ANALYZING PARLIAMENTARY QUESTIONS
A POLITICAL SCIENCE APPLICATION OF A NEW TOPIC MODELLING APPROACH

#1 Motivation

1. Empirical motivation:
   Demand
   • Parliamentary control of the government as a decisive feature of democracy
   • Increasing interest in parliament’s role in foreign policy

   But a gap in the literature:
   • So far, mainly manual case studies of German parliamentary questions
   • Lack of systematic analysis of parliamentary control in foreign policy

2. Methodological motivation:
   A new method
   • developed and validated in a transdisciplinary collaboration of computer & social scientists
   • based on community detection, rather than probabilistic methods (such as LDA), and comprehensive pre- and postprocessing steps
   • geared towards good and easy topic interpretability

#2 Method

Process:

Preparation
• Clean, reduce to nouns & adject., NER, lemmatise
• pIdfRank: Ranking of words in document using a weighted modification of PageRank
• Retain only top 12.5% of words per document

Discovery
• Build word co-occurrence network
• Find topics as word communities by optimisation of parameterised modularity using Leiden algorithm

Presentation
• Rank words per topic by Bayesian average of word ranks in document
• Cluster topic words in fastText word embedding space

Advantages
• Resolution parameter enables topic discovery on various scales
• High topic quality generally independent of choice of resolution parameter (unlike number parameter in LDA)
• Discovery step is very quick (less than a minute for present corpus)
• Topic words are not sorted by probability but by specificity
• Word cloud presentation allows grasping > 100 topic words (rather than ~20 word lists)
• Semantic clustering in presentation helps to recognise meaning

#3 Application

Data

Minor interpellations (MiI, Kleine Anfragen)
• are an instrument of parliamentary control in the German parliament (Bundestag)
• are written questions on a specific issue/topic to be answered by the executive.
• can be made by at least 5% of members of parliament or by parliamentary groups.
• are typically put forward by the opposition.

Finding 1: Medium-resolution (2.0) model results in 52 topics. The majority of topics represent thematic and geographic policy areas:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Share</th>
<th>Topic</th>
<th>Share</th>
<th>Topic</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>German military: internal</td>
<td>7.1%</td>
<td>Investments abroad</td>
<td>2.5%</td>
<td>German military: assistance</td>
<td>1.4%</td>
</tr>
<tr>
<td>Police/customs operations abroad</td>
<td>7.0%</td>
<td>Human rights: Europe</td>
<td>2.4%</td>
<td>Intelligence</td>
<td>1.3%</td>
</tr>
<tr>
<td>International police cooperation</td>
<td>6.5%</td>
<td>German military: training</td>
<td>2.4%</td>
<td>Cyber/hybrid threats</td>
<td>1.2%</td>
</tr>
<tr>
<td>Arms exports</td>
<td>4.8%</td>
<td>Historical responsibility</td>
<td>2.3%</td>
<td>Europe: general</td>
<td>1.1%</td>
</tr>
<tr>
<td>Syria</td>
<td>4.2%</td>
<td>EU &amp; UK</td>
<td>2.1%</td>
<td>Resources</td>
<td>1.1%</td>
</tr>
<tr>
<td>Migration: Mediterranean</td>
<td>4.0%</td>
<td>Eastern Europe</td>
<td>2.0%</td>
<td>Europe: social</td>
<td>1.0%</td>
</tr>
<tr>
<td>Free trade</td>
<td>3.5%</td>
<td>Nuclear</td>
<td>1.9%</td>
<td>Africa</td>
<td>0.9%</td>
</tr>
<tr>
<td>Military drones</td>
<td>3.4%</td>
<td>Climate &amp; environment</td>
<td>1.6%</td>
<td>Afghanistan</td>
<td>0.9%</td>
</tr>
<tr>
<td>Development cooperation</td>
<td>3.2%</td>
<td>Crisis prevention &amp; conflict management</td>
<td>1.6%</td>
<td>Health</td>
<td>0.9%</td>
</tr>
<tr>
<td>Human rights: outside Europe</td>
<td>3.1%</td>
<td>Digital transformation</td>
<td>1.6%</td>
<td>Formal aspects</td>
<td>0.9%</td>
</tr>
<tr>
<td>Visa</td>
<td>3.0%</td>
<td>Research</td>
<td>1.4%</td>
<td>Arab-Israeli conflict</td>
<td>0.8%</td>
</tr>
<tr>
<td>Asylum</td>
<td>2.8%</td>
<td>Asia</td>
<td>1.4%</td>
<td>Agriculture</td>
<td>0.8%</td>
</tr>
</tbody>
</table>

Finding 2: Lower resolution (0.6) results in 11 topics that represent general thematic policy areas, such as economic/financial and security. Higher resolution (2.5) results in 68 topics that additionally provide issues within policy areas, such as wood economy and piracy.

Further readings:
Finding 3: Redistributions in topic shares after elections with parties entering or leaving suggest that MiIs are subject to agenda setting, e.g.:
Finding 4: More precisely, parties discuss primarily those areas in which they significantly disagree with government policies. This implies that MiIs attempt to influence the direction of government policy.

Finding 5: Foreign-policy MiIs may be used to monitor the general political topic attention.

Usage:
Top 10 party topics (%)

AIPD

The Left

Greens

Human rights: Europe

National responsibility

Military drones

Migration: Mediterranean

Asylum

Civil society

Mig. operations abroad

Human rights: internal

Military radiation

Development cooperation

International police cooperation

Final remarks:
- Our corpus consists of all 3,881 foreign-policy related MiIs from the 17th, 18th and the current 19th legislative period until 24 August 2020.
- This includes all MiIs assigned to at least one of the following subject areas in the Bundestag database: Foreign Policy & International Relations; Foreign Trade; Development Policy; EU & European Policy; Defence.

Stimulating discussions and productive collaboration with Mark Azzam and Rasmus Beckmann are gratefully acknowledged.

Simon Odrowski
simon.odrowski@dlr.de

Andreas Hamm
andreas.hamm@dlr.de