Лингвистические профили и грамматика конструкций
Linguistic Profiles and Construction Grammar

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Meaning in Language

• Languages express meaning in three ways (Feldman 2006: 260-261):
  – lexemes
  – word order
  – morphology
  – (intonation and gesture)
Meaning in Language

• Languages express meaning in three ways (Feldman 2006: 260-261):
  – lexemes
  – word order
  – morphology
  – (intonation & gesture)

Focus on English in linguistics has emphasized lexemes and word order.
Biased Approaches to Meaning

  – window of x words to left and right of a lexeme

• Construction Grammar via Collostructional Analysis (Stefanowitsch 2006a&b, Stefanowitsch & Gries 2003 & 2005)
  – given a construction, what lexemes can appear in it (he X-ed his way into the room)
What happens if we focus instead on a language with a rich morphology?

• Many more constructions can be transparently and objectively identified via morphological markers -> we are not limited to sneezing napkins off tables and dancing our way into rooms

• We can analyze the relationship between the meaning of words and constructions by means of examining the behavior of inflectional and derivational morphemes
Alternative Approaches to Meaning

• Constructional profiles
  – given a lexeme, what constructions can it appear in (the inverse of collostructional analysis)

• Grammatical profiles
  – given a lexeme, what grammatical forms does it appear in

• Semantic profiles
  – given a derivational morpheme, what are the semantic tags of the lexemes it combines with
Alternative Approaches to Meaning

• Constructional profiles
  – given a lexeme, what constructions can it appear in (the inverse of collostructional analysis)

• This talk will focus only on constructional profiles, featuring
  – constructional profiles of nouns (Janda & Solovyev forthcoming)
  – constructional profiles of verbs (work by Svetlana Sokolova and other members of the Exploring Emptiness research group at the University of Tromsø)
Alternative Approaches to Meaning

• We won’t talk about the two other types of profiles today, but
  – Ol’ga Lyashevskaya & other Exploring Emptiness group members are working on related projects

• Grammatical profiles
  – given a lexeme, what grammatical forms does it appear in
  – (grammatical profiles of verbs with ”empty prefixes”)

• Semantic profiles
  – given a derivational morpheme, what are the semantic tags of the lexemes it combines with
  – (semantic profiles of verbs with ”empty prefixes”)

Assumptions

• Grammatical and lexical meaning observe the **same** principles

• **Polysemy** is common to both types of meaning

• **Radial categories** of relationships among meanings:
  – **prototype** based on physical experience
  – extension via **metaphor**
  – extension via **metonymy**

• Difference in **form** implies difference in **meaning**
Meanings of cases

• Analysis of case meaning: the Genitive case in Russian
  – Prototypical meaning and extensions via metaphor and metonymy

• Pedagogical applications
  – Interactive text and exercises in the *Case Book for Russian*

• Cross-linguistic comparisons
  – Use of case in various Slavic languages

• Exploration of meanings of words
The Russian Genitive case

• Four core members of the radial category
  – Genitive: a source (prototype)
  – Genitive: a goal
  – Genitive: a whole
  – Genitive: a reference
• How are they related to each other?
• How are they extended?
The Genitive Case in Russian

Genitive: a source

Genitive: a whole

Genitive: a goal

Genitive: a reference
The Genitive Case in Russian

• Prototypical meaning
  – Physical experience of an object moving with respect to a point of reference
    Genitive: A Source
      • metaphor
      • metonymy > Genitive: A Reference Point
  – Genitive: A Goal
    • metaphor
    • metonymy > Genitive: A Whole
Genitive: a source

- Physical withdrawal: вещи вынутые из сундука
- Extension to emotional withdrawal: бояться, стесняться
Endpoint Metonymy
English OVER

Hana runs over the hill.
(trajector + endpoint)

Jana lives over the hill.
(endpoint only)
Genitive: Source >
Genitive: Reference

Genitive: Source
(trajector + endpoint)

Genitive: Reference
(endpoint only)
Genitive: a reference

• Physical reference point: у
• Extension to domains of:
  – Time: восьмого августа
  – Quantification: без, никаких забастовок небыло
  – Comparison: выше личных интересов
Genitive: Source > Genitive: Goal

Genitive: Source
(away from G)

Genitive: Goal
(toward G)
Genitive: a goal

• Physical approach: до земли
• Extensions to domains of:
  – Time: до понедельника
  – Purpose: для, ради; Как вы достигли такого нравственного совершенства?, ожидать, требовать
Genitive: Goal >
Genitive: Whole

Genitive: Goal
(trajector + endpoint)

Genitive: Whole
(endpoint only)
Genitive: a whole

• Physical part/whole relationship: кусок яблока; среди, внутри

• Extension to domains of:
  – Possession: машина брата
  – Category membership: человек большой души; в виде, в качестве
  – Event relationship: издание съедобных детских книг
  – Quantification: пятнадцать минут, достаточно; выпил чаю (partitive); набрался храбрости
Segue between meanings of cases and meanings of words

- Research on case meaning established grammatical meanings as networks > next we will establish lexical meanings as networks
- Precise and complete understanding of case developed provides basis for analysis of constructional profiles
Meanings of words

• Constructional profiles of nouns: Russian words for ‘sadness’ and ‘happiness’ (collaboration with Валерий Соловьев)
  – synonymy
  – metaphor

• Constructional profiles of verbs: Russian words for ‘load’ and ‘spray’ (collaboration with Светлана Соколова, Ольга Ляшевская, and Tore Nesset)
  – are the “empty” prefixes really empty?
Constructional Profiles of Nouns

• A constructional profile is “the distribution of relative frequencies of constructions associated with a given word”
• There are about 70 constructions of the form “[preposition] [noun]case]” in Russian
• The null hypothesis is that all nouns should have equal frequency in all constructions
• But only about 6 (or fewer) constructions are needed to characterize a given noun
• Example of constructional profile of восторг
Where the data come from

- Russian National Corpus (http://www.ruscorpora.ru) >120M words
- Biblioteka Maksima Moškova (http://lib.ru/) >600M words
- 500 sentences extracted and coded for use of preposition & case
Synonymy

• Hypothesis: Each word has a unique constructional profile
• Corollary: Words with similar meanings should have similar constructional profiles
• Hierarchical cluster analysis shows which constructional profiles are closest (closer synonyms) and which are further apart, using squared Euclidean distances based on constructional profile data
‘Sadness’ in Russian

- грусть, меланхолия, печаль, тоска, уныние, хандра

- The constructions they appear in:
  - в + Acc ‘into’
  - в + Loc ‘in’
  - Inst: Agent
  - с + Inst ‘with’
  - от + Gen ‘from’
  - (Direct Object)
  - (Other Constructions)

Graphs will show only these five, as percentages

Hierarchical Cluster Analysis is computed from all data
The ‘sadness’ nouns

• They can’t all be the same:
  Уходишь, и я гляжу вслед тебе с грустью, но без тоски.
  ‘You leave and I watch you go with sadness grunt, but without sadness toska.’

• Dictionaries differ on how synonyms are grouped:
  – Most usual grouping: грусть, печаль, тоска vs. меланхолия, уныние, хандра
  – Disagreements over уныние:
    • Apresjan et al. 1997: уныние goes with печаль
    • Aleksandrovnna 1989: уныние goes with меланхолия and хандра
    • Evgen’evna 2001: уныние goes with грусть and хандра
    • Švedova 2003: уныние goes with грусть, меланхолия and хандра
‘Sadness’
Hierarchical Cluster

печаль   тоска   хандра   меланхолия   грусть   уныние
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30
‘Happiness’ in Russian

- ликование, наслаждение, радость, счастье, удовольствие, восторг
- Antonyms are words that are virtually identical, but differ in one value
- ‘Happiness’ nouns focus on the same constructions in their constructional profiles as ‘sadness’ nouns
- Dictionaries differ widely in grouping of ‘happiness’ synonyms
  - Aleksandrova 1998: наслаждение & удовольствие vs. радость & ликование vs. восторг
  - Švedova 2003 and Abramov 1994: наслаждение & удовольствие vs. ликование, радость & восторг
‘Happiness’
Hierarchical Cluster

наслаждение  радость  удовольствие  ликование  счастье  восторг

Laura A. Janda  St Petersburg
2009
About the results...

• The results are statistically significant
• For ‘sadness’ nouns: chi square = 730.35, and Cramer’s V = 0.305 which qualifies as a moderate effect (p<0.0001, df=30)
• For ‘happiness’ nouns: chi square = 774.6, Cramer’s V = 0.268 which qualifies as a moderate effect (p<0.0001, df=30)
‘Sadness’ & ‘Happiness’
Hierarchical Cluster

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- St Petersburg 2009
group 2 combined cluster

percent frequency

constructions

nouns
naslazhdenie
udovol'stvie
grust'

v+Acc v+Loc Inst s+Inst ot+Gen
group 3 combined cluster

- Constr: v+Acc
- Constr: v+Loc
- Constr: Inst
- Constr: s+Inst
- Constr: ot+Gen

Percent frequency

- nouns
  - melanxolija
  - xandra
  - vostorg
  - unynie

2009
So what are antonyms?

- Antonyms are synonyms that differ on only ONE value, they are the next closest thing to synonyms.
“Все счастливые семьи похожи друг на друга, каждая несчастливая семья несчастлива по-своему.”

“Happy families are all alike; every unhappy family is unhappy in its own way.”

• Was Tolstoy right?
• We can’t say for sure, but
  – ‘sadness’ nouns seem to be more diverse than ‘happiness’ nouns
  – ‘sadness’ nouns lack an umbrella term
Metaphor

• Constructional profiles reveal that emotions such as happiness and sadness in Russian are understood as
  – metaphorical holes
  – metaphorical agents
  – metaphorical companions
  – metaphorical diseases
  – metaphorical sources
Я же живой человек и, конечно, иногда впадаю в уныние.
‘I am a living person, and, of course, occasionally fall into sadness.’
в + Loc ‘in’

Ей на ум не придет, что супруг изнывает в тоске о потерянных минутах труда и вдохновения.

‘It doesn’t occur to her that her spouse is suffering in sadness over the minutes of work and inspiration that he has lost.’
‘Who among mortals tormented by sadness, has not indulged in an inventory of all the things that didn’t happen in their life?’
с + Inst ‘with’

-Кушаешь ты, как свинья, - с грустью сказал капитан.
‘--You eat like a pig’-- said the captain with sadness.’
от + Gen ‘from’: Healing from disease

Самое лучшее лекарство от хандры -- это чтение.
‘The best cure for sadness is reading.’
от + Gen
‘from’: Cause

Подумайте, этот человек умер от меланхолии!
‘Just imagine, that person died of sadness!’
Constructional Profiles of Verbs

• The distribution of relative frequencies of constructions associated with verbs
• Constructional profiles show that near-synonyms can behave very differently
• Constructional profiles can show that the “empty” prefixes are not really empty
“Empty” prefixes?

When we have aspectual pairs such as
писать/написать ‘write’,
морозить/заморозить ‘freeze’,
obедать/пообедать ‘eat lunch’, it is assumed
that the prefixes на-, за-, по- are “empty”
(have no meaning)

Some verbs have several “empty” prefixes:
грузить ‘load’ has the perfectives нагрузить,
загрузить, погрузить

Constructional profiles show that the verbs have
different meanings and the prefixes are not
empty!
Relevant constructions

• Accusative case names the *load*
  - Acc + на/в + Acc (нагрузить ящики на тележку ‘load the boxes onto the cart’)
  - Аcc (загрузить уголь будет проблематично ‘it will be difficult to load the coal’)

• Accusative case names the *container*
  - Acc + Inst (он нагрузил санки провизией ‘he loaded the sleds with provisions’)
  - Аcc (нагрузили телеги и уехали в город ‘they loaded the carts and rode into town’)

• Data comes from Russian National Corpus
About the results...

• They are statistically significant
  – Chi-square = 452.827 (p<0.0001, df=6)
    Cramer’s V = 0.507 (large effect)

• Case Constructions show that the “empty” prefixes behave differently from one another
Conclusions

• Slavic case can tell us about
  – the meaning of grammar
  – how grammars differ
  – how closely synonyms are related
  – what metaphors underlie abstract concepts
  – whether there are semantically “empty” linguistic forms

• There are plenty of opportunities for further research!