MSc Thesis Project Proposal

Moral Emotional Language and Ideological Polarization of Political Networks on [Twitter]

1.1 Literature and Significance

Existing research indicates that moral emotional language (i.e., high valence language stipulating moral norms) increases content popularity on social media (Brady et al., 2017). However, it is unclear whether moral emotional language is associated with quantifiable increases in polarization within a network. (RQ1). If yes, the direction of association is of interest: does moral emotional language drive, or is a emergent property of, ideological polarization? Further, it is unclear how the language diffuses through a network: for instance, does moral emotional language stabilize within polarized communities, or diffuse across communities? Does content become increasingly moral emotional over time? Such questions about the diffusion of language can be further developed and answered by combining text and network analysis. (RQ2).

The findings of this research holds significance for understanding how ideological polarization – a form of political polarization – is generated and perpetuated on social media platforms. Political polarization is a growing issue and is linked with the pervasiveness of social media: for instance, in 2014, polarization between Democrats and Republicans in the United States public reached a maximum in twenty years (Pew Research Center, 2014). However, the specific mechanisms underlying polarization on social media remain ambiguous. Thus, this study examines the valence of language as an individual-level mechanism that may drive polarization.

1.2 Data and Methods: Tentative

Data: An ideal data set would be a social media platform used in US political discourse (e.g., Facebook, Twitter) and has access to 1) content of posts, 2) post meta-data (e.g., posting time), 3) network structure (i.e., posts as nodes and cross-references as edges). Both real-time data accessed via API or archival data with the required features are tenable. Network boundaries could be drawn by political topic (e.g., comparisons between climate change and gun control posts), or, by statistical methods (e.g., community detection).

Methods: The research will integrate natural language processing (NLP) with network methods. Moral emotional language for each post will be measured using two dictionaries containing moral and emotion terms and calculated by the number of distinct moral and emotional terms, in accordance with Brady et al. (2017). Possible improvements to the original method could be 1) increasing the number of terms within each dictionary or 2) constructing a moral-emotional sentiment analysis algorithm: such an algorithm would present the advantage of a more granular measure of moral-emotional sentiment, in contrast to the frequency-based measure used by Brady et al. (2017).

Ideological polarization will be measured on a network level using generalized Euclidean distance, as proposed by Hohmann et al. (2023), taking 1) graph structure and 2) vector of opinions as inputs. The advantage of this measure is that it considers both opinion and structural components of polarization (alternatively, a measure of *affective polarization* can be used if it is deemed a more relevant construct). RQ1 will be answered using regression analyses, controlling for relevant confounds such as the mention of political out-group identities shown to spark negative reactions by Rathjea et al. (2021). RQ2 can be answered using diffusion models on a descriptive level, with possibility for hypothesis-testing using exponential random graph models (ERGM).

1.3 References and Indicative Sources

Brady, W. J., Wills, J. A., Jost, J. T., Tucker, J. A., & Van Bavel, J. J. (2017). Emotion shapes the diffusion of moralized content in social networks. *Proceedings of the National Academy of Sciences*, *114*(28), 7313–7318. https://doi.org/10.1073/pnas.1618923114

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Pew Research Center. (2014, June 12). *Political Polarization in the American Public.* https://www.pewresearch.org/politics/2014/06/12/political-polarization-in-the-american-public/

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