The Semantics of the Intensional Genitive in Russian: An empirical study

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Genitive/accusative alternations on objects in Slavic languages provide a clear instance where the semantics of a construction have an effect on the morphological realization. The semantic conditions on the alternation have received much attention and numerous theoretical analyses; however, the theoretical claims as to the causal underpinnings of the alternation have far outpaced the empirical work. This study leverages large corpora and new language technologies to address this gap. We provide a corpus-based study of the intensional genitive construction in Russian leading to an evaluation of the factors purported to influence the choice of case. Multiple-variable statistical modeling techniques then permit us to see from the data that indeed semantics does play the driving force, yet only in some of the ways previously put forth.

Theoretical Background

In this paper, we limit our investigation to the "intensional genitive" construction, an instance of genitive case-assignment to objects which has received relatively little attention in the literature, in comparison to the genitive of negation. This construction occurs with certain intensional verbs, such as *zasluživat'* 'deserve', *prosit'* 'ask for', and *ždat'* 'wait', which take genitive, as well as accusative, objects. Verbs belonging to this group have been classified as strong intensional verbs in Farkas (1985); an additional characteristic of these verbs is the ability to license the subjunctive mood. The examples below demonstrate that the objects of these verbs are sometimes obligatorily accusative (1a), sometimes obligatorily genitive (1b), and yet in other verb-object combinations, both patterns of case-assignment are available (2).

(1)   a.   On prosit   *knigi   / knigu.
          he   ask.PRES *book:SG.GEN / book:SG.ACC
          "He is asking for a book."

      b.   On prosit   vnimanija   / ??vnimanije.
          he   ask.PRES attention:GEN / ??attention:ACC
          "He is asking for attention."

(2)   Ty   zasluživaeš medali   / medal.
     You deserve   medal:SG.GEN / medal:SG.ACC
     "You deserve a medal."

The choice of case has been argued to depend on a whole range of properties of the nominal. It has been claimed that the genitive case is more likely to be assigned to abstract, plural, indefinite, non-specific NPs that receive narrow scope interpretations than to their concrete, singular, definite, specific, wide scope counterparts (see Neidle 1988, Kagan 2005, 2007, and references therein). Partee and Borschev (2004) and Kagan (2005) propose that the intensional genitive is assigned to property-denoting objects, which accounts for their non-referential, narrow scope interpretation. Grimm (2005) and Kagan (2005, 2007) further propose that the intensional genitive is assigned to objects that lack existential commitment, i.e. objects that are neither entailed nor presupposed to have a referent, or to quantify over a non-empty set. Yet, the data, as the literature concedes, are quite complex and the choice between the two forms does not always appear to be semantically motivated in an obvious way. Further, while speaker judgments have played a large role in our understanding of this construction so far, there is also considerable variation in native speakers' judgments.

Corpus and Methodology

The multiplicity of analyses given to this construction lead to question which properties of the nominal and of its environment effectively determine case-assignment, as well as if different

verbs play a role in the choice of case. Recent work in variationist syntax, i.e. on constructions involving choice between different forms such as the dative alternation, has emphasized that multiple variables, such as argument length and pronominality, contribute to the speaker's choice between forms (see Bresnan et al. (2007) inter alia). We applied a similar methodology to the genitive/accusative alternation in Russian, operationalizing the different factors that have been proposed in the literature and then assessing them simultaneously through regression modeling techniques.

The constructed corpus, culled from the Russian National Corpus (`http://www.ruscorpora.ru`), consists of over 700 instances of verbs for which the intensional genitive construction is possible. The data was annotated for a host of semantic, morphological, syntactic as well as contextual factors. The selection of factors for annotation was informed both by those which occur in the literature on the genitive in Slavic languages as reviewed above, as well as factors that have been found relevant in other constructions, such as the role of animacy in the dative (Bresnan et al. 2007) and genitive alternations in English (Szmercsányi and Hinrichs 2008). The factors and values (when more elaborate than the presence or absence of a property) are given in (3):

(3) *Animacy*, *Aspect* (Perfect/Imperfect), *Concreteness*, *Definiteness*, *Existential Commitment*, *Inanimate Subject*, *Presence of Negation*, *Number* (Singular/Plural/Non-Count/ Mass), *Order of Constituents* (OV/VO), *Presence of Auxiliary*, *Pronominality* (Pronoun/Lexical Noun), *Tense* (Non-finite/Past/Non-Past) and *Text Modality* (General/ Journalism/Literature/Spoken)

The principles of the coding followed either from methodology established in the literature on comparable topics, e.g. the coding guidelines for animacy were established in O'Connor et al. (2004), or were transparent due to the form of the items. Existential commitment was determined by examining if the original sentence can be conjoined with a clause that explicitly denies existence without creating contradiction or pragmatic oddness.

Model Results

We assessed the predictive power of the different factors through logicist regression modeling techniques. This method permits simultaneous evaluation of all the factors in the model, assessing the strength of each factor relative to all the others. For example, one can evaluate whether "Definiteness" is more important to a construction than "Number" in terms of how the two factors perform relative to one another within a data set. This allows one to determine which factors best explain the variance in the data set as well as to assess whether all the factors introduced in the model make independent contributions.

Across the corpus, main effects of *Concreteness*, *Existence* and *Negation* were found to be highly significant ($p < .005$); none of the other factors proved significant. Concrete objects and existential commitment to the objects increased the likelihood of accusative case marking, while negation within the sentence increased the likelihood of genitive case marking. Thus, while some of the factors proposed within the literature find confirmation across a large data set, others are more likely to be epiphenomenal. (Ultimately, *Animacy* was not able to be interpreted within this model, as the genitive and the accusative forms of almost all animate nouns are syncretic.)

The investigation also showed that individual verbs may show a large bias towards the choice of one case or another, e.g. constructions occuring with the verb *demand* have a much high probability of the genitive (*logodds* = 15.68) than constructions occurring with the verb *seek* (*logodds* = .05). In order to assess whether the main effects, such as *Concreteness*, held across the different verb biases, we used mixed-modeling techniques to include the verb as a random

effect, whereby the bias of each verbs would be adjusted for. The direction and magnitude of the effects were identical, and thus not dependent on the lexical semantics of particular verbs.

Discussion and Outlook

The results from our investigation reflect back on the theoretical analyses of this alternation—most clearly, that existential commitment motivates the accusative/genitive alternation, as recently argued in the literature, receives empirical support. Further, the positive effect of the abstract/concrete distinction is sensible given the claim that the intensional genitive is assigned to property-denoting objects: abstract NPs would seem to be predisposed towards a non-individuated, property-type interpretation associated with genitive case-marking. Abstract complements of intensional verbs have also been argued to lack existential commitment not only relative to the actual world but also relative to the worldview of the attitude holder (Kagan 2007), making them especially strongly associated with property type readings. In contrast, definiteness and word order do not in themselves affect case-assignment, indicating that familiarity and givenness are not as such predictive of case assignment. Yet, the intuitive correlation observed between definiteness and accusative case-marking can be related to the existential presupposition of definite NPs (Strawson 1950), supported by further analysis of the data indicating that there is an indirect influence of definiteness, which is mediated by existential commitment.

Current work is underway to broaden the investigation to the genitive of negation construction, which seems to be sensitive to the same properties discussed above (e.g. specificity, scope, concreteness, existential commitment), and accordingly has been argued to require a unified analysis with the intensional genitive (Neidle 1988, Kagan 2005, 2007, Partee and Borschev 2004).

References:

Joan Bresnan, Anna Cueni, Tatiana Nikitina, and Harald Baayen. 2007. "Predicting the Dative Alternation." In *Cognitive Foundations of Interpretation*, ed. by G. Boume, I. Kraemer, and J. Zwarts. Amsterdam: Royal Netherlands Academy of Science, pp. 69–94.

Farkas, D. (1985). *Intensional Descriptions and the Romance Subjunctive Mood.* New York: Garland Publishing, Inc.

Grimm, S. (2005). *The Lattice of Case and Agentivity.* MSc Thesis, University of Amsterdam.

Kagan, O. (2005). Genitive Case: A Modal Account. In: *Proceedings of Israel Association for Theoretical Linguistics 21 (IATL 21).*

Kagan, O. (2007). *On the Semantics of Structural Case.* Ph.D. dissertation, Hebrew University of Jerusalem.

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

O'Connor, M.C., A. Anttila, V. Fong (January 2004). "Differential possessor expression in English: Re-evaluating animacy and topicality effects." Annual Meeting of the Linguistic Society of America, January 9-11, 2004. Boston, MA.

Partee, B. and Borschev, V. (2004). "The Semantics of Russian Genitive of Negation: The Nature and Role of Perspectival Structure". Paper presented at *SALT 14.*

Strawson, P.F. (1950) "On referring" *Mind* 59, 320-344.

Szmrecsányi, B. and L. Hinrichs. (2008)." Probabilistic determinants of genitive variation in spoken and written English: a multivariate comparison across time, space, and genres." In Nevalainen, T., I. Taavitsainen, P. Pahta, and M. Korhonen (ed). *The Dynamics of Linguistic Variation: Corpus Evidence on English Past and Present.* Amsterdam: Benjamins.