Raising doubts about Russian impersonals

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The standard HPSG theory of raising holds that the entire *synsem* of the raised NP (the matrix verb or adjective's subject or object argument— henceforth, the raising pivot) is identical to the embedded verb or predicate's subject argument's *synsem* (henceforth, the raising target). This hypothesis is well-supported empirically. In particular, it 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 challenge this hypothesis. 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, and that this analysis makes better cross-linguistic predictions about similar phenomena than an alternative analysis violating this *synsem* identity requirement.

Perlmutter and Moore's paper is concerned primarily with the interaction of infinitival and impersonal constructions in Russian. It should be noted at the outset that they do not explicitly challenge the HPSG account of raising, but their data, at first sight, call it into question, and their analysis is not compatible as it stands with the HPSG account. 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. The sentences in (2) show that the complement of *infinitival* purpose clauses cannot leave unexpressed their subject, in contrast to that of *finite* purpose clauses. The contrast between sentences (3-a) and (3-b) shows that the expletive subject of impersonal clauses must be silent. (Perlmutter and Moore provide independent evidence that the verb *morozit'* 'freeze' heads impersonal clauses.)

(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.'

As Perlmutter and Moore point out, 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. It is quite interesting, therefore, that impersonal infinitival phrases can felicitously serve as complements of raising predicates, provided the surface realization of the raised expletive is the subject of a finite clause (and hence receives nominative case), as in (4), where the finite verb *načalo* 'began' has a raised silent expletive subject, and *Borisa* is the object of *tošnit'* 'nauseate'. This example would violate HPSGs analysis of raising under Perlmutter and Moore's analysis of the Russian data. The case of the raising pivot is nominative, as is required of the subjects of impersonal clauses by generalization d. but the case of the raising target must be dative, by generalization a. The *synsem* values of the raising pivot and target therefore cannot be structure-shared, as the HPSG analysis demands.

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

We show in this paper that, in fact, the Russian data are entirely compatible with the HPSG analysis of raising, provided we do not subscribe to an implicit assumption of Perlmutter and Moore's analysis (that the infinitive complement of raising verbs is a *clause*) and restrict generalization a. to the *expressed* subjects of infinitival verbs. In other words, we modify generalization a. as a'. and add the hypothesis in e. below. Under our alternative analysis of the Russian data, descriptive generalization b. receives a different interpretation than that of Perlmutter and Moore. We model this generalization as the effect of a constraint on the type *clause*, not as a property of all maximal projections headed by an infinitival verb.

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

e. Root and purpose phrases are *clauses*; the complement of raising verbs is a VP.

We now provide the technical details of our analysis.

(5) $\textit{impersonal-verb} \Rightarrow \left[\textsc{subj} \left\langle \left[\begin{array}{l}\textit{pro-ss} \\ \textsc{content}\ \ \textit{expl}\end{array}\right] \right\rangle\right]$

(6) *infin-hd-subj-cl* $\Rightarrow \left[\textsc{dtrs} \left\langle \left[\textsc{case}\ \textit{dat}\right], \ldots \right\rangle\right]$

(7) $\left[\textsc{content}\ \textit{expl}\right] \Rightarrow \left[\textsc{case}\ \textit{nom}\right]$

The constraint in (5) models generalization c.[1] It says that any impersonal verb subcategorizes for an unexpressed expletive subject (i.e. whose semantic content is 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*.) Many subtypes of impersonal verbs must be distinguished, as Perlmutter and Moore note. Some verbs are inherently impersonal. Some verbs bear some particular information structure when they are impersonal. We leave further specification of the class of impersonal verbs to another venue since it is orthogonal to our concerns in this paper. The constraint in (6) models generalizations a. and b. It requires of infinitival *clause* signs that their subjects be dative. The constructional nature of this constraint (i.e., the fact that it pertains to a category of phrase-structural configurations) properly restrict generalization a. to *expressed* subjects as in our revised generalization a'., at least under the hypothesis that phrase-structurally projected subject requirements cannot be silent (leaving possibly aside traces of extracted constituents). The third constraint in (7) models the morphological generalization d. by requiring semantically expletive *synsem*s to bear nominative case (the value of the DTRS attribute lists the daughters of a local tree). Finally, the contrast between the simplified entry for *čtoby* 'in order to' in (8) and the entry for raising verbs such as *perestavat'* 'stop' given in (9) embodies our hypothesis e. The entry in (8) subcategorizes for an infinitival clause (i.e. it subcategorizes for an infinitival phrase whose subject valence list is emtpy), whereas the entry in (9) subcategorizes for an infinitival VP (i.e. an infinitival verbal projection whose COMPS valence list is empty, but whose SUBJ valence list contains an (unexpressed) nominal).

(8)
$$\left[\begin{array}{l}\textit{čtoby} \\ \textsc{arg-st}\ \left\langle \left[\begin{array}{ll}\textsc{subj} & \langle\rangle \\ \textsc{comps} & \langle\rangle \\ \textsc{head} & \left[\textsc{vform}\ \textit{inf}\right]\end{array}\right] \right\rangle\end{array}\right]$$

(9)
$$\left[\begin{array}{l}\textit{perestavat'} \\ \textsc{arg-st}\quad \left\langle \boxed{1}, \left[\begin{array}{ll}\textsc{subject} & \left\langle \boxed{1}\left[\textsc{head}\ \textit{noun}\right] \right\rangle \\ \textsc{head} & \left[\textsc{vform}\ \textit{inf}\right]\end{array}\right] \right\rangle\end{array}\right]$$

Together, these constraints provide for an easy explanation of the contrast in grammaticality of sentence (4) and sentences (3-b) or (10) (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. Sentences (3-b) and (10) are ungrammatical because *čtoby* subcategorizes for a clause, i.e. a verbal projection in which the verb's subject requirement *is* expressed and no subject is expressed.

(10) *čtoby Borisa tošnit' zimoj
in.order Boris-ACC nauseate-INF winter

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

'in order for Boris to feel nauseous in the winter'

Stepping back, our answer to Perlmutter and Moore's challenge to the HPSG analysis of raising relies on two important hypotheses about natural languages. One is common to all lexicalist constraint-based grammars: Verbal complements may be VPs or clauses. The other is particular to HPSG and Construction Grammar (Fillmore *et al.* (1988)): Natural languages include a rather large set of phrase-structural configurations many of which include language-specific constraints (e.g., in Russian, the subject of infinitival *clause*s are dative). The Russian data we discuss in this paper show the advantages this hypothesis can offer for constraint-based lexicalist approaches. But does the analysis we propose compare favorably to Perlmutter and Moore's?

For Russian, this question is difficult to answer, since expletives are ruled out in infinitival clause environments because they must be both nominative and unexpressed. But French provides more fertile grounds for comparing our analysis to Perlmutter and Moore's. French expletives must be both nominative and expressed. Consider (11) (Perlmutter and Moore's examples (79) and (80):

(11) 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 (11-a) shows that French expletives must be expressed. The contrast between sentences (11-b) and (11-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 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. Our constructional analysis of the Russian data fares better here as well. 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 *clause*s. There is no need to say that French is a *necessary pro*-drop language 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.

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