Lecture 8. Quantification and Interactions with Negation; Monotonicity, and Negative Polarity Items

Suggested readings: (full references in References section at the end)
(selections from Paduceva 1974, selections from Padučeva 1985)
From Paducheva 1974: pp 108-111 From Paducheva 1985: 216-219
(Larson 1995) (handed out in Week 1)
(Pereltsvaig 2000) (handed out today and on your CD)
(Tatevosov 2002) (on your CD; most relevant for NPIs – 131-143 and 156-163)
(Partee and Borschev 2002) (available online:
http://people.umass.edu/partee/docs/ParteeBorschevFASL10.pdf
(Werle 2001, Werle to appear) (both Werle papers are on the class CD, also online:
http://people.umass.edu/partee/RGGU_2004/werle_01_A42up.pdf
http://people.umass.edu/partee/RGGU_2004/werle_02_A42up.pdf)
(Giannakidou 1999) (on your CD)
(Pereltsvaig 2004) (newer, and not discussed here; on your CD, also online on her website:
http://www.pereltsvaig.com/professional/publications/publications.html)
(Ladusaw 1980) (classic; on your CD)

0. NPIs in the context of Typology of Indefinites, Russian indefinites.

Today we will introduce the notion of "negative polarity items", expressions that can only occur in "negative contexts." And we will put it into the broader context of different kinds of indefinites and the puzzles of their semantics and their distribution: Russian is particularly rich in the distinctions it makes among, for instance, *nikto, kto-libo, kto-nibud', kto-to, koe-kto, kto by to ni bylo.* In Lecture 4 and Lecture 6 (which went on for two weeks) we discussed some typological perspectives on this broader range of items, building especially on work of Haspelmath (1997) and Tatevosov (2002), with special attention to Russian.

You have access to Haspelmath's book and Tatevosov's book online. You can find a good summary of the central ideas of Haspelmath's book in Tatevosov's book, especially pages 134-144.

1. Negative polarity items. ("NPI's").

In English there are *negative polarity items* (NPI's) which are restricted to occurring in certain contexts, of which "negative contexts" are typical "licensing" contexts, but not the only contexts. The linguistic problem is to characterize the nature of the contexts in which NPI's can and cannot occur (and to characterize the NPI's themselves, but we will not try to do that here.)

Examples: *any, anyone, anything, anywhere, ever, at all; give a damn, lift a finger, move a muscle, pay the slightest attention.* **Question: what are some Russian NPI's?** (See Section 3 and homework exercises. There is some discussion of NPI's in Slavic languages in (Brown 1999), (Pereltsvaig 2000, 2004), (1994, 2000, Progovac 1988, 1991, 1993), (Tatevosov 2002); see also Pereltsvaig's list in Appendix I, and materials online from preliminary answers to some of these questions from the class at RGGU in 2004:

1. **Classification of Pereltsvaig's list of Russian idiomatic NPIs:** Reflecting judgments of colleagues and students, some are frozen idioms, some require clausemate negation, some occur in broad NPI environments, some were judged not to be NPIs at all.
http://people.umass.edu/partee/RGGU_2004/Classifying%20Pereltsvaig's%20NPI%20idioms%205.pdf

2. **Minimal Unit Idioms, Quantifying Superlatives, and their Contexts:** Notes on discussion in class April 22 and comments received afterwards. Findings: *kaplja* and *kopejka* occur in the full range of NPI contexts; they also occur with a positive interpretation 'just a little' in non-specific irrealis contexts. Quantifying superlatives appear to have pretty much the same ranges. Examples collected by students. A few notes on the contributions of the scalar focus particles *i* and *xot'*.
http://people.umass.edu/partee/RGGU_2004/Notes%20from%20April%2022%20RGGU%20on%20Min%20Quant%20NPIs.pdf

Notes on Semantics Homework #4 about NPIs and other Indefinites. Thanks to Diana Forker, Ivan Zakharyaschev, Julia Morozova, Lena Osipenko, Marina Khoruzhenko, Yura Lander, Elena Rudnitskaya, Igor Yanovich, Elena Paducheva, Vladimir Borschev, Yakov Testelets. Notes about licensing by *bez* 'without', notes about the focus particle *xot'* and its role, notes about possible prototype-like behavior of some kinds of indefinites and some of their contexts; notes about multiple licensing and scope issues.
http://people.umass.edu/partee/RGGU_2004/Notes%20on%20Semantics%20Homework%20about%20NPIs%20and%20other%20Indefinit%85.pdf

Examples:
(1) I did not see *any* lions.
(2) *I saw *any* lions.
(3) If you have *any* questions, you can call me.
(4) Noone has *ever* found a unicorn.
(5) *Someone has *ever* found a unicorn.
(6) No student who knows *anything* about phonology would *ever* say that.
(7) *Some student who knows *anything* about phonology would *ever* say that.
(8) Every student who knows *anything* about phonology will know the answer.
(9) *Every student who knows phonology would *ever* say that.

The semantic generalization discovered by (Ladusaw 1979) is that NPI's occur inside the argument of "monotone decreasing functions". This notion is much more general than the notion of negation, and covers all of the above examples and many others; and it is an intrinsically model-theoretic concept — a real semantic property of the interpretation of the expressions, not a "formal" property of "representations" in some sort of "logical form".

Definition (general):
A function f is *monotone increasing* if whenever $a \leq b$, $f(a) \leq f(b)$.
A function f is *monotone decreasing* if whenever $a \leq b$, $f(b) \leq f(a)$.

Application to determiner meanings: (Note: on the domains in our model, the basic ordering relation begins from the ordering on type t: 0 < 1; and for all types whose interpretations are sets, the corresponding notion of "less than" then becomes "subset of". See Appendix 1 below for more details.)

Definitions:

A determiner D is *right monotone increasing* (sometimes called *right upward entailing* or *monotone*↑) iff whenever $B \subseteq C$, D(A)(B) entails D(A)(C).
A determiner D is *right monotone decreasing* (*right downward entailing* or *monotone* ↓) iff whenever $B \subseteq C$, D(A)(C) entails D(A)(B).
A determiner D is *left monotone increasing* (*left upward entailing* or ↑*monotone*) iff whenever $A \subseteq C$, D(A)(B) entails D(C)(B).
A determiner D is *left monotone decreasing* (*left downward entailing* or ↓*monotone*) iff whenever $A \subseteq C$, D(C)(B) entails D(A)(B).

Illustrations: In a structure "Det CNP VP", the *left* position is the CNP argument, and the *right* position is the VP argument.

1. To show, for instance, that *no* is *right monotone decreasing*, we use a test like the following:
(i) $B \subseteq C$: ‖knows Turkish and Chinese‖⊆‖knows Turkish‖
(ii) test entailment: No student knows Turkish → no student knows Turkish and Chinese.
Valid. So *no* is right monotone decreasing.

2. To show that *no* is *left monotone decreasing*, we use a test like the following:
(i) ‖Italian student‖⊆‖student‖
(ii) No student knows Urdu → no Italian student knows Urdu. Valid.

3. Similarly we can show that *some* is *right monotone increasing*.
(i) ‖knows Turkish and Chinese‖⊆‖knows Turkish‖
(ii) Some student knows Turkish and Chinese → some student knows Turkish.

4. *Some* is also *left monotone increasing*.
(i) ‖Italian student‖⊆‖student‖
(ii) Some Italian student knows Urdu → some student knows Urdu. Valid.

5. Interesting fact about *every***.** While most determiners are like *some* and *no* in being either left and right increasing or left and right decreasing (so that it makes sense to call *some* "positive" and *no* "negative"), there are some determiners, of which the universal quantifier *every* is the most basic example, which have different properties for their left and right arguments.

5a. *Every* is *left monotone decreasing*:
(i) ‖Italian student‖⊆‖student‖
(ii) Every student knows Urdu → Every Italian student knows Urdu. Valid.

5b: *Every* is *right monotone increasing*:
(i) ‖knows Turkish and Chinese‖⊆‖knows Turkish‖
(ii) Every student knows Turkish and Chinese → Every student knows Turkish.

The distribution of polarity items in the CNP part and the VP part of the sentences (4-9) above, and others like them, is accounted for by the monotonicity properties of the determiners in them. This account reinforces the analysis of determiners as functions which take a CNP as first argument, and the resulting NP interpretation (a generalized quantifier) as a function which takes the VP as its argument.

Further references: (Fauconnier 1975, Giannakidou 1994, Giannakidou 1995, Haegeman 2000, Haspelmath 1997, Horn 1989, Horn and Kato 2000, Krifka 1990, 1991, Ladusaw 1996, Linebarger 1987, Pereltsvaig 2000, Progovac 1994, Progovac 1991, Progovac 1992, Progovac 1993, Przepiórkowski 1999, Przepiórkowski and Kupsc 1999, Przepiórkowski 2000, van der Wouden 1994, Zwarts 1996)

2. Pereltsvaig 2000 on Russian NPI's.

2.1. Introduction

Pereltsvaig (2000) has two main goals: (i) to describe the distribution of some PSI's ("Polarity sensitive items", a larger class including NPIs) in Russian, in particular *ni*-words, *-libo*-words, and *–nibud'* words; (ii) to compare the monotonicity-based approach of Ladusaw with the veridicality-based approach of Zwarts (1995) and Giannakidou (1998, 1997). She concludes that the monotonicity-based approach works better for the Russian words she examines. (But she agrees that the veridicality-based approaches can be useful for relating NPIs, "free choice indefinites", and the selection of mood. Veridicality is closely related to the notions of *realis, irrealis*.)

2.2. Data

(I include an abbreviated list in the handout, because you have the article.)

Table 1. PSIs in Russian

	ni-series	*-libo*-series	*nibud'*- series
	никто	кто-либо	кто-нибудь
	никуда	куда-либо	куда-нибудь
	никогда	когда-либо	когда-нибудь
	никакой	какой-либо	какой-нибудь
Preliminary classification	Strong NPIs	Weak NPIs	Narrow scope non-specific PSIs

English *any*-NPIs are sometimes translated by Russian *ni*-words and sometimes by Russian *–libo*-words. English negative quantifiers (*n*-words like *no one, nothing, never*) are translated by Russian *ni*-words but those must be accompanied by clausemate sentential negation *ne*.

What are Russian *ni*-words? Are they like English *n*-words? No; (a) they never occur without *ne*, and (b) two Russian *ni*-words never "make a positive", which English *n*-words do, at least sometimes[1]. (There's an advertisement that plays with this fact: "Nobody doesn't like Sara Lee" (a kind of cake).) But they also aren't like English *any*-words, because their distribution is much more restricted: they require clausemate sentential negation.

[1] There are colloquial varieties of English in which *n*-words behave more nearly like Russian *ni*-words, and like the negative words in Spanish, Italian, and many other languages. Black English is one such variety, but by no means the only one.

(1) a. CLAUSEMATE SENTENTIAL NEGATION. (These are all from Pereltsvaig 2000)

Ко мне на день рождения никто не приходил.
**Ко мне на день рождения кто-либо (кого-либо) не приходил.*
Nobody would come to my birthday.
*Anybody wouldn't come to my birthday.
*He didn't say nothing. [OK in the kind of dialect mentioned in the footnote.]
He didn't say anything.

b. POSITIVE CONTEXT.

**Я видел никого.*
**Я видел кого-либо.*
I saw no one. (but not really a "positive context", since negation is in the *n*-word.)
*I saw anyone.

c. DISTANT NEGATION.

**Я не думаю, что Адам читал никакой журнал.*
Я не думаю, что Адам читал какой-либо журнал.
I don't think that Adam read any journal.

d. ANTECEDENT OF CONDITIONAL.

**Если вы встретите никого, позвоните мне.*
Если вы кого-либо встретите, позвоните мне.
If you meet anyone, call me.

e. NUCLEAR SCOPE OF *ONLY*.

**Только Адам читал никакой журнал.*
Только Адам читал какой-либо журнал.
Only Adam read any journal.

f. SCOPE OF *FEW*.

**Немногие студенты читали никакой журнал.*
Немногие студенты читали какой-либо журнал.
Few students read any journal.

g. COMPLEMENT OF *DOUBT*.
Я сомниваюсь, что кто-либо прийдет.
I doubt that anyone will come.

h. COMPLEMENT OF *WITHOUT*.
Вы справитесь без какой-либо помощи.
You'll manage without any help.

i. *TOO*-CONSTRUCTIONS.
Адам слишком устал, чтобы читать какой-либо журнал.
Adam is too tired to read any journal.

j. SENTENTIAL COMPARATIVE.
Она умнее, чем кто-либо предполагал.
She's smarter than anyone supposed.

k. PHRASAL COMPARATIVE.
Она умнее, чем кто-либо в ее классе.
She's smarter than anyone in her class.

l. INTERROGATIVES.
Вы читали какой-либо журнал?
Have you read any journal?

All the contexts above are "downward entailing" (monotone decreasing). It takes a considerable amount of work to show why, formally, but you can test all of them by trying out subset-superset pairs in the place of the *ni-* or *–libo* word. For example:

(2) Testing the context "in the scope of *only*":
VPs: *Arrived before 14:15* $\subseteq$ *Arrived before 14:20*
Only Adam arrived before 14:20 $\Rightarrow$ *Only Adam arrived before 14:15.*

Note: we have to assume that the presuppositions of both sentences are satisfied when we do the test. That means we have to accept the presupposition that Adam arrived before 14:15. And in that case, the entailment is valid, and it shows that *only* creates a downward-entailing context (in its second argument).

There are some other contexts that license English *any* that are not downward-entailing, but which involve some sort of "irrealis" context. These do *not* license *–libo*-words. (Pereltsvaig, p. 333). These contexts *do* license *–nibud'* words.

(3) a. IMPERATIVE.
**Спойте нам какую-либо песню.*
Спойте нам какую-нибудь песню.
Sing us any/some song.

b. FUTURE.
**Мы встретимся где-либо.*
Мы встретимся где-нибудь.
We will meet *?anywhere/somewhere.

c. MODAL – POSSIBILITY.
**Вы можете взять какую-либо книгу.*
Вы можете взять какую-нибудь книгу.
You may take any/some book..

d. MODAL – NECESSITY.
**Кто-либо должен решить эту задачу.*
Кто-нибудь должен решить эту задачу. (?? is this okay?)
Someone/*anyone must solve this problem.

Summary of distribution.

CONTEXT	*ni*-series	*-libo*-series	*nibud'*- series
Clausemate sentential negation	OK	*	*
Weak negative contexts (1b-l)	*	OK	? (variation)
Irrealis non-specific contexts (3)	*	*	OK

2.3 Comparison of the Theories.

2.3.1. The Monotonicity-based approach.

Pereltsvaig gives definitions that are consistent with the ones given earlier in this handout. She gives additional mention to some related stronger properties than monotonicity, principally "antimorphic", which requires that $f(X \cap Y) = f(X) \cup f(Y)$ and $f(X \cup Y) = f(X) \cap f(Y)$. Contexts which are antimorphic include clausemate sentential negation, as well as subject NPs like *not John.*

2.3.2. The Veridicality-based approach.

The veridicality-based approach comes from the work of Zwarts (1995) and Giannakidou (1998, 1997). Its goal is to consider a broader class of PSIs, and to relate NPIs, "free choice indefinites", and the selection of mood (primarily subjunctive vs. indicative). Veridicality is closely related to the notions of *realis, irrealis*.

Here is an example (this is not in Pereltsvaig, but is discussed in some of the work she refers to) of a phenomenon that is not an NPI phenomenon but that may relate to veridicality: In Spanish, there are two ways to say "John is looking for a professor who speaks Catalan", depending on whether the description *a professor who speaks Catalan* is understood as referring to a specific professor (the *de re*) reading, or as an attributive description not tied to any particular referent (the *de dicto* reading). In the first case the verb in the relative clause is in the indicative mood; in the second case it is subjunctive.

(4) a. Juan busca a un profesor que habla catalán.
Juan seeks a professor that speaks-INDIC Catalan
Juan is looking for a (specific) professor who speaks Catalan.
b. Juan busca a un profesor que hable catalán.
Juan seeks a professor that speaks-SUBJUNC Catalan
Juan is looking for a (any) professor who speaks Catalan.

Pereltsvaig gives the following definition of (non)veridicality, from Giannakidou (1998).

(12) Let *Op* be a monadic propositional operator. Then:

(i) *Op* is *veridical* just in case $Op\ p \rightarrow p$ is logically valid. Otherwise *Op* is *nonveridical.*

(ii) A nonveridical operator *Op* is *antiveridical* just in case $Op\ p \rightarrow \neg p$ is logically valid.

As illustrated in (13), *yesterday* is a veridical operator, *perhaps* is nonveridical, and *not* is antiveridical. (Compare our earlier classification of adjectives – veridical corresponds to subsective, antiveridical corresponds to privative, and nonveridical corresponds to 'no meaning postulate': plain non-subsective.)

(13) a. Dharma kissed Greg yesterday $\rightarrow$ Dharma kissed Greg.

b. Perhaps Dharma kissed Greg $\not\rightarrow$ Dharma kissed Greg.

c. Dharma did not kiss Greg $\rightarrow$ It is not the case that Dharma kissed Greg.

According to the Veridicality-based approach, different PSI's may be licensed or "anti-licensed" (i.e. prohibited from occurring) by veridicality, non-veridicality, or antiveridicality. English *any*, which occurs not only in downward-entailing environments, but also (so-called "free-choice" any) in some modal contexts, is claimed to be anti-licensed by veridicality. That doesn't mean that it's licensed in all non-veridical contexts, but that it's definitely bad in veridical contexts. (More must be said, of course.)

2.3.3. Russian PSIs: Monotonicity or Veridicality?

First consider the *ni*-words. They require clausemate sentential negation. But that cannot be defined simply in terms of either the MBA (monotonicity-based approach) or the VBA (verdicality-based approach).

Can we use the stronger property of *antimorphic*? Clausemate sentential negation is indeed an antimorphic context, but so are "not John" and complements of *without*, and they don't admit *ni*-words. So the MBA doesn't work. What about VBA? No: clausemate negation is antiveridical, but so are many other contexts, including those same two, plus comparatives and antecedents of counterfactual conditionals. So in any case something more must be said.

Pereltsvaig's own proposal: *ni*-items require a licensor which is semantically antimorphic and which is syntactically in a specific position (in a "Polarity Phrase" near the top of the syntactic tree), at the level of "LF".

Next she considers *–libo* words. As summarized in her Table 3 (not reproduced here), *-libo* items are ungrammatical with clausemate sentential negation, and in imperative, future, and modal constructions, as well as in affirmative contexts that do not contain a downward monotone operator. Thus *–libo* words have a clear and simple analysis in terms of monotonicity, with just one exception.

The licensing of *–libo* items: *-libo* items are licensed by a downward monotonic operator. In the context of clausemate sentential negation, they are in competition with *ni*-items, which are licensed more narrowly. Because the *ni*-items have more specific lexical entries, they have priority.

The VBA cannot account for the distribution of *–libo* items. They can occur in some antiveridical contexts but not all (not clausemate sentential negation), and they can occur in some contexts that are monotone decreasing but *not* antiveridical: antecedents of non-counterfactual conditionals, *too*-constructions, and complements of negative predicates like *doubt.*

We can't claim that they are licensed by nonveridicality, because they are bad in some contexts that are nonveridical but not monotone decreasing: imperatives, future, modals.

Finally, what about *–nibud'* items? They are polarity-sensitive in that they also cannot occur in simple past-tense affirmative sentences:

(8) * Она видела кого-нибудь утром.

They are also ungrammatical with clausemate sentential negation. "The degree of their grammaticality in downward monotone contexts varies: they are fully grammatical in some downward monotone contexts, but not in others."(Pereltsvaig p. 343) (I don't know all the data here; she reports that there is some speaker variation.) Yet they are fully grammatical with non-downward monotone nonveridical contexts, such as imperatives, future, modals. (See the data in (3) above.)

Two possible analyses: (i) *nibud'* items are anti-licensed by upward monotonicity.

(ii) *nibud'* items are not polarity-sensitive items at all, but are sensitive to the presence of an operator with respect to which they can take narrow scope. Pereltsvaig favors this second approach, but agrees that much more work is needed on *nibud'* items.

2.4 Pereltsvaig's Conclusion.

Pereltsvaig has argued that neither monotonicity nor veridicality alone can account for the distribution of Russian *ni* and *libo* items. But she has argued that a combination of the monotonicity

approach with (a) syntactic constraints on the licensing of *ni*-words and (b) morphological blocking principles to capture the competition between *ni*-words and *libo*-words can indeed capture the distribution of those items. More work is needed on the *–nibud'* words.

3. From Haspelmath 1997 on Typology of Indefinites

From (Haspelmath 1997). We discussed some of Haspelmath earlier, and you have his book on your CD.

p.36: We have already seen in the preceding section that direct negation and indirect negation are two functions that must be distinguished. In addition to indefinites that can onlyh be used in the scope of (direct or indirect) negation, there are also indefinites that are used in the other negative polarity contexts but cannot be used in the contexts of direct negation. Such a case is the Russian *–libo* series:

(55) *Ja ne videla* ****kogo-libo*** */* ***nikogo***.
I not saw whom-INDEF / INDEF- whom
'I didn't see anyone.'

(56) (a) *Znajut li oni* ***čto-libo*** *ob ozonnoj dyre?*
know Q they what-INDEF about ozone hole
'Do they know anything about the ozone hole?'

(b) *Esli ty skažeš* ***komu-libo****, my tebja nakažem.*
if you tell whom-INDEF we you punish
'If you tell anyone, we'll punish you.'

(c) *Malo kto pokazyvaet* ***kakoj-libo*** *interes v ètom.*
few who shows which-INDEF interest in this
'Few people show any interest in it.'

p. 44-45: As we shall see in Chapter 4, there are quite a few languages in which the same indefinite pronoun is used both in irrealis non-specific contexts (e.g. imperatives, future, modality, 'want', etc.) and in negative polarity environments. ….

When an indefinite phrase is in the scope of negation, it is necessarily non-specific. Some languages use their usual non-specific indefinites in negative contexts as well, e.g. Greek.

(95) Modern Greek

(a) Direct negation
Dhen ídha ***kanéna.***
not I:saw anyone
'I didn't see anybody.'

(b) Implicit negation
Xorís na dhó ***kanéna …***
without SBJV I:see anyone
'Without seeing anybody …'

(c) Superordinate negation
Dhen pistévo pos ***kanénas*** *írthe.*
not I:believe that anyone came
'I don't think that anyone came.'

However, many other languages use special indefinites in negative contexts, either special negative pronouns (§ 3.2.1), or other specialized indefinites. Thus Russian *–nibud'*-indefinites

cannot be used in sentences like (95a-c), and Lithuanian *nors*-indefinites cannot be used for direct negation as in (95a).

…

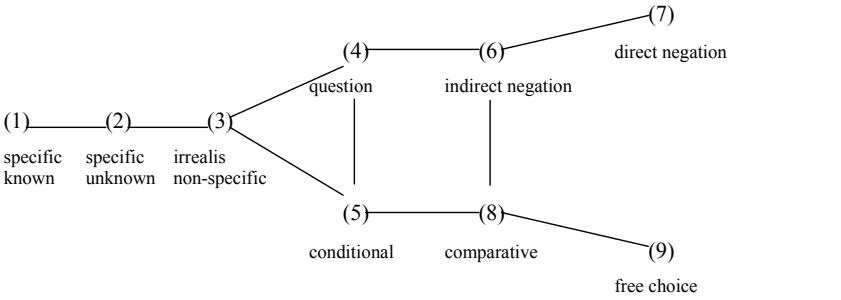
We can now summarize the contexts where specific and non-specific indefinite phrases are allowed, as in Fig 3.1. In one type of contexts, only specific indefinites are possible, in another type both are possible but there is a meaning difference, and in a third type, only non-specific indefinite phrases are allowed. Negative polarity overlaps only partially with this third type, because imperatives are not negative polarity contexts. On the basis of these semantic distinctions, we can already identify one important parameter of cross-linguistic variation: in some languages, different indefinite series distinguish between negative polarity and no negative polarity (e.g. **English**, Catalan, §3.2.2.), in other languages different indefinite series distinguish between specificity and non-specificity (e.g. **Russian**, Modern Greek, Kannada).

Summary chart page 45, Fig 3.1. *Contexts for (non-)specific phrases and negative polarity*

<table>
<tr><td>perfective past, ongoing present</td><td>'want', future, distributive</td><td>imperative</td><td>question, conditional</td><td>in the scope of negation</td></tr>
<tr><td colspan="2">specific possible</td><td colspan="3">(specific impossible)</td></tr>
<tr><td>(non-specific impossible)</td><td colspan="4">non-specific possible</td></tr>
<tr><td colspan="3">no negative polarity</td><td colspan="2">negative polarity</td></tr>
</table>

pp. 64-65: Implicational map and map of Russian

p. 64, Fig 4.4: *An implicational map for functions of indefiniteness pronoun series*



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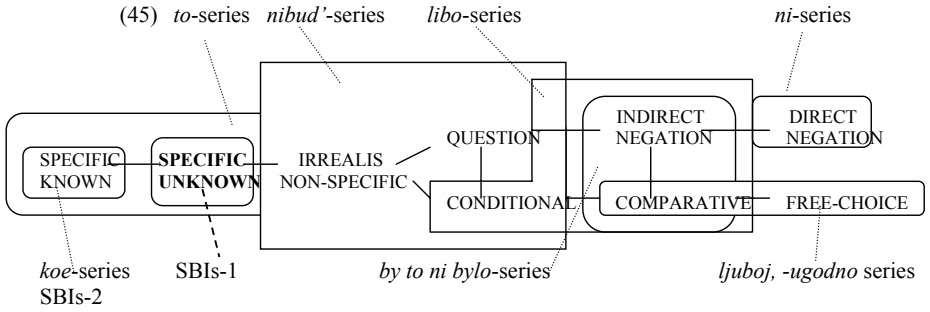
p.65, Haspelmath's map for Russian, as modified by Teselets and Bylinina, FASL 13 handout:

(with SBIs added to Haspelmath 1997:65–6; 272–3; Tatevosov 2002:141–2)

(45)



4. From Tatevosov 2002

(Tatevosov 2002)

pp. 138 – ff., discussing Haspelmath's book.

Существуют отрицательно-полярные единицы, которые допустимы во всех четырех типах контекстов, соответствующих функции INDIR NEG. Таково, например, английское *any* в примерах (6.21 a-d).

(6.21) a. I do not think that **anybody** will succeed in it.
b. **Any** hesitations have disappeared.
c. He did it without **any** help.
d. Few people have **any** objections.

Выясняется однако, что далеко не все частно-языковые кванторные слова ведут себя аналогично *any*. Во-первых, довольно многие отрицательно-полярные единицы могут связываться лексическим отрицанием, размещающимся в той же предикации (случай имплицитно-отрицательных глаголов и предлогов), но не могут употребляться в зависимом предложении при наличии отрицания в главном. Например, будучи приемлемым в имплицитно-отрицательных контекстах (примеры (6.22a-b)), немецкое *jeder* невозможно в (6.23) под отрицанием в главном предложении ('я не думаю'):

(6.22) a. Mit der Bestätigung des Urteils im März 1920 verhinderte Noske **jede** weitere Aufklärung der Tat.
С утверждением приговора в марте 1920 Носке запретил всякое дальнейшее расследование этого дела.
b. ohne **jede** Hilfe
без всякой помощи

(6.23) * Ich glaube nicht, dass **jeder** ihm helfen kann.
Я не думаю, что кто-либо может помочь ему.

Похожую дистрибуцию имеет и русское УКС *всякий*, которое возможно в имплицитно-отрицательных контекстах в предложениях (6.24a-b), но невозможно в предложении (6.25), зависимом от *я не думаю*:

(6.24) a. без **всяких** затруднений
b. Отсутствуют **всякие** причины ненавидеть его.
(6.25) *Я не думаю, что **всякий** знал об этом.

Точно так же, *всякий* запрещено и в контексте кванторных слов типа *мало* (**Мало* кто из присутствующих имеет **всякие** возражения).

…. (omitting some interesting things on pp. 138-39 about differences among different 'implicit-negative' verbs etc. and influence of semantic class of noun – concrete vs. abstract, etc.)

Варьирования наблюдается не только в контекстах непрямого отрицания, но и в случае с функцией DIRECT NEGATION, для которой оказывается релевантной синтаксическая позиция ИГ (подлежащее vs. неподлежащее):

(6.29) a. **Nobody** came. (***Anybody** didn't come.)
b. I saw **nothing.** || I didn't see **anything.**
(6.30) a. **Никто** || ***кто-либо** || ***кто бы то не было** не приходил.
b. Я не вижу **никаких** || **каких-либо** || **каких бы то не было** причин не ходить туда.

p. 140, Table 6.1: Дистрибуция КС в DIR и INDIR NEG контекстах.

	прямое отрицание (DIR NEG)		непрямое отрицание (INDIR NEG)		
	подлежащее	прямое дополнение	отрицания в матричном глаголе	имплицитно-отрицательный предлог	имплицитно-отрицательный глагол
всякий	-			+	
ни-[2]	+		-		
-либо	-	+			+/-
бы то ни было	-	+			+/-
any	-	+			
no	+		-		
personne	+				-
quiconque	-	+		-	
-que ce soit	-	+			-
tout	-				+

==========

5. Miscellaneous possible polarity items

Other items that may be NPIs or some other kind of PSIs to consider, from discussions or miscellaneous sources.

1. *i* + NP , where NP denotes some "minimal unit" (*i kapli*, for instance)
2. *ni odin*, etc.
3. *xot'*

[2] The original has *не-*, but I think that must be a typographical error, isn't it?

4. *vovse*

5. *liš*

6. *samij malenkij, malejšij* ? (cf. English *the slightest sound*, *the least disturbance*, etc.)

7. Serbo-Croatian has both a *ni-* series and an *i*-series (*nikada, ikada*) with different distributions (Progovac 2000, p.99). Any analog to that in Russian? Is the "NPI" use of *i* related to this?

HOMEWORK #4. (Due May 10.)

Properties of Russian Determiners and Negative Polarity Items. Please write not more than 4 pages total. You may choose to work hard on one or two questions and ignore the other questions, or do a little bit on each.

1. Show how the semantic tests given in the lecture notes apply by testing the following five determiners for the following properties.

monotone↑, *monotone* ↓, or neither; ↑*monotone,* ↓*monotone* , or neither.
Determiners: несколько, каждый, никакой (with не), ровно один, немногие.

2. Classify the idioms in Appendix 2 according to your own dialect, using the following classification:

Class 1: A completely frozen idiom including the negative particle *ne*; cannot occur in any of the contexts listed for Classes 2,3,4.

Class 2: A strong negative polarity item, limited to clausemate negation, but not just a frozen idiom. Test: Can occur in negative sentences with subject *nikto*. *Nikto ne* _____.

Class 3: An NPI that can occur not only in the Class 2 environment, but also in one or more of the following environments:

Я удивлюсь, если он (хоть) (и) _____. (With no *ne* in the sentence)
(*Я удивлюсь, если он хоть копейку даст.*)
Он хоть бы _____. *(Он хоть бы глазом моргнул.*)

Class 4: Not an NPI at all in your dialect. Can also occur in simple positive past tense sentences. Example: *Они сложили оружие.*

Results from 2004 are available online:
http://people.umass.edu/partee/RGGU_2004/Classifying%20Pereltsvaig's%20NPI%20idioms%205.pdf (Note April 2005: I'm having trouble accessing that file online; I may put a new link to it. Look at the syllabus online –
http://people.umass.edu/partee/MGU_2005/MGU05_formal_semantics.htm
-- I'll put links to the online readings there.)

What's of most interest to me is to know which ones can be in Class 3 for you. So first please go through the list and look for items that may be Class 3 or even Class 4 for you, and give examples in which they sound reasonably natural to you. People seem to have disagreements especially about Class 3.

Next challenge: Is there any identifiable semantic difference between Class 2 and Class 3 idioms? Or is this just a matter of degrees of frozenness? I'm wondering if the Class 3 ones are to any greater degree based on scalar implicatures involving minimal units. That's the only semantic property I see so far as being possibly relevant. But it doesn't seem to occur in all or only class 3 idioms.

3. Review Pereltsvaig's, Haspelmath's, Tatevosov's, and Paducheva's claims about the distribution of *–libo* and *–nibud'* items, and make your own comments about the contexts in which those can occur. You can use the first chart in appendix 3 to fill in your own judgments, and list some examples to support your judgments of possibly disputed cases.

4. Consider some of the items in Section 5 above (also listed in Appendix 3), which may or may not be NPIs, and fill in relevant parts of the second chart in Appendix 3, and discuss, with examples. Look at results and comments from 2004 (online) and make your own contributions to the discussion.

Appendix 1. Recursive definition of "≤" on semantic types that "end with a t".

Relevant background – (Partee and Rooth 1983), (Ladusaw 1980) . (The first of these doesn't mention monotonicity, but it defines conjunction recursively on the same family of semantic types. There are considerable formal parallels in the two recursive definitions.)

Semantic types: from the extensional part of Montague's intensional logic

Basic types: e, t (entities, truth values)
Recursively defined functional types: If a, b are types, then <a,b> is a type. <a,b> is the type of expressions which denote functions from a-type things to b-type things.

Negation as a sentence operator is of type <t,t>. One-place predicates (nouns, some adjectives, maybe intransitive verbs) are of type <e,t>. Generalized quantifiers are of type <<e,t,>,t>.

Semantic domains.
Start with a set D of entities and the set of two truth values {0,1}. Then recursively define the domain of possible denotations D_a for expressions of any type a.

D_t, the domain of possible denotations for expressions of type t, is {0,1}.
D_e, the domain of possible denotations for expressions of type e, is D.
$D_{<a,b>}$, the domain of possible denotations for expressions of type <a,b>, is the set of all functions from D_a to D_b.

Now we're ready to start the definition of "less than" that will be used in the definition of "monotone" across semantic types. First we need to define the set of "types that end with a t".

Recursive definition of "types that end with a t":
1. Type t "ends with a t."
2. If x is any type at all, and y is a type that "ends with a t", then <x,y> is a type that "ends with a t."

(The result is in fact the set of all types that have t as their last 'letter' symbol, with any number (0 or more) of right brackets (>>> ...>) following that last t. Every type ends with either an e or a t.)

Recursive definition of ≤:
Now we can define ≤ on the set of all types that end in a t.

1. $0 \leq 0$, $0 \leq 1$, $1 \leq 1$. [In fact, we can divide ≤ into < and = in the natural way here.]
2. For any functional type <a,b>, and any f, g in $D_{<a,b>}$, $f \leq g$ iff:
For all x in D_a, $f(x) \leq g(x)$.

That's it. Let's see how it applies to types t, <e,t> and <<e,t>,t>.

First, type t. This is the type of truth values, the extensions of sentences. Using |a| to represent the semantic value of a, we can observe that for the case of sentences, |a| ≤ |b| is equivalent to "a implies b" (material implication, defined by the usual truth table), because it's true when a and b are both true (1≤1), when they are both false (0≤0), or when a is false and b is true (0≤1). The only case where it's false is where a is true and b is false (NOT: 1≤0).

(Note: ≤ is not defined on type e, nor on any type that "ends with an e".)

Then type <e,t>, the type of characteristic functions of sets of entities, the semantic values of one-place predicate expressions (nouns, simple adjectives, maybe simple intransitive verbs, some prepositional phrases, etc.) Let A, B be two expressions of type <e,t>, e.g. two common noun phrases. |A| ≤ |B| is true iff for all d in D, |A|(d) ≤ |B|(d). But since ≤ on sentences means "implies", this is another way of saying that A is a subset of B.

– So we've derived the fact that less-than on predicates means "subset of" from the fact that less-than on propositions means "implies"

Now type <<e,t>,t>: Let me go straight to model-theoretic terms, bypassing the expressions. For all P, P' in $D_{<<e,t>,t>}$, P ≤ P' iff for all Q in $D_{<e,t>}$, P(Q) ≤ P'(Q).
Since the possible denotations of type <<e,t>,t> are sets of sets, this again turns out to the be subset relation, though this time it's the subset relation among sets of sets rather than among sets of entities.

Monotonicity:
Having defined ≤ across all the types that end with a t, we can define monotonicity for all functional types that end with a t which have arguments that also end with a t:

For any type <a,b> such that both a and <a,b> "end with a t", and any function f of type <a,b>, f is monotone increasing iff for all x,y in D_a,
if x ≤ y, then f(x) ≤ f(y).

Appendix 2: Pereltsvaig's suggested list of Russian idiomatic NPI's.

Suggested list from Asya Pereltsvaig (slightly shortened):
"Here's a list of Russian idiomatic NPIs. They are of different degree of idiomaticity, though. Even though some sources give affirmative variants as well, I cannot use any of these in affirmatives (in the idiomatic sense, that is). Note that most expressions contain objects which are obligatorily in the Genitive of negation. I include negation to make it sound good..."

1. ne morgnut' glazom - not to-blink eye:INSTR - not to be affected (usually by something bad)
2. ne davat' proxoda komu-nibud' - not to-give passage:GEN to smb. - to harass somebody
3. ne udarit' palec (pal'cem) o palec - not to-stike finger:ACC (finger:INSTR) on finger:LOC - not to do anything to help
4. ni aza ne smyslit'/ponimat'/znat' - NI az:GEN (first letter of the Old Russian alfabet) not to-understand/understand/know - not to understand/ know anything
5. ne pokladaja ruk - not putting:GERUND hands:GEN - without resting (e.e., work hard)
6. dushi ne chajat' v kom-to - soul:GEN not to-hope(?) - adore somebody
7. nog / zemli ne chujat' pod soboj - legs:GEN / earth:GEN not to-feel underneath self –
8. uma ne prilozhu - mind:GEN not put-to-it:1:sg:FUT - I have no idea
9. ne spuskaja / svodja glaz - not letting-down:GERUND eyes:GEN- without taking eyes off somebody
10. ne znat' ustali - not to-know tiredness:GEN - not getting tired
11. ne podavat' / pokazyvat' vida - not to-give / show look:GEN - not to let know (about how one feels, etc.)

12. ne podnimaja golovy - not raising:GERUND head:GEN - without a pause (work hard)
13. ne znat' pokoja - not to-know rest:GEN - not to rest
14. ne naxodit' sebe mesta - not to-find to-self place:GEN - be restless
15. ne znat' uderzhu - not to-know restraint:GEN - be restraintless
16. ne proronit' / govorit' / skazat' ni slova - not to-let-out / tell / say NI word:GEN - not say a word (i.e., keep silent)
17. shaga ne sdelat' / stupit' - step:GEN not to-make / step - not to step a step
18. ne dat' ni grosha - not to-give NI grosh:GEN - not to give a red cent

18a. ne dat' ni kopejki - not to-give NI kopeck:GEN - not to give a red cent

19. ne delat' sekreta (iz chego-to) - not to-do secret:GEN (from something) - not to give something the air of unnecessary secrecy)
20. ne delat' paniki - not to-do panic:GEN - not to create panic (i.e., keep calm)
21. ne vnushat' doverija - not to-inspire trust:GEN - be suspect
22. ne davat' spuska - not to-give freedom(?):GEN - not to let go
23. ne vyderzhitvat' kritiki - not to-sustain criticism:GEN - be really bad
24. ne brat' v rot vina / xmel'nogo - not to-take into mouth wine:GEN / alcoholic:GEN - not to drink a drop of wine
25. ne davat' volju/voli rukam - not to-give freedom:ACC/GEN to hands - keep restrained from fist-fight
26. ne slozhit' oruzhija - not to-put-down arms:GEN - not to yield to the enemy
27. ne podavat' ruki - not to-give/offer hand:GEN - not to be on speaking terms(?)
28. ne smykat' glaz - not to-shut eyes:GEN - not to sleep a wink
29. ne vesti uxom - not to-move ear:INSTR - not to react
30. ne ustupit' ni na jotu - not to-yield NI for iota (letter of the Greek alphabet) - not to yield at all, not to go for a compromise
31. ne imet' ponjatija – not to-have idea:GEN – not to have any idea (about something)

Appendix 3: Charts and environments for testing NPIs – handed out separately

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