necessary that you leave.SUBJ
       'George finds it necessary for you to leave.'

(16)   *George trouve grand temps que vous partiez.
       George finds big   time that you leave.SUBJ
       'George finds it high time for you to leave.'

An AP whose head is *nécessaire* can be embedded under the verb *trouver* 'to find', but not an AP whose head is the expression *grand temps*. One possible explanation for this contrast builds on the hypothesis that the direct object of the verb *trouver* must be "referential" (see Borkin (1984/1974) for some suggestions in that direction for the English verb *find* and Ducrot (1980) for some suggestions that *might* be similarly interpreted for the French verb *trouver*). Since *nécessaire* allows its sentential complement to be its subject, it may serve as the direct object of *trouver*; since the sentential complement of *trouver* must be extraposed, its expletive subject would have to become the object of *trouver*, violating the constraint that it be "referential". More solid evidence that the direct object of *trouver* is "referential" is required for this type of evidence to definitively rule out Perlmutter and Moore's analysis of French expletives, but the contrast between *nécessaire* and *grand temps* suggests that it may be descriptively on the wrong track. Our constructional analysis of the Russian data fares better when applied to French. We need only stipulate that French accusative pronouns are always referential (in HPSG's technical sense). In other words, the reason the subject expletives of the infinitival complements of raising verbs can be unexpressed is that these complements are Vs or VPs,

not clauses or subject-predicate constructs. There is no need to say that French is a *necessary pro*-drop language precisely when the subject is an expletive and in embedded infinitival clauses since in those contexts, in our analysis, there are no clauses, just Vs or VPs.

Let us now conclude on a more architectural note. As we mentioned earlier, the first hypothesis mentioned at the beginning of this section is part and parcel of constraint-based lexicalist approaches to grammar since the early 80's. The second hypothesis is part of a more innovative research program that started with Fillmore and Kay's work on Construction Grammar (see Fillmore *et al.* (1988)) and assumes that language-specific syntactic or semantic constraints can be attached to phrase-structural schemata. The "constructional stance" required to model the Russian data is rather minimal compared to the detailed network of constructions discussed in Sag (1997), Fillmore (1999), or Ginzburg and Sag (2001): the ability to refer to classes of phrase-structural configurations in the statement of language-specific constraints. But even this minimal stance has its advantages for constraint-based lexicalist approaches. We can preserve the advantages of HPSG's raising theory (over, say, LFG's) for Icelandic without having it falter on Russian.

The standard HPSG treatment of raising and the alternative set out here thus illustrate two contrasting analytical possibilities within HPSG, one capturing syntactic behavior through lexical requirements and the other, constructional one employing schemata, which is accordingly less "lexical". A natural question at this point is whether there are other phenomena that appear equally amenable to either type of analysis, but which, on more detailed examination, exhibit properties that favor one type of account over the other. While we have no specific examples to present here, we surmise that some agreement constraints might best be modeled through constraints on particular phrase-structural constucts, rather than lexical constraints between heads and their non-head dependents (complements, subjects, or modifiers), as in Pollard and Sag (1994). This might be particularly *à propos* in cases where the dependent's agreement properties cannot readily be determined by lexical features of a head, either because a (unique) head is not identifiable, or because its features are overridden by other considerations.

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