A Radial Category Profiling Analysis of North Sámi Ambipositions
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Our Toolbox: Linguistic Profiling
- A suite of methods for investigating form–meaning relationships
- Each can be thought of as a subset of behavioral profiling (Divjak & Gries 2006,
  Gries & Divjak 2009)
  Includes:
  - Radial Category Profiling – Comparison of radial categories of polysemous elements
  - PLUS:
    - Grammatical Profiling, Constructional Profiling, Collostructional Profiling, Historical Profiling

North Sámi...
- A Finno-Ugric language
- About 30,000 speakers
- In contiguous regions of northern Norway, Sweden, and Finland
- Unique in Europe as a minority language in contact with majority languages from two different language families: Indo-European and Finno-Ugric (Ylikoski 2009:201-202)
Ambipositions:
Adpositions that function as both prepositions and postpositions
- Typologically rare phenomenon (Hagège 2010)
  - Such adpositions are found in Finnish, Estonian, and the Sámi languages
  - There are more of them in Sámi languages (see Table 1 on handout)
  - In Finnish and Estonian there are strong tendencies (e.g., time with preposition, space with postposition)
  - Distribution in Sámi languages has not previously been studied in detail

4 Ambipositions in North Sámi
1. a. miehtá dálvvi  b. dálvvi miehtá
   [over winter-G]  [winter-G over]
   ‘during the winter’
2. a. čada āiggi  b. āiggi čada
   [through time-G]  [time-G through]
   ‘through time’
3. a. rastá joga  b. joga rastá
   [across river-G]  [river-G across]
   ‘across the river’
4. a. maŋŋel soađi  b. soađi maŋŋel
   [after war-G]  [war-G after]
   ‘after the war’

Three hypotheses
1. We expect to find regional variation in use of ambipositions since N. Sámi is in contact with Finnish (predominantly postpositional) in East, and in contact with Norwegian/Swedish (prepositional) in Central and West regions
2. We expect position to be associated with differences in expression of meaning
3. We expect that a language with more ambipositions will use position in a more complex way

Ambipositions in North Sámi: Material
- 4 relatively frequent ambipositions:
  - miehtá ‘over’ (2 dimensions, time and space)
  - čada ‘through’ (3 dimensions, time and space)
  - rastá ‘across’ (1 dimension, space)
  - maŋŋel/majgi/majjá ‘after’ (1 dimension, time)
- 2 databases:
  - Newspapers
  - Literature

Examples from newspapers
- 1997–2011: 10M words
- Automatic extraction found 7496 sentences with the 4 ambipositions
- Goal: Tag by hand ≥100 examples for each position for each adposition
- In all, 901 examples were tagged by hand for types of meaning expressed
Distribution of adpositions in newspaper corpus (10M words)

Examples from literature
- Examples extracted partly automatically, partly by hand
- 652 examples of the 4 ambipositions found, all tagged by hand
- 20 texts, three geographical regions:
  - West = S. Troms (contact with Norwegian and Swedish)
  - Central = Kautokeino (contact with Norwegian)
  - East = Tana (contact with Finnish)
- New translation of the New Testament

Distribution of adpositions in literature

Geographical distribution of literary texts

Distribution of adpositions

X² = 129.7, df = 2, p < 2.2e-16
Cramer’s V = 0.48
**Radial categories: miehtá ‘over’ in newspapers**

- Time: 9%
- Extent: 79%
- Motion: 12%

**Preposition:**
- Time: 21%
- Extent: 69%
- Motion: 10%

**Postposition:**
- Time: 48%
- Extent: 36%
- Motion: 16%

X-squared = 170, df = 2, p-value < 2.2e-16; V = 0.85

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**miehtá ‘over’**

- Preposition prefers extent, usually in two dimensions
- Preposition used with ‘world’ and words naming countries, territories, regions
- In newspapers the postposition prefers time, especially with words for: ‘summer’, ‘winter’, ‘day’, ‘night’, but does not express motion
- In literature, postposition most often refers to time and extent

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**Radial categories: čaďa ‘through’ in newspapers**

- Time: 55%
- Extent: 8%
- Motion: 37%

**Preposition:**
- Time: 25%
- Extent: 2%
- Motion: 36%

**Postposition:**
- Time: 49%
- Extent: 25%
- Means: 25%

X-squared = 45, df = 2, p-value < 1.3e-10; V = 0.43

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**Radial categories: čaďa ‘through’ in literary texts**

- Time: 9%
- Extent: 25%
- Motion: 66%

**Preposition:**
- Time: 2%
- Extent: 1%
- Motion: 94%

**Postposition:**
- Time: 2%
- Extent: 1%
- Means: 3%

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**čaďa ‘through’**

- In newspapers:
  - Preposition: time > motion
  - Postposition: motion > means = time
- Frequent words from the domain of time:
  - Preposition: gaska ‘interval’, ‘time (sg/pl)’
  - Postposition: ‘time (sg/pl)’
- Motion: openings, obstacles, problems, weather – this meaning predominates in literature
- Means (postposition): actions, instruments, media, administrative measures, organizations
Radial categories: *rastá* ‘across’ in newspapers

<table>
<thead>
<tr>
<th></th>
<th>Preposition</th>
<th>Postposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motion</td>
<td>77%</td>
<td>48%</td>
</tr>
<tr>
<td>Extent</td>
<td>23%</td>
<td>45%</td>
</tr>
<tr>
<td>Endpoint</td>
<td>1%</td>
<td>7%</td>
</tr>
</tbody>
</table>

X-squared = 12, df = 2, p-value < 4.4e-4; V = 0.25

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**rastá ‘across’**

- In newspapers:
  - Preposition: motion > extent
  - Postposition: motion = extent
- Mostly used with nouns denoting rivers, lakes, borders, roads, bridges
- Endpoint is fairly rare but possible in both positions
- Motion predominates in literature in both positions

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Radial categories: *rastá* ‘across’ in literary texts

<table>
<thead>
<tr>
<th></th>
<th>Preposition</th>
<th>Postposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motion</td>
<td>92%</td>
<td>86%</td>
</tr>
<tr>
<td>Extent</td>
<td>8%</td>
<td>8%</td>
</tr>
<tr>
<td>Endpoint</td>
<td>2%</td>
<td>2%</td>
</tr>
</tbody>
</table>

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**mangel ‘after’**

- Preposition often comes after the verb; postposition is balanced between preverbal and postverbal position
- Preposition prefers bare nouns; postposition prefers pronouns and modified nouns
- Preposition is preferred in combination with adverbs meaning ‘immediately’ or phrases quantifying a time interval

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Radial category profiling of Sámi adpositions

- For each adposition, the preposition and postposition share the same radial category, but the distribution of meanings can differ significantly
- Radial category profiling makes it possible to measure the differences between prepositions and postpositions
- There is no single tendency for all adpositions
  - For *miehtá* time is stronger for the postposition
  - For *ćađa* time is stronger for the preposition

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Typological observation

- There seems to be a relationship between extent of ambipositions and the use of position to signal meaning
- Some languages have few ambipositions and do not make any systematic use of position to signal meaning
  - English, Norwegian over: marginal idiomatic use of postposition
  - Russian *spustja, pogodja* ‘later’, *radi* ‘for the sake of’; corpus study reveals no differences in use connected to position
- Finnish and Estonian have systematic use of ambipositions (10-13% of adpositions) and do show differences connected to position; these involve clear tendencies (e.g. preposition preferred for temporal expression)
- N. Sámi has extensive systematic use of ambipositions (22% of adpositions) and has strong, but complex differentiation of use according to position
Conclusions:
Three hypotheses confirmed
1. We found regional variation in use of ambipositions aligned with use of adpositions in contact languages
2. We found that position is associated with differences in expression of meaning
3. North Sámi has more ambipositions and uses position in a more complex way

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