

Automated Identification of Competing Narratives in Political Discourse on Social Media

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Abstract

We introduce an unsupervised framework that identifies and characterizes competing narratives in political discussions, focusing on tweets from German politicians. By leveraging advanced NLP techniques—including topic modeling, event detection, and event linking—the framework organizes raw data into coherent stories that unveil divergent viewpoints and conflicts around trending political issues. Through targeted case studies on polarizing topics, the methodology highlights how differing narratives frame political debates on the same issue, offering fresh insights into the propagation of these narratives within the digital public sphere.

Dataset

We focus on the narratives within the political discourse of German politicians on Twitter/X. We extracted Twitter usernames from Wikidata and collected all tweets within 1.5 years:

- 786 German politicians
- 189,850 Tweets
- January 2022 to June 2023

Methodology

We propose a multi-stage pipeline: After identifying general topics within the data, we detect events that form the building blocks of our stories. Events are linked into coherent stories from which we extract different viewpoints, which we refer to as competing narratives. Viewpoints are defined based on unsupervised users' community detection.

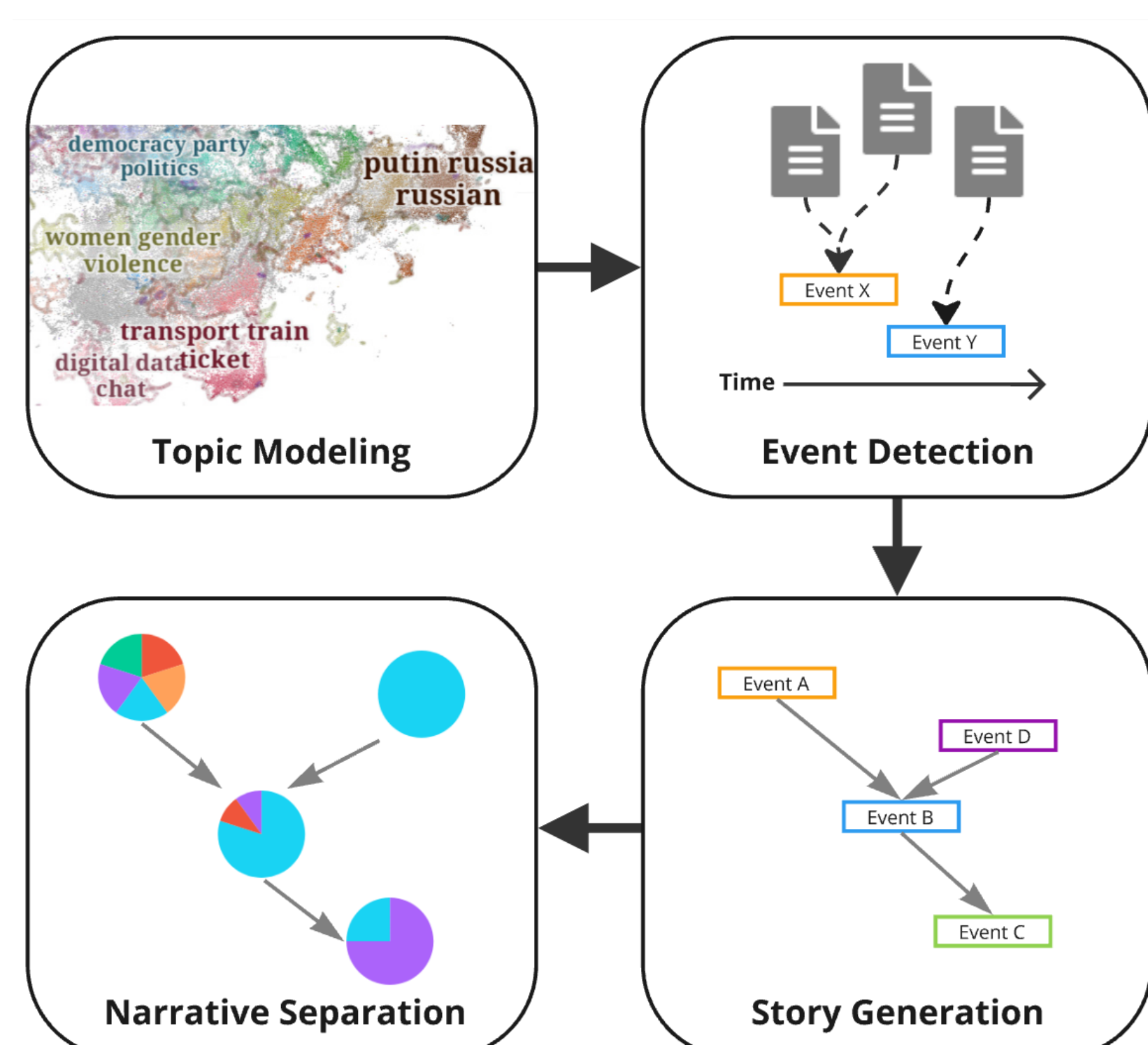


Figure 1. Competing Narrative Extraction Pipeline

Competing Narratives

We define narratives as coherent stories—both semantically and temporally—formed by structured interpretations of events and issues that contextualize political communication. Beginning with social media posts, we identified these stories and the competing narratives among different user groups.

Validating Competing Narratives

We assess the alignment of the identified communities with their respective political parties. Using Wikidata, we extracted information about the users' party memberships. We focus our analysis on the main parties currently represented in the German parliament.

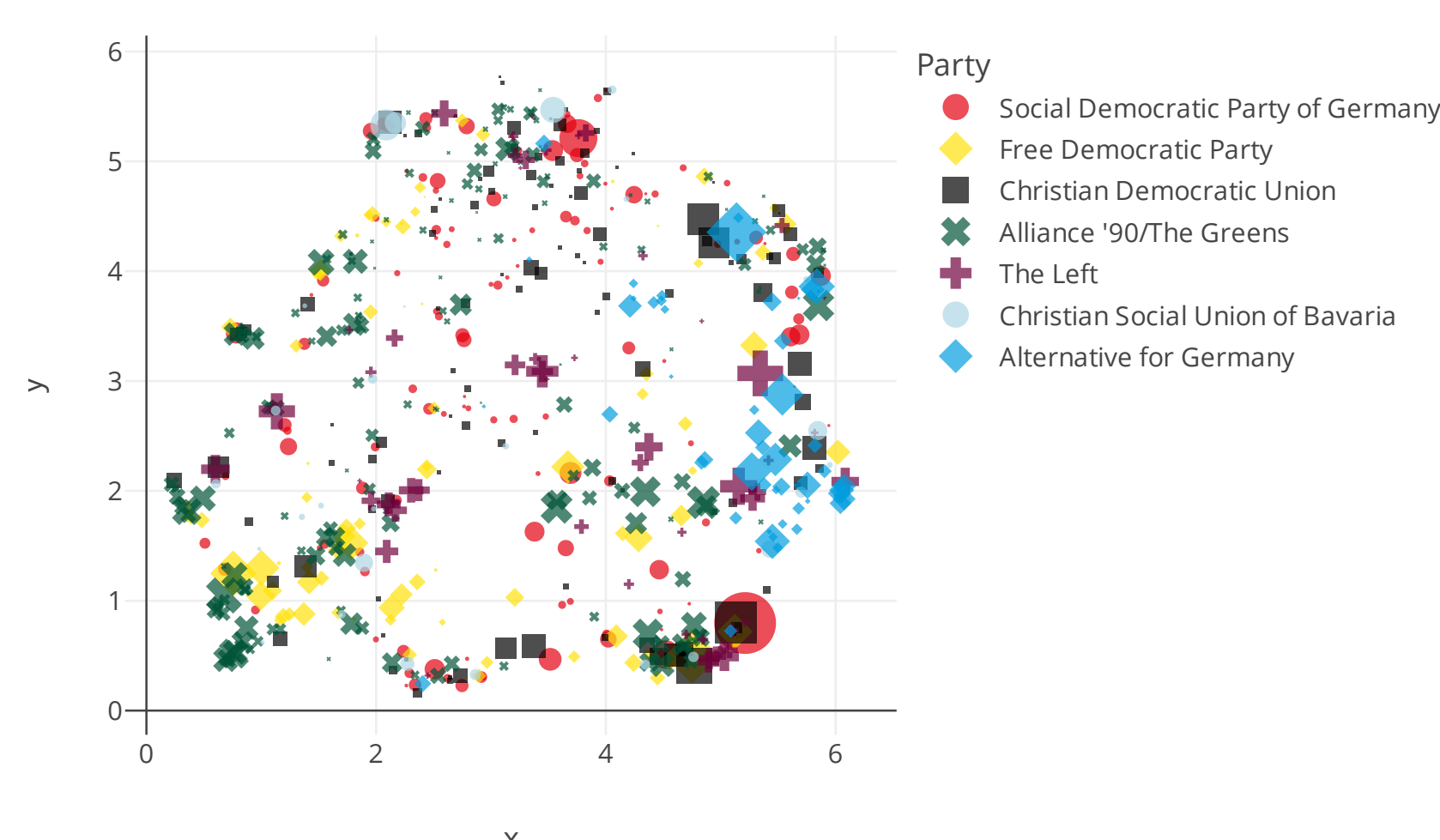


Figure 2. User embeddings colored by political party

The generated user communities should express different viewpoints on each topic. Within a single topic, polarized and objectively opposing positions should be represented by different communities.

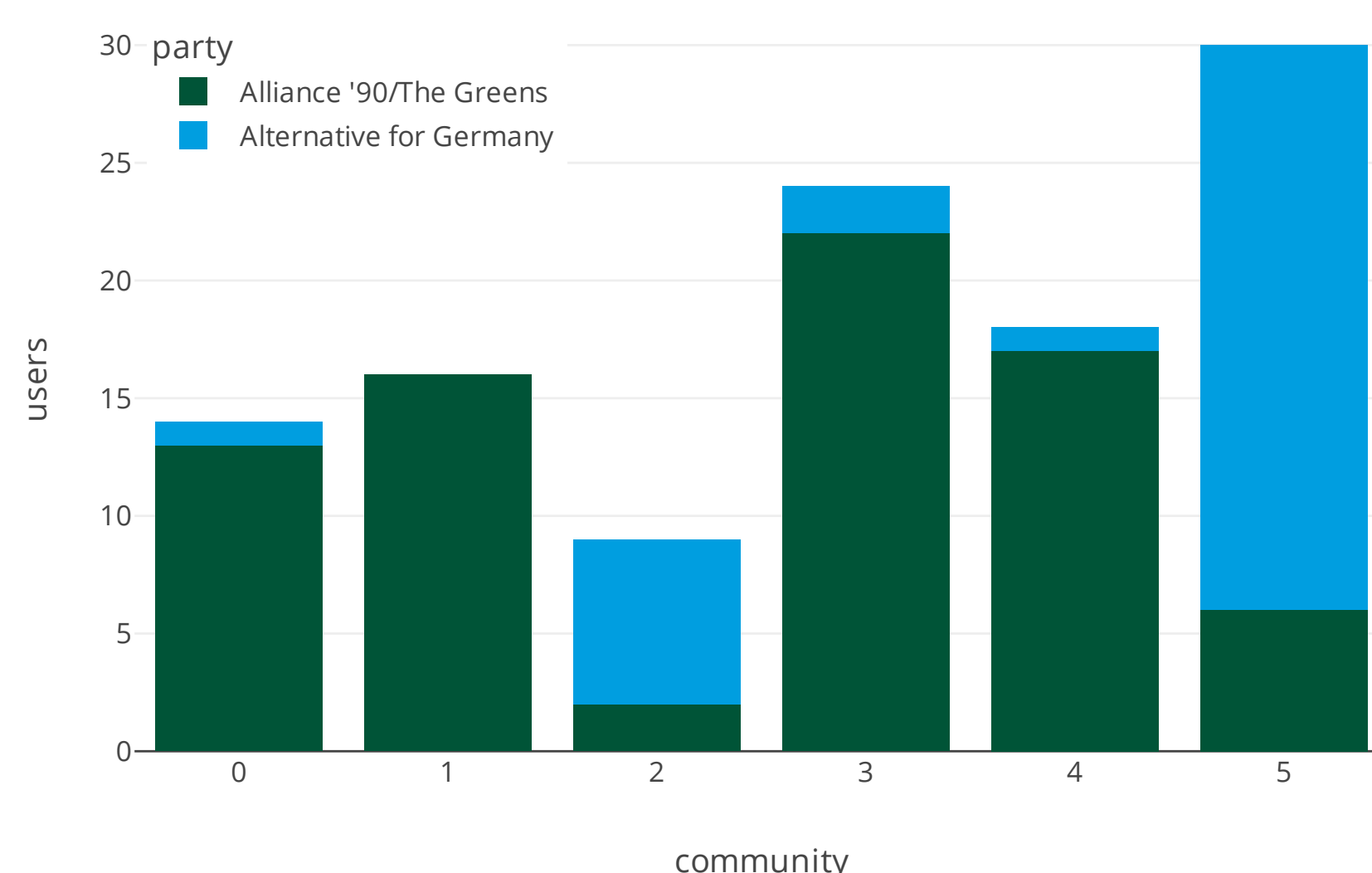


Figure 3. Distribution of members from two politically opposed parties within the user communities in Topic 23 (asylum, refugees, migration).

Case Studies

Case 1: Germany's 2022 Energy Crisis

Discussions of the energy crisis in Germany due to gas supply issues with Russia in 2022.

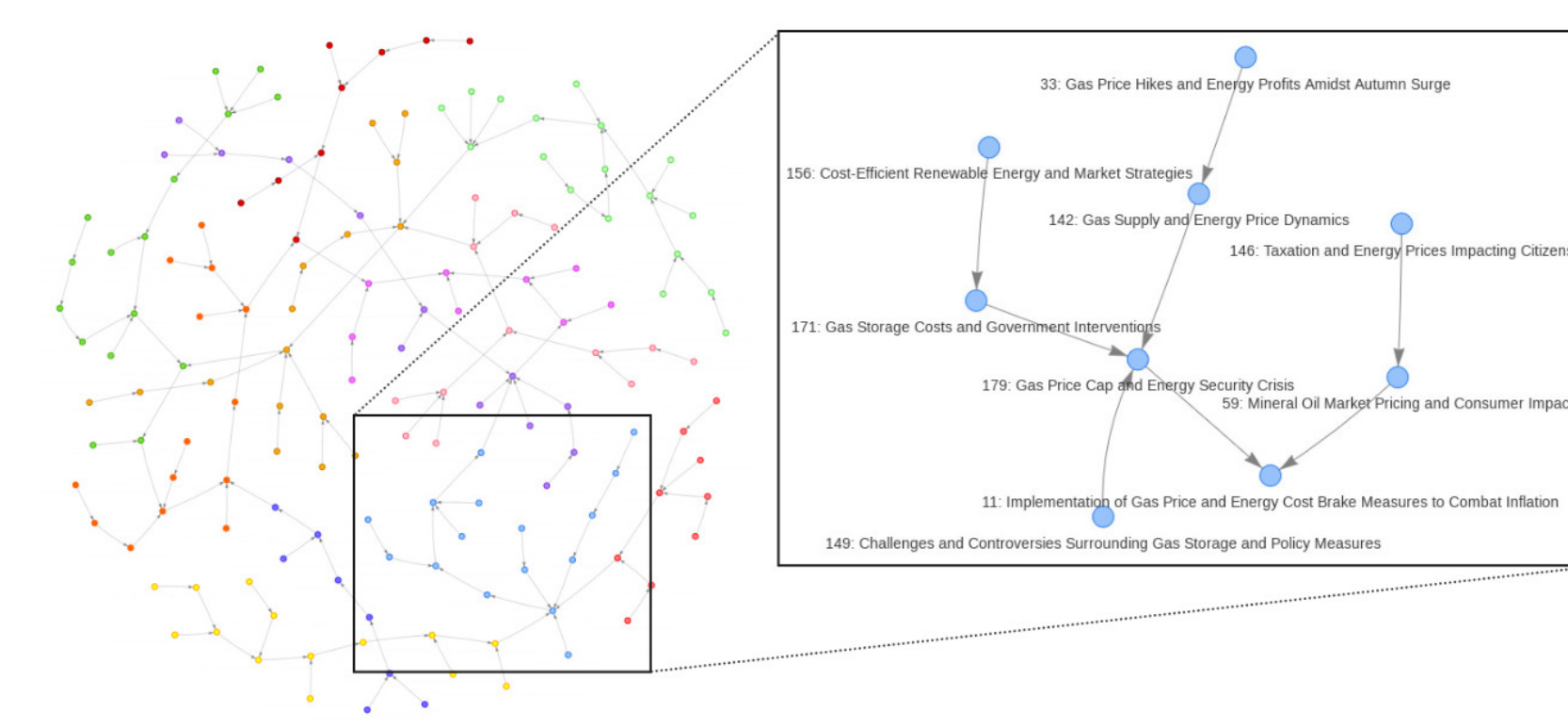


Figure 4. Story within the directed graph of events

To spot differences in viewpoints of the extracted communities and to identify contrasts, we use sentiment analysis.

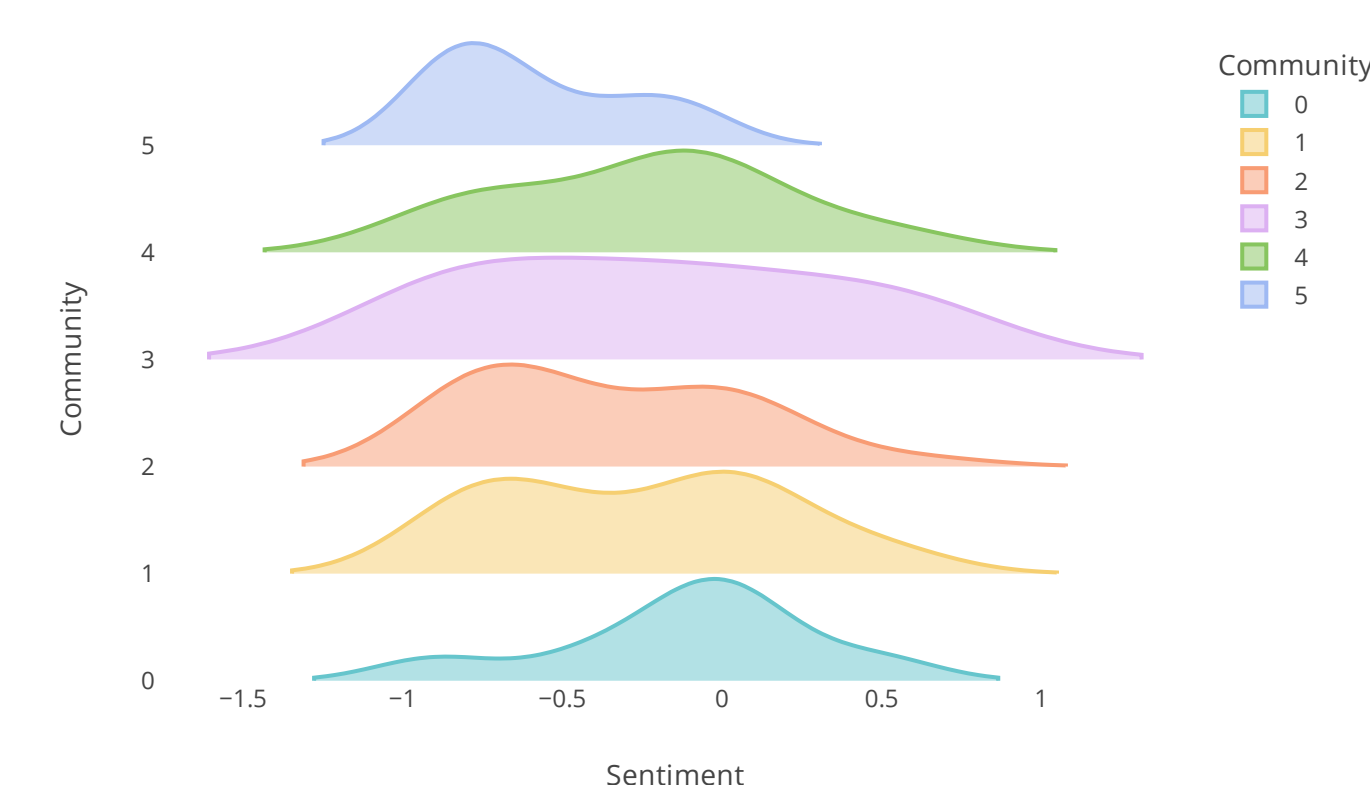


Figure 5. Sentiment of communities in story

Community 1 supports government intervention for economic relief and discusses long-term strategies like the transition to renewable energy or, more radically, the nationalization of energy companies and lifting of the debt brake. In contrast, Community 5 is skeptical about the current government's approach and questions its intentions, but fails to mention any far-reaching solutions.

Case 2: Law on Better Residence Opportunities for Migrants

Moving from the story to the event level, we observe polarized perspectives on the same issue. The representative tweets for two communities are given as an example:

The Residence Opportunities Act gives people who have lived in Germany for many years more planning security for training or a job.

VS.

We need a deportation offensive. #Germany must no longer be a haven for mentally conspicuous "lone offenders". The #security of citizens must have priority. We owe this to the many victims of the migration policy since 2015.



github.com
/fjen/competing-narratives



System
Demo