Topic-Specific Sentiment Analysis for Twitter Data of German MPs

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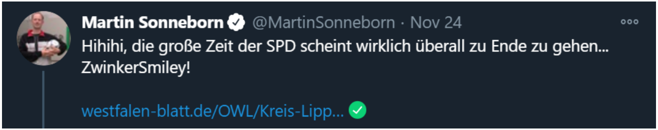
Project Outline

Goal: topic-specific sentiment analysis on tweets by German MPs

→ What sentiments are expressed toward particular topics?



Martin Sonneborn @MartinSonneborn · Nov 24

Hihihi, die große Zeit der SPD scheint wirklich überall zu Ende zu gehen... ZwinkerSmiley!

westfalen-blatt.de/OWL/Kreis-Lipp... ✓

Two-pronged approach:

1. Comprehensive pipeline :
   data extraction > data processing > sentiment analysis
   - Robust framework with rather basic methodology
   - To be implemented in `R`
2. Advanced sentiment analysis
   - Exploration of more complex methods
   - Most probably in `Python`

Key Challenges

- **Large data base of unstructured text**
  - → High dimensionality
  - → Run time, memory
- **German language**
  - → Syntactic complexities
  - → Less existing research than for English
- **Twitter idiosyncrasies**
  - → Short document length (140 characters)
  - → Informal language (plus spelling mistakes)
  - → Special features (hashtags, emojis, ...)
- **Topic extraction**
  - → Upstream task where same challenges are present
- **No labels**
  - → No means of evaluation with data as-is

Ideas

- **First & foremost:** labels
- **Then:** classification in three levels of complexity
  1. **Dictionary approach**
     - Baseline model
     - n-grams, bag-of-words assumption
     - Probably low accuracy
  2. **Classic ML models**
     - Focus on feature extraction
     - Tried-and-tested classifiers (RF, SVM, ...)
  3. **BERT and friends**
     - Black-box, high-complexity approaches
     - Hope: data in, magic out
- **Eventually:** we know more about...
  - ... how far we can get with basic to medium approaches
  - ... by how much we can boost accuracy with adding complexity