GRAMMATICAL RESEARCH ON SEMI-TAGGED CORPORA (ON THE DATA OF OSSETIC NOMINALIZATIONS)

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Overview

- Methodology
- Ossetic basics
- Creating corpora
- Extracting data
- Evaluating data
- Interpreting data
- Conclusion

What Is This All About?

- Syntactic researches are often made by questioning native speakers
- Sometimes speakers don't express clear preference for a specific surface structure
- Corpora-oriented studies could help
- Some languages have problems with corpora studies

Ossetic and corpora studies

- Problems:
  - No tagged corpora
  - No e-dictionaries or tag sets
- But:
  - Rich morphology

    ⇒ we can rely on affixation
  - Well-developed literature tradition

    ⇒ large text array

Ossetic and corpora studies

- Research strategy:
  - Searching untagged corpora
  - Subsequent supervised filtration
  - Manual tagging the results

Basics information about Ossetic

- Iranian language
- Mostly synthetic
- 9 grammatical cases
  - Marked by suffixes
  - No accusative case
- Morphosyntactic alignment: nominative-accusative

Basics information about Ossetic

- Unmarked case: nominative
- Direct Object case: nominative or genitive

- Nominalizations are formed by –yn– suffix

Ossetic Nominalization: Problems

- Theoretical problems:
  1. How much VP structure is involved in it
  2. How DP structure influences nominalization
- In Ossetic:
  - Both problems are topical, because –*yn*– forms are homonymous between infinitives and nominalizations

Ossetic Nominalization: Problems

1. Nominal:

…iron ævzag ahwyr kænyn-y

Ossetic language study-*ING*-*GEN*

raydayæn etap…

beginning stage

the first stage of studying Ossetic

2. Infinitival:

…raidydta ahwyr kænyn

he-started study-*ING*

matematikon naukæ-tæ…

mathematical science-PL

he began studying mathematical sciences

Ossetic Nominalization: Arguments

- According to native speakers' judgements:
  - Both external and internal arguments participate in nominalizations
  - Flexible word order in simple predication
  - Strict left branching in noun phrases
- So direct questioning doesn't clarify:
  - Arguments that are in argument list
  - Directionality of branching

Ossetic Nominalization: Ordering

fyd-y father-GEN	sævæg scythe	daw-yn- sharp-*ING*
fyd-y father-GEN	daw-yn- sharp-*ING*	sævæg scythe
daw-yn- sharp-*ING*	fyd-y father-GEN	sævæg scythe
daw-yn- sharp-*ING*	sævæg scythe	fyd-y father-GEN

All these orderings were attested by native speakers

Ossetic Nominalization: Basis

- Artemis Alexiadou, 2004:
  - Nominalizations are always merged under the same structure
- Syntactic material is the same, differences are in phi-features
- Differentiation of the phi-features is induced by external context
- Every feature set forces specific internal configuration

Ossetic Nominalization: V vs. N

- Two most prominent patterns are nominal and verbal one
- Nominal:
  - Merged under postpositions and in noun phrases
  - Acquire all properties of noun phrases
    - Able to assign Gen to their subject
    - Shouldn't exhibit word order permutation
- Verbal:
  - Merged under modals and phrase verbs
    - Do not have own subjects
    - Exhibit word order dependency on the information structure

Ossetic Nominalization: Hypothesis

We expect to observe the following distributional properties:

- No difference in number or marking of arguments
- Differentiation in surface string ordering:
  - Nominal contexts: strict left branching
  - Verbal contexts: flexible ordering

These two statements were chosen for testing by corpora method

Extracting data: Corpus & tools

- Corpus:
  - Consisted of 1.3 million words
  - Modern fiction and press
- Extraction:
  - Indexing text array
  - Querying:
    - Word1 + distance span + word2
    - Word1 and word2 are regular expressions

Extracting data: The process

- Initially extracted ~20 000 sentences
- Examples with 8 most frequent verbs were chosen

Verb	**Translation**
‘arazyn’	make
‘zuryn ’	say
‘sæwyn ’	go
‘hwydy kænyn ’	think
‘maryn ’	kill
‘særyn ’	live
‘ahwyr kænyn ’	study
‘pajda kænyn’	use

Extracting data: The process

- Distinguishing V from N:
  - Genitive forms as the examples of nominal contexts
  - Constructions with ‘start / begin’, ‘want’ and ‘need’ as the examples of verbal contexts
- ~700 contexts were left after filtering
- They were manually translated and tagged:

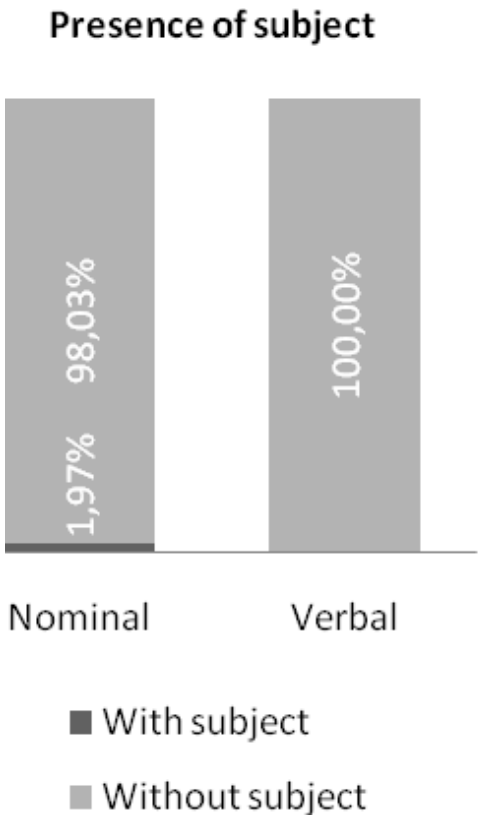
Context	Presence of subject	Presence of direct object	Directionality of branching
…	…	…	…

Evaluating results

- Total: 668 instances
  - 355 nominal contexts
  - 313 verbal contexts

Evaluating results: Subjects

- Only 7 examples
- All in nominal contexts
- ⇒ They are pragmatically introduced participants, not true arguments

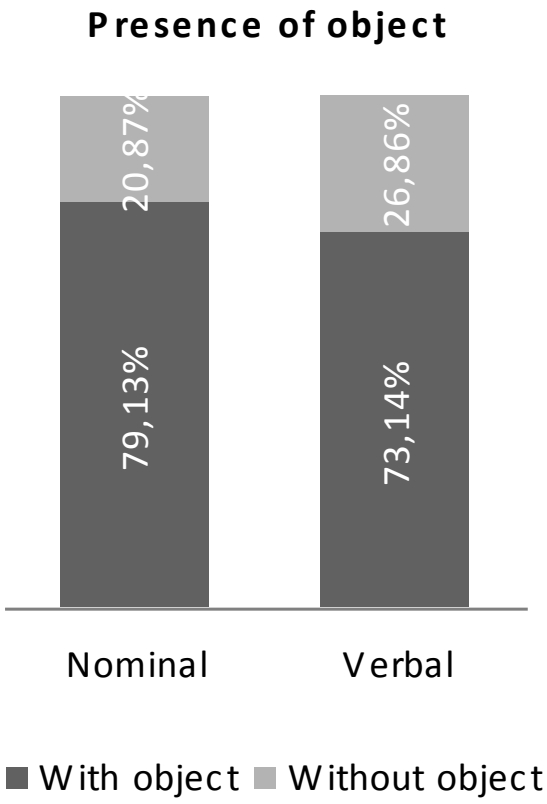


Evaluating results: Direct objects

- Total: 291 context
- Nominal: 163 = 79%
- Verbal: 128 = 73%
- Paired t-test (amount of subjects of each verb in nominal vs. verbal contexts):

  $t(5) = 0.34, p > 0.1$

  ⇒ no significant difference



Evaluating results: subject with DO

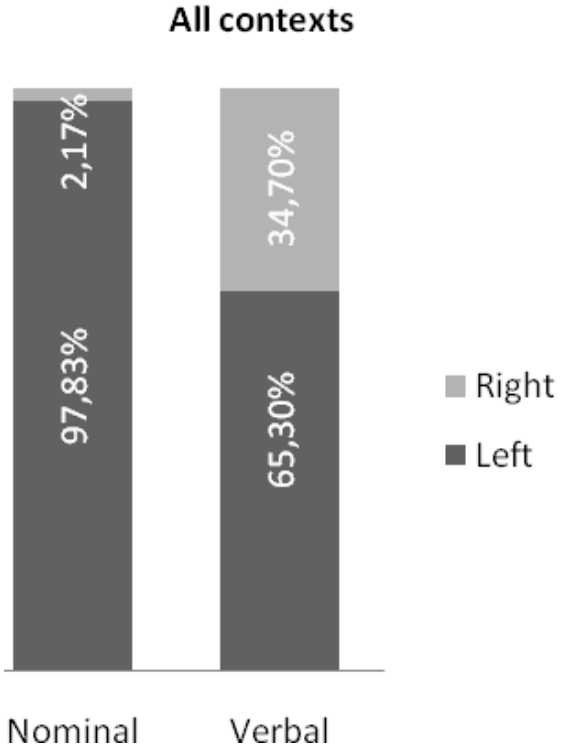
No nominalizations with both subject and direct object have been attested

Evaluating results: branching

- Left branching was met:
  - In 98% of nominal contexts
  - In 65% of verbal contexts
- Yates-corrected chi-square test (nominal and verbal context in the amount of examples with left vs. right branching):

  $p<.001$

  ⇒ significant difference



Interpreting data: argument structure

- Two observations can be done:
  1. Both types of nominalizations lack subject on argument list
  2. Direct objects are equally frequent in both types of nominalization

  ⇒ Argument structures are the same

Interpreting data: word order

- Nominal contexts are strictly left branching
- > 1 / 3 of infinitival contexts are right branching

- Explanation:
  - Nominalizations in nominal contexts do not allow pragmatically driven scrambling (like in regular DPs)
  - Infinitival nominalizations are not restricted in this option

  - Branching directionality depends on phi-features supplied by external context, internal structure is the same

Conclusion

- Ossetic nominalizations do not project external arguments
- Their argument structure can include only direct object
- The internal structure of nominalization is a function of the context where it was merged

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