

# **The Russian Genitive of Negation: Integration of Lexical and Compositional Semantics**

## **Project Description**

### **1. Integration of Lexical and Compositional Semantics**

#### **1.1. Background and Long-term Goals.**

The present project has three goals: (i) the integration of lexical and compositional semantics, a long-term goal; (ii) a better understanding of the semantics of the Russian Genitive of Negation (Gen Neg), a construction which offers intriguing challenges for the first goal; and (iii) the integration of Russian lexical semantics with Western formal semantics, a “broader-impact goal”, important in its own right, and in our view, a particularly promising way to approach the first two goals. Background for our goals and broader impact are described in Section 1. The Gen Neg construction, its problems, prior work, and our hypotheses are described in Sections 2-4. The plan of work is in Section 5. In Section 6 we describe our earlier project on Possessive constructions, which addressed the same long-range goals through a different family of constructions.

Lexical semantics has a long history in many traditions. Compositional semantics, particularly in the guise of formal semantics, is a younger field but has undergone rapid development and diversification since the seminal Montague (1973). The task of integrating these two fields is essential for a comprehensive view of semantics and its relation to lexicon and syntax; but such integrative work is in its infancy. There is exciting new work and recognition of the need, and such work may soon coalesce into a “field”. Our project will draw on recent relevant work in several frameworks; we believe it will be extremely valuable to draw Russian lexical semantics into this mix.

Formal semantics has benefited from increased attention to “sublexical structure” and to finer-grained model structures, especially in the entity and event domains (Bach 1986, Kratzer 1994, Krifka 1992, Landman 2000, Link 1983). Type-driven interpretation and coerced type shifts and meaning shifts provide part of the account of how lexical meaning both influences and is influenced by the meanings of constructions (Bittner 2001, Borschev and Partee 2001a, Partee 1986, Pustejovsky 1995). Other relevant foundational work, in approaches better known in Russia than formal semantics, includes (Goldberg 1995, Jackendoff 1996, Lakoff 1977, Talmy 2000).

Building on such pioneering work as (Apresjan 1974, Bierwisch 1983, Dowty 1979), recent work in several frameworks advances the integration of lexical and compositional meaning (Ackerman and Moore 2001, Bierwisch and Schreuder 1992, Boguslavskij 1996, Dölling 1992, Dowty 1991, Kamp and Rossdeutscher 1994, Kiparsky 1997, Krifka 2000, Levin 1993, Levin and Rappaport Hovav 1996, Paduceva 1997a, Paduceva in press-a, Paduceva in press-b, Rappaport Hovav and Levin 1998, Rappaport Hovav and Levin 2002, Wunderlich 1997). Working together with our Russian colleagues and in dialogue with this wider community, we believe we can make distinctive foundational contributions to an important new field of research.

#### **1.2. Western Formal Semantics and Moscow School Lexical Semantics.**

A major premise of our project is that formal semantics and Moscow school lexical semantics can and should be integrated. After years of relative isolation, the differences between Western and Russian linguistic theories of semantics and of syntax are substantial, and they cannot simply be glued together. Syntactic theory in Russia to some extent turned away from Western transformational theories and even Russian formal grammars (Mel'chuk 1974) after a brief surge of interest in the 60's and 70's; syntacticians such as Testelets (2001) and Kazenin (2000) familiar with recent Chomskyan theories are rare inside Russia. And semantics in Russia is largely lexical. We believe that with our experience together on our previous grant (Sec. 6) and in planning for this one, we have overcome major obstacles to cooperation and are prepared for intensive joint work on problems of mutual interest that will further our shared goals. Partee, Borschev, Paduceva, Rakhilina, and Testelets have jointly studied key pieces of

background literature, about Gen Neg and about theoretical frameworks, and we are ready to achieve fruitful empirical and theoretical advances in collaborative work.

We use the terms *compositional semantics* and *formal semantics*. The first describes any approach that adheres to the Compositionality Principle, that the meaning of the whole is a function of the meaning of the parts and how they are combined (Fillmore et al. 2003, Jackendoff 1993, Janssen 1997, Katz and Postal 1964, Partee 1984); Paduceva (1974) uses the term *semantics of syntax* to contrast it with *lexical semantics*. Formal semantics is a model-theoretic approach to compositional semantics, using tools developed by logicians, philosophers, and linguists (Bach 1989, Montague 1970, Partee 1996, Portner and Partee 2002). Partee has been active in formal semantics since its inception; Borschev's work in theoretical computer science included model-theoretic semantics of programming languages, and he has adapted and applied that expertise to natural language semantics. Early formal semantics took lexical items as unanalyzed primitives. Pioneering work on lexical semantics within formal semantics was done by Dowty (1979), and work in this area is increasing (Dowty 1989, Kratzer 2000, Krifka 1998, Krifka 2000, Partee 1995a, Partee and Borschev 1998, Tenny and Pustejovsky 2000). The lexicon is still a relatively underdeveloped area within formal semantics, however.

It is little known among Westerners that Moscow school lexical semantics has made significant progress in formalizing the semantics of the lexicon. This work grows out of a rich tradition of scientific lexicography (Apresjan 2000, Apresjan 1974, Apresjan et al. 1969, Apresjan 1994, Mel'chuk and Zholkovsky 1984), and concentrates on giving systematic descriptions, or "lexical portraits", of the semantics of lexemes (distinct senses of words), aiming for descriptive adequacy and formal rigor, identifying rich sublexical structure of meanings within semantic fields. Paduceva and Rakhilina have extended this approach to study whole classes of words (Paduceva et al. 1993, Paduceva in press-a, Paduceva in press-b, Rakhilina 1994). They concentrate on identifying components of meaning associated with particular syntactic properties of families of lexical items, and uncovering the mutual interactions of lexical semantics and the semantics of syntax, an area in which Paduceva has been a pioneer. Syntax itself is relatively neglected by contemporary Russian semanticists, although there is a rich tradition of attention to valency and diathesis<sup>1</sup>.

Our integration of these two semantic traditions – the Westerners' principles of composition (semantics of syntax) and the Russians' lexical portraits (lexical decompositions) -- starts from the notion of axioms and entailments. We think of the meaning of a sentence or text as analogous to a 'theory' in the logical sense, i.e. of entailments that arise from a variety of 'axioms' (Borschev 1996). Some of these axioms are contributed by lexical items ("meaning postulates", "lexical entailments"), others by the semantics of the syntax, and when a sentence is interpreted in context, other axioms are contributed by pragmatics, and by the background knowledge of the language users. The axioms contributed by lexical items include some that hold for a whole class of words or lexemes and other particular ones that differentiate words or lexemes within a given class. We can use axioms (or meaning postulates) to formalize Moscow school practice, with its "lexical portraits" in regimented prose form specifying individual "components of meaning", and also as a model-theoretic interpretation of non-formal Western semantic representations using "semantic features" or semantic "operators" such as CAUSE or BECOME (see also (Dowty 1979).)

The axioms contributed by the semantics of syntax may be conceived as semantic rules as in a Montague grammar, as type-driven interpretation principles operating on a level of "Logical Form" (Heim and Kratzer 1998), or as constraints on the interpretation of construction patterns (Kiparsky 1997, Krifka 2000). Some may be reinterpretable as systematic parts of lexical meanings, associated with the

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<sup>1</sup> Mel'chuk and Xolodovič (1970) and Xolodovič (1970) were the first to draw a distinction between *voice* and *diathesis*, using *diathesis* as the more general term for syntactic patterns of argument structure realization, reserving the term *voice* for diatheses marked on the verb (e.g. active/passive).

frames in which lexical items occur, much as Dowty reanalyzed governed transformations as lexical rules (Dowty 1978). In the years since our earliest work (Borschev and Partee 1998a), we have come to see the integration of lexical and compositional semantics as not just the ‘adding up’ of entailments from these (independent) sources, but as also involving type-shifting and sort-shifting principles, and interaction with contextual and topic-focus information as well. Working with our Russian colleagues, we believe we can discover more of the semi-productive type- and sort-shifting principles and accompanying shifts of meaning that play a large role in the integration of lexical and compositional semantics, and can link this work to the work of other scholars mentioned above who are working to integrate lexical semantics with compositional semantics.

### 1.3. Broader Impact: Deepen Intellectual Contacts between U.S. and Russian Linguists.

The Russian linguistics tradition, with such great names as Jakobson and Trubetzkoy, continued to flourish during the years of Communism, but with fewer points of contact between Russian and Western linguists, leading to the kinds of differences in semantics and syntax noted above. Through our collaborative interactions and their spin-offs in the team members’ teaching and conference presentations, Russian linguists and students are gaining greater exposure to Western approaches to issues of compositionality and the syntax-semantics interface, and are increasingly able to present the insights that come from Russian work in terms that Western linguists can grasp, and Western linguists and students are correspondingly gaining an appreciation of the insights and research agendas of Russian linguists. Further and deeper interactions will be possible with the support of this grant, which will enable us and our Russian colleagues to write joint papers, present them together at conferences in Russia, Europe, and the U.S., and to write joint articles for both English-language and Russian journals. The success of such collaborative efforts at a high level among equals can be one of the best possible ways to bring these two great linguistic traditions back into fruitful two-way contact.

## 2. The Genitive of Negation: Background

### 2.1 The Construction(s) in Russian

There is a long history of linguistic work on Gen Neg in Russian, both in Russia and in the West. Gen Neg is a famous problem in Slavistics; it has drawn the efforts of some of the best-known Russian linguists and western Slavists for at least a hundred years. And for good reason: the construction has surprising properties, and clearly involves many interacting factors of different kinds.

With intransitive verbs, Gen Neg involves an alternation between NOM and GEN<sup>2</sup> case on the subject: NOM in all affirmative sentences, NOM alternating with GEN in negative existential sentences, as in (1-2) below, from Ickovič (1974), translations from Babby (1980). Babby uses the terms “Negated Declarative Sentences” (NDS), for negated sentences with nominative subjects like (1a), and “Negated Existential Sentences” (NES), for those with genitive “subjects” like (2a); (2a) exemplifies Gen Neg. (We are inclined to use the term “predicative” for Babby’s “Declarative”.)

- (1) NDS (a) *Otvét iz polka ne prišel.*  
 Answer-NOM.M.SG from regiment NEG arrived-M.SG  
 ‘The answer from the regiment has not arrived.’

<sup>2</sup> In glossing examples, and occasionally in the text, we use the following abbreviations:

NOM, GEN, ACC	nominative, genitive, accusative
M, F, N	masculine, feminine, neuter
SG, PL	singular, plural
1, 2, 3	first person, second person, third person

- ADS (b) *Otvet iz polka prišel.*  
 Answer-NOM.M.SG from regiment arrived-M.SG  
 ‘The answer from the regiment has arrived.’
- (2) NES (a) *Otveta iz polka ne prišlo.*  
 Answer-GEN.M.SG from regiment NEG arrived-N.SG  
 ‘There was no answer from the regiment.’
- AES (b) *Prišel otvet iz polka.*  
 Arrived- M.SG answer-NOM.M.SG from regiment  
 ‘There was an answer from the regiment.’

In the affirmative, the two sentence types (ADS and AES), (1b) and (2b), obligatorily differ in word order (under neutral intonation); order is freer in the negative sentences (1a) and (2a). In the Gen Neg case, (2a), the verb is in the non-agreeing neuter singular (“impersonal”) form.

There are several semantic differences between (1) and (2). The difference in definiteness in the translations of the DSs and the ES’s is typical. Babby follows the Russian tradition in characterizing an NES like (2a) as asserting “that its subject does not exist”<sup>3</sup>. Researchers debate which differences are central and how to explain the full observed range of differences. A particularly important question is whether the semantic differences found with Subject Gen Neg (NOM/GEN alternation) are the same and have the same explanation as those found with Object Gen Neg as in (3-4) (ACC/GEN alternation), which on the surface are quite different.

- (3) *Ja ne videla Mašu.*  
 I NEG see-Past Masha-ACC.F.SG  
 ‘I didn’t see Masha.’
- (4) *Ja ne videla Maši.*  
 I NEG see-Past Masha-GEN.F.SG  
 ‘I didn’t see Masha.’

Both (3) and (4) can occur after *Ja byla v Moskve, no ...* ‘I was in Moscow, but ...’, and both translate as ‘I didn’t see Masha’. But (4), unlike (3), suggests the possibility that Masha wasn’t in Moscow at all; it comments on Masha’s absence from a place where you expected to see her<sup>4</sup>. Sentence (3) would be appropriate if you didn’t see Masha because you didn’t have time.

The Gen Neg construction poses challenges for syntax, semantics, pragmatics, and theories of the lexicon, and it has been attacked from many sides and within many theoretical frameworks. Foundational early works include (Jakobson 1971/1936, Karcevskij 1928, Peškovskij 1956, first edition 1914, revised 3rd edition 1928). More recent classics include (Apresjan 1985, Babby 1980, Chvany 1975, Dahl 1969, Guiraud-Weber 1984, Ickovic 1974, Mustajoki 1985, 1991, Pesetsky 1982, Timberlake 1975). Despite a huge amount of research on the problem and some excellent comprehensive studies including (Ickovic 1974, Babby 1980), few would claim that the problem has been solved. Debates about the analysis are described in later sections. Because so much has been written about the Gen Neg (Corbett 1986) by both Russian and Western linguists, this specific problem offers an excellent vehicle for investigating the deeper differences, and potential for integration, between Russian and Western semantics. We do not aim to “solve Gen Neg” in all respects, but we do aim to make substantial progress on its semantics in a way that makes sense in both Russian and Western terms.

<sup>3</sup> Apresjan (1985, p.295) cites Jakobson’s characterization of NES’s as “the subject itself is negated” (Jakobson) and contrasts it with Karcevskij’s characterization of NDS’s: “what is negated is not the subject, but its activity”. (Apresjan 1985, pp. 295.)

<sup>4</sup> Thanks to Elena Paducheva, Ekaterina Rakhilina, Yakov Testelet for discussion of this and other examples.

## 2.2. Variation Across Speakers, Time, and Languages.

Our project focuses on the semantics of the Gen Neg construction and the lexical semantics of the verbs that it occurs with. But any research on Gen Neg must come to grips with the problem of variation and competing factors. It is well known that there is notorious variation in the Gen Neg phenomenon across speakers, dialects, languages, and time. Gen Neg in Russian is gradually losing ground to Nominative and Accusative (Polinsky and Pereltsvaig 2003, Ravic 1971, Timberlake 1975). The “Expansion of the Nominative and Accusative” is a research concern of our consultant Elena Paducheva, who is interested in the competition in modern Russian between a semantically conditioned rule and a simpler purely syntactic one.

Gen Neg manifests itself quite differently in different Slavic languages, having disappeared in some and becoming syntacticized in various ways in others. As Franks (1995) shows, the variety of Gen Neg across languages makes it a good subject for the study of fine parametric variation among related languages. Polish, for instance, has syntactically obligatory Object Gen Neg, no Subject Gen Neg except with existential “be” sentences, and a much-discussed (Błaszczak 2001, Charezinska 1996, Dziwirek 1994, Franks and Dziwirek 1993, Franks 1995, Przepiórkowski 1999) apparent remnant of semantic conditioning in adverbial uses of temporal NPs. In Czech, Gen Neg has almost disappeared in both object and subject, remaining principally in certain fixed phrases or on negative polarity expressions (Petr 1986, p.179). It is used more in eastern Moravia; degree of usage varies from individual to individual<sup>5</sup> (Petr 1986, and H. Filip, p.c.). Russian children reportedly acquire Object Gen Neg first (Babyonyshev et al. 2001)

Further differences in other Slavic languages are discussed by Neidle (1988), Comrie (1993), Franks (1995). The history of what was reportedly an areal phenomenon (Thomason and Kaufman 1988) and the partial similarity to the distribution of Genitive/Partitive in Uralic and Baltic languages (F. Ackerman, p.c., Lehiste 1969) show that some of the relevant factors are not limited to Slavic.

Studies of this synchronic and diachronic variation are important for our work and we will pay attention to them as we proceed. We will also draw on existing statistical corpus-based work (Mustajoki 1985, Mustajoki and Heino 1991, Ueda 1992) that considers the broad range of possible factors underlying the distribution of Gen Neg in Russian, and we will be able to do some corpus-based work of our own (see Section 5).

But variation, while important, is not our field. What we believe we can do best is to examine closely the semantic factors that have been claimed by us or others to affect the distribution and interpretation of Gen Neg. Such work will rely in part on well-documented examples that are found in the literature already cited. What are needed are theoretically informed semantic judgments of a sort not extractable from texts. Even Mustajoki and Heino’s comprehensive study omits the crucial factors of scope of negation and indefiniteness “because any systematic treatment of these two variables will have to rely heavily on subjective interpretation” (Mustajoki and Heino 1991, p.15). And the many works which do discuss such factors describe them in many ways, often inventing intuitive semantic terminology, and differently in the Russian and the Western literature. We will apply our combined theoretical perspectives to the descriptive claims in the literature, and will refine and test semantic hypotheses, constructing variations on existing examples, eliciting judgments from native speakers, and studying variations in judgments. Together we expect to make advances concerning semantic and pragmatic factors which may be quite subtle; we will exploit both Russian and Western perspectives in developing the new theoretical tools needed to account for the interaction of lexical and compositional semantic factors. We describe our working hypotheses in more detail in the following sections.

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<sup>5</sup> Hana Filip, who grew up in eastern Moravia, reports (p.c.) that although in her active dialect of Czech, Gen Neg has almost disappeared, nevertheless she can muster judgments about (presumably obsolete) distinctions in Czech that largely match what we report about Russian examples in our papers.

### 3. Hypotheses and Issues concerning Genitive of Negation

The wealth of descriptive and theoretical work on Gen Neg provides fertile soil for further research and a good guide to the greatest challenges. The semantics of Gen Neg is still not fully understood, and this is our main focus, together with some of the syntactic and pragmatic dimensions of the problem. In this section we sketch initial hypotheses that will frame our research, relate them to some influential prior approaches. Here we focus on four key aspects of the problem: (i) the Subject Gen Neg construction and its possible basis in diathetic alternation; (ii) scope of negation; (iii) the “referential status” of the NP; and (iv) the relation between Subject and Object Gen Neg.

#### 3.1. Subject Genitive of Negation: Existential vs. Predicative Sentences

##### 3.1.1. Babby on “Declarative” and “Existential” sentences

Babby (1980), who himself did much to synthesize Russian, Prague-School, and Western work, is a central reference point for much subsequent work in the West, and for ours. While his syntax was classic transformational, his work has not been surpassed in insights about the wide range of factors involved in the Gen Neg construction, particularly Subject Gen Neg<sup>6</sup>, including innovations concerning its semantics and its optionality. His work is one of our principal starting points.

Babby systematized the claim, found in Jakobson (1971/1936) and Karcevskij (1928), that the chief semantic distinction between NES and NDS is in scope of negation, as shown in (5) below.

(5) (Babby 1980: 72)

	<b>AFFIRMATIVE</b>		<b>NEGATED</b>
<b>EXISTENTIAL</b>	[Scope of A VP NP]	$\Rightarrow_{\text{NEG}}$	[ <sub>ne</sub> VP NP <sub>gen</sub> ]
<b>DECLARATIVE</b>	NP [Scope of A VP]	$\Rightarrow_{\text{NEG}}$	NP <sub>nom</sub> [ <sub>ne</sub> VP]

Babby makes the further claim that the scope of assertion/negation can be equated with the Rheme of the sentence; an AES or NES is a Rheme-only sentence, while in an ADS or NDS, the NP subject is the Theme of the sentence. Babby notes the correspondence to the *thetic/categorical* distinction (cf. Kuroda’s (1972) discussion of Brentano and Marty.) Thus the NDS (1a) presupposes the existence of the answer and asserts that it has not arrived, whereas the NES (2a) negates the existence of an answer.

Babby’s rule of genitive marking in NES’s applies when the NP subject plus V form the Rheme of a negated sentence. He adds conditions that the verb be “semantically empty” and the NP subject be “indefinite”<sup>7</sup>. Here we can already see issues of syntax and semantics, of lexicon and lexical shift, and of information structure, which we have done initial work on and plan to explore further. Recent advances in formal and lexical semantics make the time ripe for re-examining such issues, and that it is important to look closely at the semantics of the sentence pairs as one varies the lexical content.

While various aspects of Babby’s analysis have since been updated (Babby 2001), (Babby 1980) remains a classic. Arguments we outline below against his appeal to Theme-Rheme structure are not fully conclusive, and we will continue to explore that notion and its relation to syntax and to our own notion of Perspectival Structure. We will also put this work in the context of other work on existential sentences and on the *thetic/categorical* distinction (Arutjunova and Širjaev 1983, Bende-Farkas 2001, Borschev and Partee 2002b, Kuroda 1972, Ladusaw 1994, McNally 1997, von Stechow 1989).

<sup>6</sup> His title, *Existential Sentences and Negation in Russian*, reflects Babby’s concentration on Subject Gen Neg, and his belief, shared by (Arutjunova 1976, Arutjunova and Širjaev 1983, Borschev and Partee 2002a), that those sentences can be semantically characterized as existential sentences. Babby did nevertheless offer a unified syntactic account of Subject and Object Gen Neg.

<sup>7</sup> The condition in (5) on the configuration of NP plus V holds for both Subject and Object Gen Neg; the additional conditions on the nature of the verb and the referentiality of the NP do not.

### 3.1.2. Our view: “Perspectival Structure” and Semantics of Diathetic Alternation

Our first work on Subject Gen Neg (Borschev and Partee 1998a) largely followed Babby’s analysis, with the amendment that existence is always understood relative to a “LOCation” (as in Comorovski 1995, Kondrashova 1996, Yokoyama 1986). (Chvany (1975) emphasizes that LOC is not *syntactically* obligatory). In later work (Borschev and Partee 2002a, 2002b), inspired by Babby and by Paduceva (1997b), we replaced Theme-Rheme structure by a new Perspectival Structure. Babby (1980) argued that Theme-Rheme structure determines scope of negation, which is in turn a crucial determinant of the occurrence of Gen Neg. But our “*kefir* example” (6) is a problem for this view.

- (6) [Ja iskal kefir.] Kefira v magazine ne bylo. (Borschev and Partee 1998b)  
[I looked-for kefir. Kefir-GEN.M.SG in store NEG was-N.SG  
‘[I was looking for kefir.] There wasn’t any kefir in the store.’

Babby (1980) would call *kefira* in (6) “old” but not Topic. Arguments that *kefira* in (6) is (part of) the topic rest on correlations with intonation and word order (Kovtunova 1976, Švedova 1980, Yokoyama 1986), plus established interpretations of “topic” in discourses like (6). An alternative (Erteschik-Shir, p.c.) might distinguish primary and secondary topics, and refine Babby’s claim.

We propose in Borschev and Partee (2002a) that in addition to topic-focus structure there is a relevant ‘Perspectival Structure’, relating to an often observed difference in predication in existential vs. predicational sentences. Both types have a verb with two arguments we call THING and LOCation. In the unmarked structure, the THING is chosen as “Perspectival Center”; this is Babby’s “Declarative Sentence” (DS), a predicational sentence. In an ES, the LOC<sup>8</sup> is chosen as “Perspectival Center”; in some sense it turns the predication around: saying of the LOC that it has THING in it. If the LOC is implicit, this is a “thetic judgment”. An analogy is “what the camera is tracking”: a predicational sentence keeps the camera fixed on the protagonist (THING as Center); an ES is analogous to the way a security camera is fixed on a scene and records whatever is in that location (LOC as Center).

We want to develop this hypothesis and ground it more firmly in a broader theoretical context. Our current hypothesis about ‘where in the grammar’ the choice of Perspectival Structure is registered is that it is a “diathetic alternation”, a choice among alternative argument structures for verbs that take both a “THING” and a “LOC” argument, analogous to alternations with verbs like *spray*, *load* or like *give*, *send*. (For *give*, *send* too there is a debate about whether the diathesis alternation corresponds to differences in semantics (Krifka 2000) or in information structure (Levin and Rappaport Hovav 2002)). Other recent work on the semantics of diathetic alternations shares our goal of integrating lexical and compositional semantics by exploring which ‘axioms’ are contributed by lexical semantics and which by the semantics of the constructions (Ackerman and Moore 2001, Bresnan 1994, Dowty 2001, Kiparsky 1997, Krifka 2000). We believe that our work and this new work can reinforce each other and help build bridges between Russian and Western semantics<sup>9</sup>, since the semantics of diathetic alternations figures prominently in Russian lexical semantics (Paduceva 2002), and since diathesis, and argument structure in general, is such an important link between lexical and compositional semantics.

Perspectival structure is basically a structuring at the model-theoretic level, like the telic/atelic distinction, or the distinction between Agents and Experiencers. These properties reflect cognitive structuring of the domains that we talk about, and are not simply “given” by the nature of the external world. It will be important to try to find out to what extent languages can differ in the kinds of Perspectival structure they exploit. Perspectival structure has something in common with the Theme-Rheme structure on the one hand, and with Subject-Predicate structure on the other: all three notions

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<sup>8</sup> This is oversimplified; the term “LOCation” must be construed broadly, and the sentences are not only about existence but also ‘coming into existence’, ‘being present’, occurring, being in one’s perceptual field, etc.

<sup>9</sup> There are other connections to be made. A similar idea was proposed in Dik’s Functional Grammar (Thomsen 2002), and there is relevant work by Jackendoff, Lakoff, Talmy, and others.

involve structuring something (a situation, a proposition, a sentence) so that one part is picked out and the rest is in effect predicated of it. We believe that the three notions are distinct, but the distinctions require sharpening.

A greater challenge is to extend this approach to Obj Gen Neg. If we can relate our Perspectival Structure to a structured notion of “situation”, we may be able to connect it to Paducheva’s (2001) “rank” of participants (arguments and an implicit “Observer”) and to the argument hierarchies of (Ackerman and Moore 2001, Dowty 1991). We hypothesize that while an overt transitive subject is necessarily part of the “Center”, there can be variable Perspectival Structure for the object NP and an implicit Observer or “situation”, both for Object Gen Neg and for objects of intensional verbs like *ždat* ‘expect, wait for’, which show ACC/GEN alternation even in the affirmative (Neidle 1988); see Section 3.4.

### 3.2. Scope of Negation. Western vs. Russian views. Our working hypotheses.

The term “Genitive of Negation” is a Western one. As the name suggests, almost every Western Slavist who has worked on the problem agrees that the occurrence of Gen Neg correlates with scope of negation. The idea in much Western work is that a subject outside the scope of negation gets Nominative case, whereas one within the scope of negation gets Genitive case, either directly as in Babby (1980) or by an indirect route as in Pesetsky (1982); see (Bailyn 1997, Brown and Franks 1997, Brown 1999, King 1994).

Both Russian and Western literature distinguish sentential negation from constituent negation; Gen Neg occurs only under sentential negation (e.g. Boguslavskij 1985). But the common Western assumption that minimal pairs like (1a-2a) differ in whether the NP is inside or outside the scope of negation is not widespread among Russian linguists. And even Western Slavists have noted that there are examples like (3-4) with proper names and no relevant scope effects, and also examples like (7) below (Timberlake 1975, p. 346 in 1986 reprint) in which a quantificational GEN NP in the Gen Neg construction scopes over negation. Given the “western” assumptions about Gen Neg and scope, the middle part, *ty ešče mnogogo ne znaeš*, should mean “you don’t yet know much”, yet our Russian consultants agree with Timberlake’s translation as “There is much that you don’t yet know”.

- (7) *Ne dumaj, čto ty vse znaeš, ty ešče mnogogo ne znaeš.*  
 NEG think-IMP that you all-ACC know, you yet much-GEN NEG know  
 ‘Don’t think you know everything, there’s much that you don’t yet know.’

Russian analyses of NOM/GEN pairs more commonly take sentential negation as having the whole sentence in its scope, with differences in “referentiality” of the affected NP. We believe that we can narrow the gap between scope approaches and referentiality approaches by studying what Kratzer (1998) calls “pseudoscope”: many “wide-scope” indefinites are reanalyzed in recent formal semantics as *in situ* specifics. We also suspect that many NPs viewed as “wide-scope” in earlier analyses are so-called because of presuppositions that may in fact have quite varied sources, which we will study.

There is also a second problem for scope of negation hypotheses discussed but not “solved” in Partee and Borschev (2002). If Gen Neg in intransitive sentences occurs under the scope of negation, and nominatives in such sentences are outside the scope of negation, we would never expect a negative-concord *ni*-word to occur in the nominative if it meets the conditions for Gen Neg, since negative-concord *ni*-words are obligatorily under the scope of sentential negation. But it turns out that both of the following are perfectly good:

- (8) *Nikto tam ne byl.*  
 NI.who-NOM.M.SG there NEG was- M.SG  
 ‘No one was there.’ (Partee and Borschev 2002, p. 190)
- (9) *Nikogo tam ne bylo.*  
 NI.who-GEN.M.SG there NEG was- N.SG  
 ‘No one was there.’

Both (8) and (9) must have the subject under the scope of sentential negation, so scope of negation cannot be directly responsible for NOM/GEN alternation. Paduceva (1992) analyzes (8) as involving an agentive *byt* ‘be’ (hence no GEN), and (9) with an implicit “Observer” role. Borschev and Partee (2002a) see a crucial presupposition associated with the Perspectival Center: the nominative *nikto* in (8), as Perspectival Center, must quantify over a given non-empty domain, but there is no such requirement for the genitive *nikogo* in (9), with LOC as Perspectival Center. Sentences (8) and (9) are a problem even for Brown (1999). Unlike Bailyn (1997), Brown can generate (8) as well as (9), but she does not predict our observation that (8), unlike (9), is obligatorily presuppositionally partitive.

We believe we can solve these puzzles by integrating three approaches to these cases. The first two are our own and Paduceva’s, described just above. A third approach is to use the semantics of negation in Kratzer (1989) to explain the sense in which our Perspectival Center must have an existence presupposition and yet may be a non-referential word like *nikto* ‘no one’: her analysis of “accidental negation” crucially connects situation of evaluation with domain of quantification. A possible fourth component comes from Ackerman and Stump (2002), who argue on the basis of two Ural languages that negation plus verb may in some languages form a complex predicate, yielding reduced ‘Proto-patient’ properties for the direct object. This would implicate negation directly in diathetic alternations, not implausible for Uralic languages and not inconceivable for Russian.

More generally, the notion of “scope of negation” invoked by Western Slavists clearly deserves scrutiny in the light of both current formal semantics and Russian work on other contributing factors.

### 3.3. The Referential Status of the NP

Pesetsky (1982) argued that the GEN NP of Gen Neg is always an underlying direct object bearing a null negative polarity quantifier (which itself carries non-overt structural NOM or ACC). While nearly all Western Slavists follow Pesetsky on Unaccusativity, many have argued against identifying the genitive of Gen Neg with the genitive of quantification (Chvany 1975, Franks 1995, Neidle 1988). We believe that the issue of the referential or quantificational properties of the GEN NP of Gen Neg, discussed from different perspectives by (Babby 1980, Bailyn to appear, Jakobson 1971/1936, Paduceva 1985a, Pesetsky 1982), needs deeper semantic investigation and integration with other aspects of the construction. The challenge is to determine how the semantics of the construction, of the verb, and of the NP interact.

Partee’s and Paduceva’s past work on quantification (Paduceva 1985b, Partee 1986, 1995b) should aid joint discussion of some thorny questions about Gen Neg that are clearly related to quantification and to what Paduceva calls “referential status.” We believe that there is something right about Babby’s restriction of Subject Gen Neg to indefinite NPs, even though there are known counterexamples. Compare the puzzling ‘quantification’ with a proper name in (10) in English; we seem to quantify over ‘spatio-temporal manifestations’ of an individual, consistent with Borschev and Partee’s claim that it is not ‘existence’, but ‘existence at a location’, or ‘presence in a situation’, that is at issue.

(10) *I looked all around, but no Mary!*

On many approaches, including ours, Subject Gen Neg involves demotion of the subject; compare McNally’s (1992) approach to English existentials, on which the NP has the semantic type of properties. More general issues to be addressed concern indefiniteness and the strong/weak distinction often invoked for English existential sentences and their relation to issues of aspect, telicity, partitivity, and the kinds of factors argued by Hopper and Thompson (1981) contribute to high or low transitivity in a sentence (Filip 1999, Pereltsvaig 1997). These issues connect closely to those concerning scope of negation and presupposition discussed above. All approaches point to some kind of reduced referentiality for GEN NPs.

Referential status is also a factor for Object Gen Neg (see next subsection), where the role of semantic factors seems to be partially attenuated by diachronic changes in progress. Paduceva is particularly interested in studying the role of semantic factors like referentiality in the context of such diachronic changes from or towards purely syntactic conditioning rules.

### **3.4. Unification of Subject and Object Genitive of Negation? Western vs. Russian views.**

Are Subject and Object Gen Neg in Russian the same construction? Franks (1995), referring to arguments by Pesetsky (1982) and Neidle (1982, 1988) that Gen Neg applies only to underlying internal arguments (direct objects), states “Their arguments that the genitive of negation pertains exclusively to objects are incontrovertible, I believe, ...” (p. 197). But we are not so certain, and our Russian colleagues remain skeptical. Western Slavists (other than Babby) start from Object Gen Neg and see Subject Gen Neg as a derivative phenomenon involving only ‘apparent’ subjects. This approach does not offer any direct account of the “existential” interpretation of Subject Gen Neg sentences. Russian linguists are more inclined to see Subject Gen Neg as a property of existential sentences, and not to expect the same analysis to apply to Object Gen Neg sentences, which are not in any obvious sense “existential”.

Unaccusativity may be one of the single most contentious issues dividing Russian and Western Slavists, and we plan to study it carefully, and to try to promote constructive dialogue across the continents about the values and limitations of that theoretical construct. As our Russian colleagues put it, the issue is not “one construction or not” but how much the two constructions have in common and what the sources of the commonalities are. For both constructions there are similar data about scope of negation, and similar debates about the relative roles of “scope of negation” and referentiality. There are also similar differences in presupposition and similar patterns of interpreting a bare noun as definite when it has NOM or ACC case but indefinite when it has GEN case. Our own contribution to syntactic debates will be indirect: we will study existing syntactic proposals and explore how they could or could not be combined with the best semantic proposals we can come up with.

We conjecture that a diathesis shift with transitive verbs leads to an analog of the distinction between existential and predicative inside the VP of transitive sentences. We suspect that in the transitive analog of an existential sentence there is something like a ‘situation’ or ‘location’, possibly implicit, as a semantic argument of the transitive verb, and the direct object is ‘demoted’: the structure does not provide a (situation-relative) existence presupposition, and the object may get a non-specific or a ‘property’ reading. In the transitive analog of the predicative sentence, the object is in canonical position, and the argument carries a (situation-relative) existence presupposition. In a Diesing-style (Diesing 1992) approach (Babyonyshev 1996, Brown 1999), the existential version might be the default, with the option of raising the object out of the VP. On the lexical perspective this correlates with a change in verbal valency.

A related hypothesis is that with the transitive analog of the existential sentence, and with verbs that have intensional objects (‘*ždat*’ ‘expect, wait for’, mentioned in Section 3.2), the ‘genitive variant’ of the verb has a (possibly implicit) situation argument which is higher ranked in some sense than the direct object, causing the direct object to be demoted, although it doesn’t necessarily stop being object. (The investigation of a range of ‘object properties’ is on our agenda, with Testelet’s our crucial expert in this area..) Cf. lexical decomposition analyses going back to Quine which support the implicit presence of a modalized existential proposition as part of the semantics of many intensional verbs.

There is little systematic literature, either Russian or Western, concerning the extent and types of semantic differences found in ACC/GEN pairs, much less than for the NOM/GEN pairs, but there are many insightful observations about examples. As described in Section 5, we plan to look systematically at the semantics of Object Gen Neg with different classes of verbs, using classifications by Mustajoki and by Paduceva. The searchable annotated corpus that Rakhilina’s group has developed will be a help.

## **4. The significance of Gen Neg for Integrating Lexical and Compositional Semantics**

Both our previous NSF project (Section 6) and this one are directed to the long-term goal of integrating lexical and compositional semantics, especially Moscow school lexical semantics and Western formal semantics. In the previous project, the focus was on possessive constructions and the semantics of nouns. In this one, the focus is on Gen Neg and the semantics of verbs. In both cases, the fine-grained lexical semantic analyses of the Moscow school have provided keys to fruitful accounts of the interaction

of the compositional meaning of the construction with the shiftable lexical meaning of the head noun or verb. In the present project, we hope to augment ‘structural’ accounts of Gen Neg (depending simply on scope and underlying objecthood) with richer accounts that say more about the semantics of Gen Neg and either replace or buttress the notion of Unaccusativity with a more comprehensive account of the relevant semantic properties and their role in diathesis shifts that promote or demote subject and object arguments, drawing on the range of Western and Russian work discussed in Section 3. Here we describe in slightly more detail one issue on which we are making progress which illustrates the kind of integration of lexical and compositional meaning we are striving for.

Babby (1980) noted that the verb in an NES is often perceived to be “semantically empty” but that the class of verbs used in NES’s is open, and most of these verbs have basic lexical meanings that are clearly not “empty”. Even if, as many argue, they are all Unaccusative (Section 3.4), by far not all Unaccusative verbs participate in Gen Neg. So the question arises, why is Subject Gen Neg often accompanied by “semantic bleaching” of the verb’s meaning? Our approach appeals to the interaction of the verb’s meaning with a presupposition which we argue to be part of the meaning of the NES construction:

**(11) PRESUPPOSED EQUIVALENCE:**

An NES presupposes that the following equivalence holds locally in the given context of utterance: BE (THING, LOC) ⇔ Verb(THING, LOC) (“FOR A FIRE, TO BE IS TO BURN”)

In Borschev and Partee (1998a), we modeled the interaction process in terms of finding further “axioms” holding for the given S in the given context which contribute to making this equivalence “locally valid”. We argued that such axioms may come from the dictionary (including “lexical functions (Žolkovsky and Mel’cuk 1967)), from common knowledge, or from particular contextual information.

We now believe that principle (11) is related to issues that arise with diathetic alternations more generally, including Unaccusativity/Unergativity alternations. Moscow school lexical semantics has long associated diathetic alternation with variation in lexical meaning, holding that ‘government ... properties of a lexeme are to a large extent motivated by its meaning’ (Apresjan 2000, p.232).

“Semantic bleaching” is one kind of meaning shift that needs to be better understood. Equally important are the gradations seen in examples like (12b) below (Borschev’s judgments; speakers vary in the ‘middle’ of the spectrum).

- (12) (a) Prišel            Petja                    // avtobus                    // paket                    // otvet.  
           arrived-M.SG Petja-NOM.M.SG// bus-NOM.M.SG // package-NOM.M.SG // answer-NOM.M.SG  
           ‘Petja// the/a bus // the/a letter // the/a answer arrived.’
- (b) Ne    prišlo            \*\*Peti                    // \*avtobusa                    // ?paketa                    // otveta.  
           NEG came-N.SG Petja-GEN.M.SG // bus-GEN.M.SG // package-GEN.M.SG // answer-GEN.M.SG

The verb *prijti* ‘come [on foot], arrive’ in (12) seems to have different meanings with different sorts of subject: most agentive with a human subject, less with *avtobus* ‘bus’ (where *prijti* keeps the sense of moving independently, but loses the ‘manner’ of ‘on foot’), still less with a package, and least agentive with the non-physical *otvet* ‘answer’ which doesn’t literally ‘move’ at all, with corresponding degrees of acceptance of Gen Neg, the kind of graded preference discussed by Timberlake (1975). Such phenomena at the borderlines can provide important data for understanding the dynamics of the integration of lexical and compositional meaning. This is also one kind of example for which added corpus studies can help us understand the context of ongoing diachronic change and other factors influencing variation.

**5. Plan of Work**

**5.1. Groundwork and general**

The project is collaborative, with two co-PIs and three colleagues as consultants (see CVs and letters). Partee is a specialist in formal semantics with an established interest in Moscow school lexical semantics.

She knows Russian and first worked on Gen Neg in graduate school. Borschev is a specialist in mathematical linguistics and model-theoretic semantics of computer languages with prior work on possessives and Gen Neg with Partee. Paducheva has been a leading figure in the development of semantics in Russia, and a major contributor to work on the semantics of the genitive of negation and the lexical semantics of the verbs involved. Rakhilina, a cognitive linguist, specializes in lexical semantics, including work on possessives and on semantic components of noun and verb meanings and case selection. Paducheva and Rakhilina were our consultants on our possessives project. Rakhilina heads a team developing annotated Russian corpora, which we will be able to search. Testelet is a syntactician who has worked on Caucasian and Slavic languages and has written a Russian textbook on generative grammar; he is expert on criteria for “subjecthood” and on the less well studied criteria for “objecthood”; he has been an informal consultant with us since 2002.

Groundwork has been laid, including publications already mentioned. Reactions to presentations of our work before Russian and Western audiences have been encouraging. Partee taught a seminar on Existential Sentences at UMass in Spring 2002. The Co-PIs and consultants held regular discussion meetings during the summer of 2002 discussing (Harves 2002), then in progress, also studying related work on Unaccusativity, and beginning discussions of Object Gen Neg. In the spring and summer of 2003 we worked together through (Ackerman and Moore 2001) and parts of (Mustajoki 1985, Mustajoki and Heino 1991) and (Neidle 1988), and had many discussions relating to subject and object properties, diathesis shift, aspects of the semantics of ‘transitivity’, and proposals relating different kinds of genitives. We read and discussed many of the papers cited above, as well as work in progress by Paducheva on diathesis and on incremental theme and by Borschev and Partee on Gen Neg. The Co-PIs presented pilot work at a conference on Existential Sentences at the University of Nancy, France in September 2002, and at colloquia and conferences at MIT, UMass, Johns Hopkins University, Tbilisi, and other venues in 2002 and 2003, where we received valuable feedback.

Each year of the grant, Partee and Borschev will spend spring and summer in Russia, where the team will work together. A graduate research assistant will be based in Amherst, with five weeks in Russia each summer. The R.A. is needed: (i) to help with the collection of relevant literature, and to build a website; (ii) to help find and search additional databases for interesting examples of NOM/GEN and ACC/GEN alternations; (iii) to help track down semantic and syntactic research on related phenomena in other languages (Slavic and areal); and (v) to help co-P.I.s remain “virtually present” in Amherst. In the final two years, the R.A. will have writing tasks of his/her own (ideally a related dissertation topic). The R.A.’s own research interest need not be Russian Gen Neg, but could be a related problem in another language. We currently have a very good second-year graduate student who is Russian and is specializing in semantics, Anna Verbuk; she has already written a paper about the semantics of Russian indefinites, linking it to Kratzer’s recent work (Kratzer and Shimoyama 2002) and is ideally qualified for the RAship. Several second and third year students who do not happen to be Russian are also well qualified.

The budget includes travel for the R.A. to Moscow each summer, and for the PI and consultants to present work at conferences, consult with colleagues, and participate in scholarly debates.

Partee has retired as of January 2004 but will continue to teach one course each fall semester at UMass. She can offer seminars related to the project, and is ready to offer one on the integration of formal and lexical semantics and the semantics of diathetic alternations, with a cross-linguistic perspective, planning further seminars as the project develops. She and Borschev will teach again in the Mathesius Institute short-course series in Prague in spring 2004, interacting with young scholars who speak a number of different Slavic languages. Partee will teach a semantics course each spring at RGGU in Moscow, involving students in selected problems from the research project. For spring 2005 she has a Fulbright grant application pending; if it is successful, she will teach two courses then, an introduction to formal semantics at MGU and an advanced semantics seminar at RGGU, the latter on topics directly related to this project.

Partee also has an IREX fellowship application pending for Spring 2005 at RGGU. The topic is a humanistic counterpart to this one; the goal is to begin writing a book together with Borschev, Paduceva, Rakhilina, and Testelets, first in English (Partee drafting) and later in Russian, analyzing some of the deeper differences between Russian and Western semantic traditions and documenting their potential for integration as experienced in our joint progress on the Gen Neg problem. That fellowship would give Partee seven months of support in Moscow. (In that case Partee would not teach in that semester, and would reapply for a later Fulbright. Either grant would complement this one without direct overlap.)

Borschev has a research position at VINITI in Moscow from which he takes leave each fall semester to be in the U.S.. When he is in the U.S. as Adjunct Professor or Research Professor at UMass, he has no salary other than the possible salary from this research grant.

## **5.2. Plans for the period of the project.**

Since our primary work is theoretical, our primary activities consist of frequent joint discussion of the sort carried out over the past several years, bringing our diverse backgrounds to bear on relevant existing work, commenting on one another's work in progress, and writing individual and joint papers. Our intense interaction is leading to better understanding and fruitful mutual influence, which we are convinced can pay off in our research on the integration of Western formal and Russian lexical semantics, on the problems of Gen Neg, and in the building of greater understanding and stronger bridges between these important traditions.

In Year One, our principal focus will be on the semantics of various verb classes in relation to the distribution and interpretation of Gen Neg, a domain in which Russian lexical semantics clearly has much to offer and one in which we have good common ground for discussion. We have already established results in the case of Subject Gen Neg, extending Babby's and Arutjunova's original "existential sentence" analyses to bring in a notion of diathesis shift connected to Borschev and Partee's "Perspectival Structure" and Paduceva's "Observer". Now we need to continue our investigation of Object Gen Neg with more work on the semantic effects (or lack thereof) of Gen Neg with different subclasses of transitive verbs. The statistical results of Mustajoki, Ueda, and others concerning frequency of GEN vs. ACC with different verb classes provide an important starting point but need to be supplemented with investigation of the extent to which the choice is semantically driven, and according to what semantic factors. Here we need to supplement attested examples with invented minimal and near-minimal pairs. It has been noted in the literature that pure minimal pairs are not always both felicitous; where one or the other is felt to need some 'adjustment', it will be important to analyze why: do we need to change something that relates to the topic-focus structure, definiteness, quantification, emphatic negation, scope of negation, aspect? We will be looking for evidence for and against the hypothesis that there is a diathesis shift in the case of ACC/GEN alternation analogous to that we claim for NOM/GEN alternation, and for the semantic correlates of such a diathesis shift. We know that the referential status of the object NP is not always independent of the semantics of the verb, and we will examine semantic effects with NPs from the ends of the referentiality spectrum, names and indefinite pronouns, as well as with interpretively flexible bare nouns and with quantified NPs. The first goal is to become clearer about empirical generalizations about the semantics of Object Gen Neg in relation to the semantics of the verb. Our prediction is that there are systematic semantic correlates of ACC/GEN alternation with a subset of verb classes, strongest for verb classes which have clear existential or perceptual components (such as verbs of creation, verbs of perception), also noticeable for verb classes for which the direct object may but need not carry an existential presupposition.

By Year Two we should be ready to tackle two controversial central topics: scope of negation (Partee and Borschev 2002) and the referential status of NPs (Paduceva 1985a). Western theories are not unified on the topic of negation and its scope, and we should work through several theories (not only 'Western') of the syntax and semantics of negation and of how negation licenses Gen Neg (Blaszczak 2001, Boguslavskij 1996, Brown and Franks 1997, Brown 1999, Hajicová 1973, Horn and Kat\*o 2000,

Koktová 1987, Kratzer 1989, Ladusaw 1996, Paduceva 1997b). We will examine the possibility that in some Slavic languages, although perhaps not Russian, negation and the verb combine to form a complex predicate (Ackerman and Stump 2002, Franks p.c.). We consider the issues of scope of negation and referential status of NPs inseparable in the study of Gen Neg. These questions will also entail continuing discussion of presuppositions of existence, Perspectival Structure, and topic-focus structure. When we have reached better shared understanding on these issues, we want to reexamine the claim of (Babby 1980) and (Harves 2002) that not all Gen Neg sentences with the negated copula *net* are actually existential sentences, and the contrary claim of (Borschev and Partee in press). Here the interaction of lexical and compositional semantics is acute; the apparent lack of one-one correspondence between affirmative and negative copular sentences raises theoretical and descriptive problems in determining what a given negative sentence is the negation of (Partee and Borschev in preparation).

At every stage we will be investigating how these factors interact and on the lookout for new factors. In Year Three, synthesis will be the primary goal: we should be ready to write jointly about the semantics of diathesis shift, provide a compositional semantics for the Gen Neg construction(s), and defend a stand on the question of whether Subject Gen Neg and Object Gen Neg are best given a unified analysis. We should also be ready to explain how the semantics of diathesis shift and of Gen Neg interact with the semantics of the lexical verbs and the referential status of the NP. We may or may not find a subtle ambiguity in affirmative sentences that corresponds to the ACC/GEN distinction in negative sentences. Any such ambiguity is subtle at best because of the normal existence entailments of affirmative sentences; we will have to probe atypical contexts and embeddings.

The output of the project will be best measured in terms of scientific papers and conference presentations. By the end of the project, we may be ready to write more of our papers jointly. We do not expect to have “solved the problem” of Gen Neg in Russian, but we hope to have advanced a better understanding of the semantics of the construction and its component factors and a better integration of lexical semantics with formal compositional semantics.

## **6. Results from prior NSF support and relation to proposed project.**

The co-PIs had one NSF grant in the past five years:

NSF BCS-9905748, \$241,270, September 1, 1999 – August 31, 2002 + 1 year no-cost-extension.

Title: “Integration of Lexical and Compositional Semantics: Genitives in English and Russian”.

That project shared with this proposal the long-term goal of integrating lexical and compositional semantics with particular attention to Moscow school lexical semantics and Western formal semantics. Both projects also share the “Broader Impacts” goal of fostering greater integration of Russian and Western linguistics, principally in semantics. The substantive focus of the previous project was possessive genitives with relational and non-relational nouns, combinations like *Mary’s sister*, *Mary’s team*, *Mary’s dog*, *Mary’s former mansion*. Both projects involve “genitives”, but in separate constructions which we do not propose to try to unify.

In our project on possessive genitives, the lexical emphasis was on the semantics of relational and non-relational (and “shiftably relational”) nouns and their fine-grained sortal structure. The central compositional issue was the nature of the “genitive relation” in different kinds of possessive constructions and the factors that constrain and influence it, including the question of whether there is a systematic distinction between “argument possessors” and “adjunct possessors” in various possessive constructions in English and Russian (and other languages.) The integration of non-linguistic and linguistic contextual information in “filling in” or “shifting” meaning was a major concern. We drew on Rakhilina’s work on possessives and kinds of nouns within the Moscow school tradition, and on Knorina’s work on the role of semantic sorts of nouns in interpreting possessive genitives (Borschev and Knorina 1990, Knorina 1985, 1988). The central issues of the proposed project concern the lexical semantics of the verb, with compositional semantic issues involving principally the verb, subject and object, LOCation, and negation, drawing on Paduceva’s work on the construction and on the semantics of verbs and verbal diathesis. In both projects the relevant lexical classes (relational nouns, verbs) are constrained but open via shifting.

Meaning shifts in the possessives project mainly concerned the permeable line between relational and non-relational nouns, as in the ambiguity of *Mary's former mansion*. What we were led to in that project and will further explore in the proposed project is that diathesis and correlated meaning-shifts are a crucial ingredient in the integration of lexical and compositional meaning. In studying the details of this interface, we learn more about the kind of finer-grained structure that is needed beyond semantic types and simple semantic sorts in order to understand the dynamic interaction of lexical and compositional semantics. The “point of view” of an implicit observer, for instance, is a factor in diathesis, as Paduceva has shown, but there is no place for it in classic conceptions of semantic types. Situation-based type systems like Kratzer’s appear more hospitable to the formalization of the semantic “Observer” role.

### **6.1. Specific Results.**

A study of predicate possessives in (Partee and Borschev 2001a) showed that not all predicate possessives are remnants of elliptical NPs, and that there are type  $\langle e, t \rangle$  predicate possessives distinct from argument possessives. Such possessives may also occur inside an NP as modifiers. Some possessives occur only in NPs and are therefore reasonably regarded as arguments, or arguments type-lifted to become modifier-like functors (which we also call ‘argument genitives’ insofar as they saturate an argument position in the relational CN).

In some languages, like Russian, one can argue for a correlation of the semantic distinction with a distinction in form: we argue (Partee and Borschev 2003) that in Russian prenominal possessives are modifier possessives, while true genitives are always arguments. There are semantic restrictions on ‘genitive valency’ (Borschev and Partee In preparation, Rakhilina in press). The clearest examples of predicative possessives have meanings that relate notionally to ‘possession’, not to the “free **R**” readings posited in the early work of Partee (1983/97). The basic split is now between (i) predicative readings that have a (possibly extended) meaning of “possession”, and (ii) ‘argument’ readings that involve either an inherently relational noun or a plain noun coerced to a relational reading. This agrees with Partee and Borschev’s extensions of Jensen and Vikner’s analysis (Jensen and Vikner 1994, Vikner and Jensen 2002) but recognizes a separate predicative “possessive” reading.

Our focus in (Borschev and Partee 2002b) is the role of sortal information in the specification of underspecified meanings and in processes of type-shifting and sort-shifting, including metonymy. Our conclusions about the Genitive Modifier construction and metonymy are that the Genitive Modifier Construction has in principle a uniform semantic interpretation, built integrating the formula of a construction with “lexical formulas” of parts. Our description combines Knorina’s work with that of Partee and of Jensen and Vikner. Using sortal characteristics of head nouns, similar to qualia structure of Pustejovsky, we describe the relations they supply and their possible metonymic shifts. By describing these shifts for an abstract sort, we generate the different meanings for any noun which belongs to that sort, including the relational senses of the noun.

Related work by consultants and R.A.s and work in progress is described in the final report. There is one dissertation in progress (Strauss In progress) on the acquisition of the syntax and semantics of possessives.

### **6.2. Products and Activities**

**Edited books in preparation:** (Kim et al. in preparation, Lander et al. In preparation)

**Articles published and in press:** (Borschev and Partee 1999a, Borschev and Partee 1999b, Borschev and Partee 2001a, Borschev and Partee 2001b, Borschev and Partee 2002a, Borschev and Partee 2002b, Borschev and Partee In preparation, Kim 2001, Lander 2003a, Lander 2003b, Lander In press, Paduceva in press-a, Partee 1999, Partee 2000, Partee and Borschev 2000a, Partee and Borschev 2000b, Partee and Borschev 2001a, Partee and Borschev 2001b, Partee and Borschev 2002, Partee and Borschev 2003, Partee in press, Rakhilina 2000, Rakhilina 2001a, Rakhilina 2001b, Rakhilina 2001c, Raxilina and Weiss 2002, Strauss In press, Strauss In progress)

**Conference organized :** International Workshop on the Semantics and Syntax of Possessive Constructions, University of Massachusetts, Amherst, May 6-8, 2002. Organizers: Barbara H. Partee, Ji-yung Kim, and Yury Lander. Conference supported in part by this grant and overhead funds from this grant. Two volumes in preparation (cited above), one to be published in the U.S., the other in Moscow.

**Other activities:** Seminars at UMass, RGGU, short courses in Denmark, Prague, Brazil; Co-edited special issue on Slavic Semantics, *Journal of Slavic Linguistics*, Wayles Browne and Partee (In press); Conference organized: Formal Approaches to Slavic Linguistics 11: The Amherst Meeting. Co-organizers: Wayles Browne, Ji-yung Kim, Barbara H. Partee, Robert Rothstein.; website <http://www-unix.oit.umass.edu/~partee/genitives.html>.

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<sup>10</sup> Apparent inconsistencies in spelling or transliteration of Russian names, such as Paduceva vs. Padučeva, among the references cited or between references and text, have two sources: (i) differences in Roman spellings in different Western publications (Rakhilina, Raxilina); (ii) differences between standard transliteration (e.g. Padučeva) and author's own preferred transliterated name (Paduceva).

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