Aspects of topicality in the use of demonstratives expressions in German and Russian

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Demonstratives

- Demonstrative Pronoun
  - *der, dieser, jener* (German)
  - *ètot, tot* (Russian)
  - cf. *this, that* (English)

- Demonstrative NP
  NP with a demonstrative determiner
  - *dieser N, jener N* (German)
  - *ètot N, tot N* (Russian)
  - cf. *this N, that N* (English)
Topicality

- **Topic** ~ reference point in discourse  
  (Portner & Yabushita 1998, Givón 2001)
- **Topicality** ~ likelihood for a referent to serve as reference point in discourse
- aspects of topicality  
  (Lambrecht 1994, Givón 2001)
  - **Activation**
    - reference to a previously established topic
  - **Topic announcement**
    - potential to establish a referent as new topic
- quantitative measurements of topicality
  - frequency measures, distance measures
Demonstratives and topicality

- **Low activation**  
  Himmelmann 1996; Diessel 1999

- **Medium activation**  
  Gundel et al. 1993; Ariel 1990

- **High activation**  
  Maes and Noordman 1995: demonstrative NPs  
  Sgall et al. 1986: demonstrative pronouns

- **Topic announcement/establishment**  
  implies medium/low activation  
  Diessel 1999

- **Topicality-independent factors**
Structure

- **Quantitative study**
  - Corpora involved
  - Hypotheses and predictions on topicality measurements

- **Qualitative study**
  - Functional taxonomy of demonstratives
  - Application to German and Russian corpora

- **Combining qualitative and quantitative criteria**
  - Modification vs. Topicality
  - The end-chain preference
  - Discussion
Corpus annotation

- German: Potsdam Commentary Corpus (PCC)
  - 175 texts
  - 33075 tokens
  - 864 anaphoric chains (2158 referring expressions)

- Russian: RIAN [currently in preparation]
  - 14 texts
  - 45226 tokens
  - 106 anaphoric chains (641 referring expressions)
Extracted features

1) Chain position
   • chain-initial (first mention)
   • chain-medial (neither first nor last mention)
   • chain-final (last mention)

2) Referential distance
   • number of clauses between anaphor and antecedent (0, 1, ...)

3) Topic persistence
   • frequency of mentions within the next 20 clauses

4) Centrality
   • length of anaphoric chain relative to the number of clauses in the text
Mid-activation hypothesis

„each status on the hierarchy is a necessary and sufficient condition for appropriate use of a different form or forms“
(Gundel et al. 1993:275)

Predictions
1) Chain position  [ chain-medial = chain-final > chain-initial ]
2) Distance  
   [ pronouns < demonstrative pronoun <demon. NP < definite NPs ]
3,4) Topic persistence and centrality [=non-demonstratives]
Identification hypothesis

„Demonstrative pronouns ... supplement the minimalism of personal pronouns with indications of proximity or distality, a pointing-like function that may be spatial, temporal or discursal.“ (Chafe 1994:97)

Predictions
1) Chain position [insensitive]
2) Distance [demonstrative pronoun > pronoun]
   [demonstrative NP > definite NP]
3,4) Topic persistence and centrality [=non-demonstratives]
Topic establishment hypothesis

Topic \sim reference point in discourse (Portner & Yabushita 98, Givón 01)

\ldots very often they occur after the first mention of a thematically prominent referent that persists in the subsequent discourse.\" (Diessel 1999:96)

Referent: prominent in the subsequent discourse not yet established as topic

Predictions
1) Chain position [chain-medial \succ chain-initial \succ chain-final]
2) Distance [demonstratives \succ pronouns]
3,4) Topic persistence and centrality [\succ non-demonstratives]
Modification hypothesis

“The markedness of the demonstrative determiner is meant to **signal a predicating** (as opposed to identificational) **reading** of the NP involved, the effect being that the representation of the underlying DR is modified...“

(Maes and Noordman 1995:256)

Referent: highly activated (a necessary condition)

Predictions
1) Chain position [chain-medial = chain-final > chain-initial]
2) Distance [definite NPs > demonstrative NPs]
3) Topic persistence [~ non-demonstratives]
4) Centrality [> non-demonstratives]
Chain position

<table>
<thead>
<tr>
<th></th>
<th>INDEFNP</th>
<th>NAME</th>
<th>DEFPNP</th>
<th>PRON</th>
<th>DEMNP</th>
<th>DEMPRON</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>German</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>chain-initial</td>
<td>99.40%</td>
<td>45.09%</td>
<td>38.11%</td>
<td>1.71%</td>
<td>23.21%</td>
<td>14.58%</td>
<td>35.04%</td>
</tr>
<tr>
<td>chain-medial</td>
<td>0.60%</td>
<td>26.79%</td>
<td>28.83%</td>
<td>50.57%</td>
<td>12.50%</td>
<td>20.83%</td>
<td>29.93%</td>
</tr>
<tr>
<td>chain-final</td>
<td>0.00%</td>
<td>28.13%</td>
<td>33.06%</td>
<td>47.7%</td>
<td>64.29%</td>
<td>64.58%</td>
<td>35.04%</td>
</tr>
<tr>
<td>Preferred</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dispreferred</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Russian</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>chain-initial</td>
<td>40.88%</td>
<td>17.55%</td>
<td>2.55%</td>
<td>4.21%</td>
<td>0%</td>
<td></td>
<td>18.17%</td>
</tr>
<tr>
<td>chain-medial</td>
<td>53.04%</td>
<td>76.60%</td>
<td>84.71%</td>
<td>32.63%</td>
<td>50%</td>
<td></td>
<td>63.66%</td>
</tr>
<tr>
<td>chain-final</td>
<td>6.08%</td>
<td>5.85%</td>
<td>12.74%</td>
<td>63.16%</td>
<td>50%</td>
<td></td>
<td>18.17%</td>
</tr>
<tr>
<td>Preferred</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dispreferred</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Demonstratives are more likely to appear chain-final than any other form.
## Chain position additional corpora

<table>
<thead>
<tr>
<th>Chain position per referring expression in English business articles</th>
<th>Chain position per referring expression in Russian literary texts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INDEFNP</strong></td>
<td><strong>NAME</strong></td>
</tr>
<tr>
<td>chain-initial</td>
<td>71.05%</td>
</tr>
<tr>
<td>chain-medial</td>
<td>14.32%</td>
</tr>
<tr>
<td>chain-final</td>
<td>14.63%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>FULLNP</strong></th>
<th><strong>NAME</strong></th>
<th><strong>PRON</strong></th>
<th><strong>DEMNP</strong></th>
<th><strong>DEMPRON</strong></th>
<th><strong>total</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>chain-initial</td>
<td>18.52%</td>
<td>5.26%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>chain-medial</td>
<td>77.78%</td>
<td>84.21%</td>
<td>92.16%</td>
<td>80.00%</td>
<td>87.50%</td>
</tr>
<tr>
<td>chain-final</td>
<td>3.70%</td>
<td>10.53%</td>
<td>7.84%</td>
<td>20.00%</td>
<td>12.50%</td>
</tr>
</tbody>
</table>

Chain position per referring expression in English business articles (RST Discourse Treebank, Carlson et al. 2003)

Chain position per referring expression in Russian literary texts (Krasavina 2004)
Persistence and centrality

<table>
<thead>
<tr>
<th>Referring expression</th>
<th>Average topic persistence</th>
<th>Average centrality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>English</td>
<td>Russian</td>
</tr>
<tr>
<td>NAME</td>
<td>2.66864704</td>
<td>7.22743682</td>
</tr>
<tr>
<td>PRON</td>
<td>2.00610288</td>
<td>6.82758621</td>
</tr>
<tr>
<td>FULLNP</td>
<td>1.63772714</td>
<td>4.3745583</td>
</tr>
<tr>
<td>the-NP</td>
<td>1.76643678</td>
<td>n/a</td>
</tr>
<tr>
<td>a-NP</td>
<td>1.42105263</td>
<td>n/a</td>
</tr>
<tr>
<td>DEMPRON</td>
<td>1.02777778</td>
<td>3</td>
</tr>
<tr>
<td>DEMNP</td>
<td>0.81818182</td>
<td>0.78823529</td>
</tr>
</tbody>
</table>

Demonstratives tend to refer to peripheral referents
- less frequent (centrality)
- infrequent in subsequent discourse (persistence)
=> contradicts Topic Establishment Hypothesis
# Referential distance

<table>
<thead>
<tr>
<th></th>
<th>English</th>
<th>German</th>
<th>Russian</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NAME</strong></td>
<td>5.23278689</td>
<td>2.9390243</td>
<td>2.69318182</td>
</tr>
<tr>
<td><strong>FULLNP</strong></td>
<td>4.56695536</td>
<td>3</td>
<td>1.47928994</td>
</tr>
<tr>
<td><strong>DEMNP</strong></td>
<td>2.29113924</td>
<td>2.06976744</td>
<td>2.25</td>
</tr>
<tr>
<td><strong>DEMPRON</strong></td>
<td><strong>1.64705882</strong></td>
<td><strong>0.68292683</strong></td>
<td>1.3</td>
</tr>
<tr>
<td><strong>PRON</strong></td>
<td>1.6115993</td>
<td>0.5726744</td>
<td>1.91111111</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>= prediction?</th>
<th>Identification (DemPron/DemNP)</th>
<th>Mid-Activation</th>
<th>Topic Establishment (DemPron/DemNP)</th>
<th>Modification (only DemNP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>German</td>
<td>+/−</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>English</td>
<td>+/−</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Russian</td>
<td>−/+</td>
<td>−</td>
<td>−/+</td>
<td>−</td>
</tr>
</tbody>
</table>
Conclusion

- No hypothesis predicts end-chain preference
- No hypothesis compatible with all languages
- No hypothesis predicts non-topicality (i.e. persistence/centrality)

⇒ neither activation status nor topic establishment explains the specific distribution of demonstratives found in our corpora
⇒ Demonstratives encode other aspects of meaning besides signalling an activation status or topic establishment!
    ⇒ Modification?
Qualitative study: method

- Taxonomy of discourse functions of demonstrative NPs
- Data-driven enrichment of taxonomy
  - Protégé (ontology development tool)*
  - performed on sub-corpora of PCC and RIAN
- Empirical assessment
  - frequency distribution of functional types of demonstrative NPs

* http://protege.stanford.edu
Taxonomy: Top Level

- **MODIFICATION** [+lexical]
  - new lexical material

- **EXPLICIT CONTRAST** [-lexical, +contrastive]
  - no new lexical material
  - lexically expressed contrast between two referents or a referent and the rest of its class

- **TOPIC FLOW** [-lexical, -contrastive, +pragmatic]
  - no new lexical material, no contrast
  - hypothetical discourse functions
    - topic establishment, anti-topical antecedent, ...
# Frequency distribution

<table>
<thead>
<tr>
<th></th>
<th>freq. in German</th>
<th>freq. in Russian</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>total</strong></td>
<td>44</td>
<td>116</td>
</tr>
<tr>
<td><strong>Modification</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribution</td>
<td>5 (11.36%)</td>
<td>10 (8.62%)</td>
</tr>
<tr>
<td>Classification</td>
<td>26 (59.09%)</td>
<td>50 (43.10%)</td>
</tr>
<tr>
<td>Trivial Classification</td>
<td>14 (31.82%)</td>
<td>40 (34.48%)</td>
</tr>
<tr>
<td><strong>Topic Flow</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indefinite This</td>
<td>2 (4.55%)</td>
<td>n/a</td>
</tr>
<tr>
<td>Reference To Antitopic</td>
<td>1 (2.27%)</td>
<td>16 (13.79%)</td>
</tr>
<tr>
<td>Elaboration Of Local Topic</td>
<td>3 (6.82%)</td>
<td>16 (13.79%)</td>
</tr>
<tr>
<td>Promote To Topic State</td>
<td>2 (4.55%)</td>
<td>9 (7.76%)</td>
</tr>
<tr>
<td>Degradation From Topic State</td>
<td>n/a</td>
<td>2 (1.72%)</td>
</tr>
<tr>
<td><strong>Explicit Contrast</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Binary Opposition</td>
<td>5 (11.36%)</td>
<td>2 (1.72%)</td>
</tr>
<tr>
<td>One From A Set</td>
<td>2 (4.55%)</td>
<td>2 (1.72%)</td>
</tr>
<tr>
<td><strong>Atypical Anaphor</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vague Antecedent</td>
<td>8 (18.18%)</td>
<td>2 (1.72%)</td>
</tr>
<tr>
<td>Exophoric Reference</td>
<td>6 (18.18%)</td>
<td>n/a</td>
</tr>
<tr>
<td>Metalinguistic Anaphor</td>
<td>1 (1.89%)</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Interpretation: MODIFICATION

- **MODIFICATION** > 50 % in both languages
  - **but** in more than 40% are trivial classifications:
    - demonstrative + nominal, no modifier
    - head nominal is a lexical hypernym
    - semantically empty
  - proper **MODIFICATION** applies to at most 41 % (German) resp. 23 % (Russian)

- **MODIFICATION** is not a unitary explanation
  - division of labour between pragmatic function (topic flow) and semantic function (modification) ?
  - combining quantitative and qualitative criteria
Combining quantitative and qualitative criteria

predictions for referential distance
- Modification hypothesis (Maes and Noordman 1995)
  modification ~ low distance
- Identification hypothesis (Chafe 1994)
  rich semantics enhance access to less identifiable referents
  modification ~ large distance

qualitative assessment of end-chain preference
- can the functional classification shed some light on the mysterious end-chain preference?
Combining quant. & qual. MODIFICATION and distance

performed on a non-deterministically chosen sub-corpus of RIAN and PCC

<table>
<thead>
<tr>
<th></th>
<th>average distance in German (39 samples)</th>
<th>average distance in Russian (65 samples)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODIFICATION</td>
<td>2.26 (23)</td>
<td>3.12 (48)</td>
</tr>
<tr>
<td>(with TRIVCLASSIFICATION)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRIVIALCLASSIFICATION</td>
<td>2.75 (12)</td>
<td>2.23 (36)</td>
</tr>
<tr>
<td>EXPLICITCONTRAST</td>
<td>1 (7)</td>
<td>(none)</td>
</tr>
<tr>
<td>TOPICFLOW</td>
<td>0.4 (5)</td>
<td>0.88 (17)</td>
</tr>
<tr>
<td>EXOPHORICREFERENCE</td>
<td>5 (3)</td>
<td>(none)</td>
</tr>
</tbody>
</table>
Combining quant. & qual. MODIFICATION and distance

☐ MODIFICATION occurs with less accessible demNPs
  ■ including TRIVIALCLASSIFICATION
  ■ explainable by Identification hypothesis

⇒ a specialized function to mark modifications of highly accessible referents not confirmed
⇒ contradicts Modification hypothesis

(Maes & Noordman 1995)
Combining quant. & qual.
On the end-chain preference

- **German**: 25 instances, **Russian**: 36 instances
- **MODIFICATION**
  - indifferent with respect to end-chain
- **EXPLICITCONTRAST**
  - all instances of EXPLICITCONTRAST (German: 7) are chain-final*
- **TOPICFLOW**
  - most sub-types are indifferent
  - **REFERENCEToANTITOPIC**: 50% (Russian: 9/16, German: 1/1) are chain-final*

* In the Russian sub-corpus, no instances of ExplicitContrast were found.
Combining quant. & qual.
On the end-chain preference

- end-chain preference ~ contrast ?
  - explicit contrast
    
  - reference to antitopic
    picking up a non-salient, but activated element
    from a partially ordered set

\[ \text{als der bundestag anfang juli den beschluss} \]
\[ \text{daruber fasste, wurde diese entscheidung als sieg verkauft.} \]
\[ \Rightarrow \text{discoursally imposed contrast ?} \]

\[ \text{cf. Bosch et al. (to appear)} \]
Summary and conclusions

- topicality considerations cannot specify sufficient conditions for the use of demonstratives
  - quantitative topicality measurements fail to explain the distribution of demonstratives
  - also not in combination with Maes & Noordman’s (1995) Modification hypothesis
- demonstratives tend to appear chain-finally
  - explainable by a generalized notion of contrast?
Prospects

Alternative explanations

- Demonstratives might establish *local* topics, but not global ones
  - Local topic: reference point only in the *immediately preceding/following discourse*
  - Global topic: reference point in *different parts of the discourse*

- Distance measurements for DemNPs support the topic establishment hypothesis
- Qualitative study of DemNPs: topic flow ~ low distance
- Persistence and centrality: lower topicality than non-demonstratives
Prospects
Hypothetical functions

- identification aspect
  - support/disambiguate the access to less accessible referents
- pragmatic aspects (in local contexts)
  - topic establishment
  - topic demotion ?
- semantic aspects (in local contexts)
  - contrast ?
- partly overlapping
Prospects
Towards a Generalization

Demonstratives as generalized shift markers?

- identification aspect / mid-activation
  => shift of attentional focus
- topic flow
  => shift of reference point
- contrast
  => shift of perspective/expectation
- cf. scenario shift (Sanford and Garrod 1981), rhetorical shift (Fox 1987), episode shift (Tomlin 1987)


