The Representation of Political Parties

A Network Analysis of Mastodon and the Dutch House of Representatives elections

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Abstract. The abstract should briefly summarize the contents of the paper in 15–250 words summarizing the research question, method and main findings.

Keywords: Social Web · Social Network · Network Analysis · Mastodon · Dutch Elections · Political Parties · User-generated Content.

1 Introduction

On November the 22th 2023 around 77.7% (13,473,750 eligible voters casted 10,475,139 votes in total) of the Dutch Population went to a polling station in their muncipality to vote for their political party of choice for the Dutch House of Representatives [3]. Of the 26 parties that participated in the election, 15 parties received enough votes for a seat in the House of Representatives.

Prior to elections viewpoints and topics of particular parties are discussed on Social Networking Sites (SNS). E.g. users post their support (or anti-support) for a specific political party, discuss topics that are mentioned in parties election manifesto, and discuss candidates that are on the election list.

One of these relatively new and emerging Social Networking Sites is Mastodon [1] a self-hosted social network with microblogging features similar to X[2] (formerly known as Twitter) which we use for this research. Analysing Mastodon is interesting for two main reasons. (1) Since it's release, especially, the last two years Mastodon has seen a massive surge in increase of users and activity (e.g. posts, interaction) on the Platform, from around 3.500.000 in october 2022 to 8.100.000 users in october 2023 [1]. One main reason for this exponential growth is the acquisition of Twitter by Elon Musk [5] with many users from Twitter transitioning to Mastodon. (2) Elections for the Dutch house of representatives only occur every 4 years. When Mastodon was initially released the number of users and activity on the platform was relatively low compared to other SNS's.

[1] https://joinmastodon.org/
[2] https://twitter.com/

As mentioned before, the last two years the platform grew and we've even seen dutch political parties create Mastodon instances for their party members (e.g. Bij1 [3], Piratenpartij [4]) which means Mastodon increasinly becomes more representative of the dutch voting population (eligible voters).

In order to investigate this social web related topic, this study aims to answer the research question: ***"To what extent is the relatively new Social Networking Site Mastodon representative of the election voting of the dutch population?"***. To answer this research question in-depth, the following sub-questions were formulated:

- **R1:** *What's the distribution of political parties on the platform and do they align with the outcome of the election?*
- **R2:** *What political topics are discussed in posts and are they representative of the election manifesto of political parties?*
- **R3:** *Do the topics that are discussed on the platform align with popular voting guides?*

The sub-questions are relevant to the main research question as they provide a more detailed and specific understanding of the topic. For our research we use Mastodon as a Social Networking site (SNSen) as case study and main data source but this research can be further expanded to any new social network if the platform has an API that exposes similar platform data and has the characteristics of a typical social network.

In order to answer the research questions this papers begins with an examination of prior research on Mastodon as a platform and literature using related methods, in this case mainly network analysis, followed by the methodological set-up about how we gathered and pre-processed relevant API data from Mastodon and other election related datasets. Next, a network analysis of the Mastodon platform is performed by focussing on Mastodon activity and instances this study (1) creates an overview of political parties present on the network, personal accounts of specific politicians and activity of users corresponding to political parties; (2) election related topics discussed on Mastodon and cross-referenced with topics that are in voting guides and election manifesto's. After which the results (comparisons) are presented accompinied by visualizations to further understand the data. In the paper's concluding section, the most important findings are concluded, limitations are discussed, privacy and ethical considerations are taken into acount, followed by recommendations for future work.

2 Related Work

Literature section with a short overview of other papers discussion related questions or using related methods or data

[3] https://social.bij1.org/about
[4] https://mastodon.social/@Piratenpartij@social.globalpirates.net

3 Methodology

3.1 Data collection (datasets)

To gather social web data from Mastodon the official public Mastodon API [5] using the Mastodon.py [6]wrapper for Python is used. Mastodon is an ActivityPub-based [7] Twitter-like federated social network node. The API wrapper is feature complete for Mastodon the Mastodon API version 3.5.5. First a user account is created on the platform by completing the sign-up for an account flow on the Mastodon official website *joingmastodon.org*. The account is created on the general and largest public server (provider) *mastodon.social* operated by the Mastodon gGmbH non-profit.

To interact with the Mastodon servers through Python using the Mastodon.py wrapper an application registration is performed which gives a client key and client secret to allow logging in and accessing API data using access tokens. For this research we mainly used API methods for:

- **Accounts, relationships and lists:** allows for geting information about accounts and associated data as well as update that data
- **Instance-wide data and search:** fetch information associated with the current instance as well as data from the instance-wide profile directory
- **Streaming:** allow access to the streaming API. For the public, local and hashtag streams,

Arguments and parameters used in functions written for the Mastodon API methods are related to the dutch elections (e.g. names of political candidates, popular topics from parties) further expanded upon in the data preprocessing and results section of this research. To check, validate and cross-reference the sub-questions the data is complementend with five additional election related data sources:

- **Institut Public de Sondage d'Opinion Secteur (IPSOS) exitpoll:** a market research company which, commisioned by the 'Nederlandse Omroep Stichting' [8] (NOS; English: Dutch Broadcasting Foundation) publishes market research about the elections (e.g. which voters switch between parties, which municipilaties has switched the most between parties) [4]. This gives a comprehensive insight of voting behaviour from the recent election.
- **Government Open Data (overheid.nl)**: specifically the datasets from The Dutch Electoral Council [9] (Dutch: Kiesraad), the government body that is responsibly for counting of the votes and publishing the results [2]. This gives the official results of parties and candidates from the recent elections.
- **ProDemos voting guide (stemwijzer)**: a voting guide called Stemwijzer [10] with pre-defined topics. By answering 30 statements with agree, disagree

[5] https://docs.joinmastodon.org/client/intro/
[6] https://mastodonpy.readthedocs.io/en/stable/
[7] https://www.w3.org/TR/activitypub/
[8] https://nos.nl/
[9] https://www.kiesraad.nl/
[10] https://home.stemwijzer.nl/

or no opinion, voters can compare their positions with those of political parties. Many of these voting guides exist, ProDemos is most requested and partly funded by the dutch government [6]. This gives insight in important topics from political parties for the recent elections.

- **Electoral Council (kiesraad)**: the Kiesraad [11] is a central electoral committee, an advisory body and acts as a central polling station during the dutch house of representatives election. For this research we used the published Candidacy for the House of Representatives election list and the Political Party Registrar.
- **Netherlands Bureau for Economic Policy Analysis (cpb)**: the dutch economics bureau (CPB) [12] performs election manifestos analysis to determine how feasible manifestos of political parties are. This gives an overview of topics that are in the election manifestos of political parties.

3.2 Data preprocessing (scope)

- Timeline from previous elections 2019.
- Only 'sitting' parties. There are more parties in total.
- Synonyms from parties, abbreviations etc.

Each of the parties is placed on a political spectrum (left, lean left, center, lean right, righ). Quote a source. There is probably an 'official' list for this. Based on what they voted (maybe stemmentracker)?

Here a table of all parties? If they are left-wing, right-wing. How many zetels.

3.3 Data analysis

Write here about how we analyzed data. Using python, networkX etc. notebooks. What we automated, what we did manually.

4 Results

Result section discussing the outcomes of the analysis, including visualizations of the results.

4.1 Political parties

Finding M1: *Out of all parties x parties are present on Mastodon and have instances.*

[11] https://english.kiesraad.nl/
[12] https://www.cpb.nl/en/charted-choices-2025-2028

4.2 Other thing

Finding M1: *Out of all parties x parties are present on Mastodon and have instances.*

5 Conclusion

With this work, we invite researchers, journalista and practioners alike to futher investigate Mastodon in relation to the dutch house of representatives elections or explore any other new and upcoming Social Networking Site using similar methodology.

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7 Conflicts of Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article. The author(s) has no affiliation with any of the companies and organizations mentioned in this article and this work has not been supported by any funding agency, private organization, or political party.

8 Appendix

In the spirit of open research in order to support reproducibility and enable future work in this problem space the datasets and Python notebooks in this work are publicly avaliable on GitHub using the MIT License. Under the *dandevri* username (one of the authors) we have several a code repository with several subfolders:

1. **Notebooks:** Source Code for the Python Jupyter Notebooks for data scraping and processing. https://github.com/dandevri/vu-social-web-data/notebooks
2. **Datasets:** The processed and transformed datasets used in the notebooks. https://github.com/dandevri/vu-social-web-data/datasets

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