

# The Impact of Trump's Election on Major World Discussions on Reddit

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This presentation explores how Trump's election influenced discussions in Reddit Social Network. We'll look at data acquisition and network structure. We will analyze community detection on Reddit.





Data collection

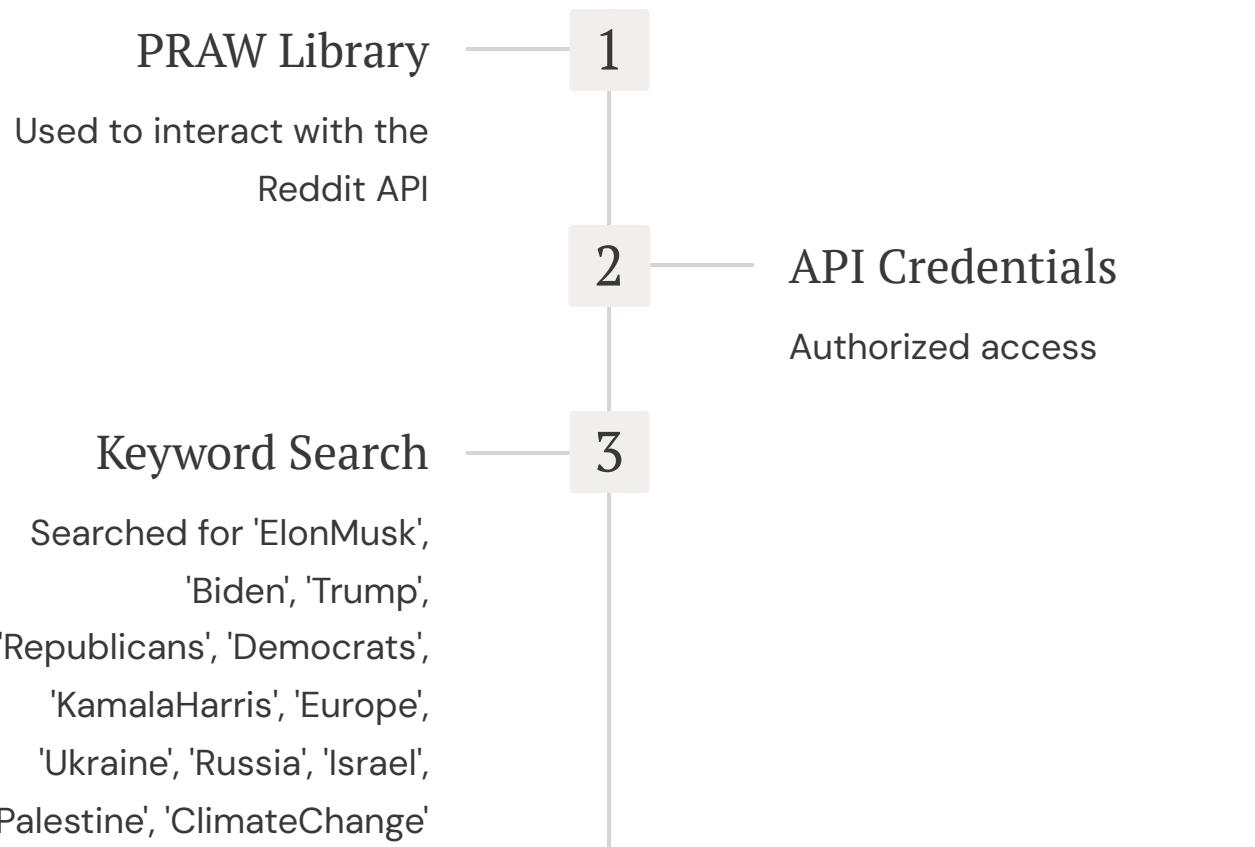


Data Processing



Reddit

# Data Collection from Reddit

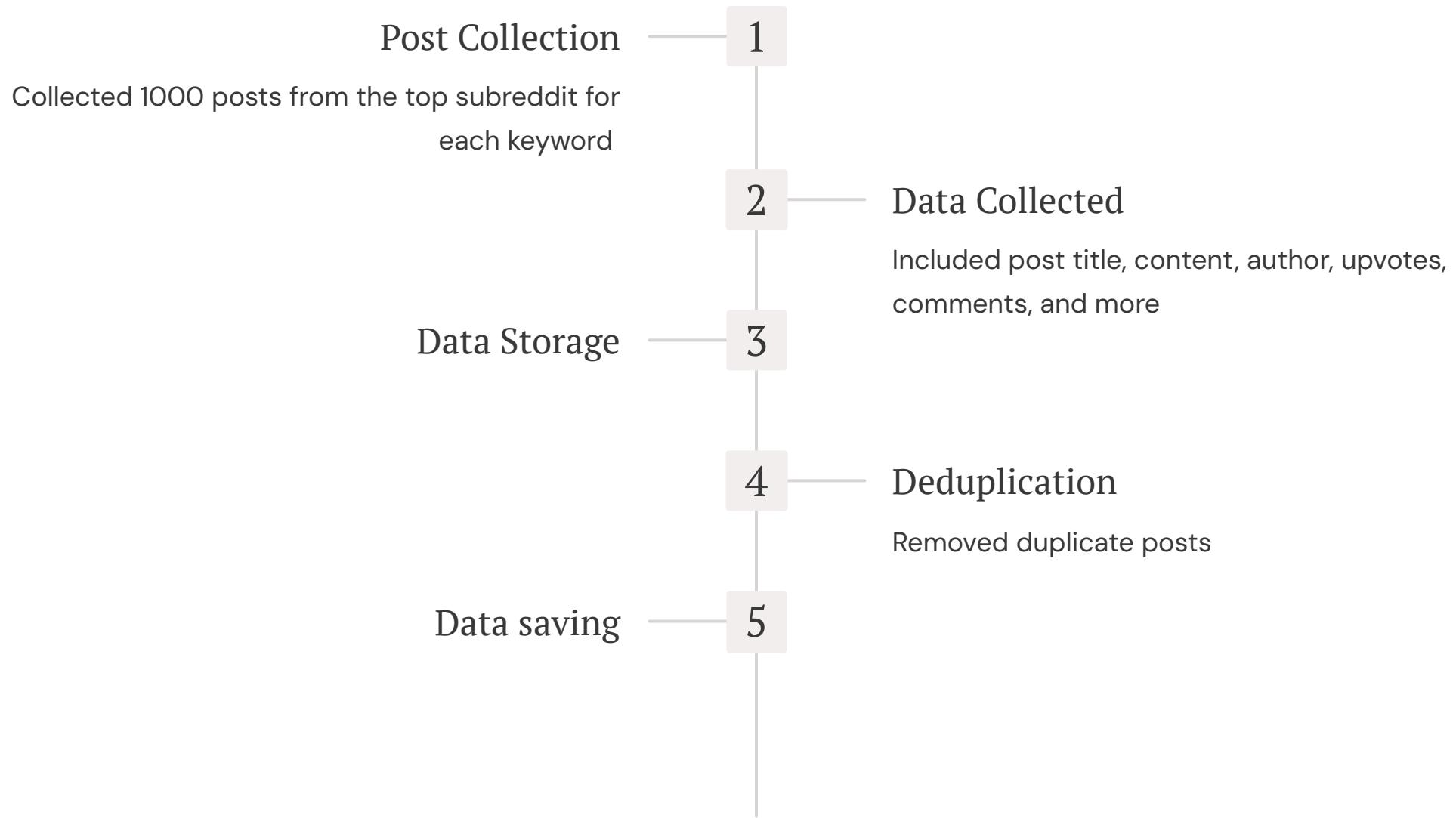


**For each keyword, related subreddits are searched**

## Selected the top 1 subreddit for each keyword

```
RTINE  
EWNGRTOXHWDGSANUOTXSBTH  
Gottabachater fir deatis thet teetat Tüllert. 1023. 80000  
L I C11  
7 I REocautting: i timintsj-  
18 I [Gottlin]  
15 I E.1  
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15 I REEpedeses:  
17 I fassfestnannfastiz"  
15 I [oððð] dojest restteel. {s, (11  
15 I [zeitjnecess etizestfistee.})"}  
15 I [zeil:  
15 I 5.1  
15 I REEdeezindinct:  
15 I [neef tn ðgrs.(odai.to, frdudoue strediske,  
15 I [zeitjnecess ()])  
15 I [zeil:  
15 I E.1  
15 I REEpdene priefttigni, ionccfial })" },  
15 I Ross. jtaëts,  
15 I [oastt;])fancfutinengales, jauies, "fudings  
15 I [zeitjnecess ()])  
15 I [  
17 I 2  
15 I REEpeteaus ones: fil*doprfoangg! "Lafreafecfis  
15 I [oeh- In Erlf  
15 I [zeit] actinsttore;()  
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15 I E.1  
15 I REEpenfaonscrinetre.frrine,fi"j" sec"aufgud  
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```

# Post Collection and Data Saving



# Text Cleaning Process

## Basic Cleaning

Removed HTML tags, URLs, special characters, and excessive spaces

## Advanced Cleaning

Lemmatized text and retained key parts of speech like nouns and verbs

## Outcome

Saved the cleaned text data in a new CSV file

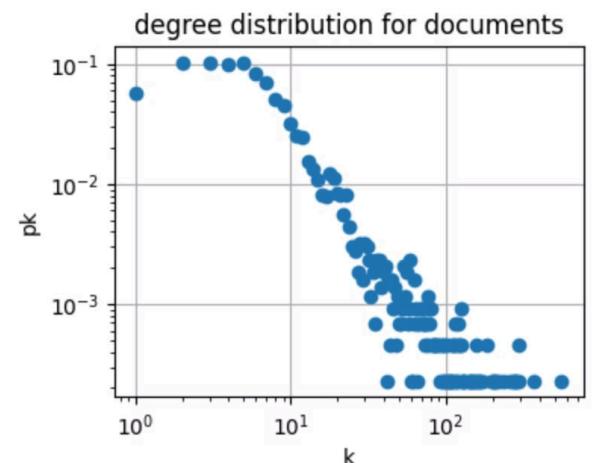
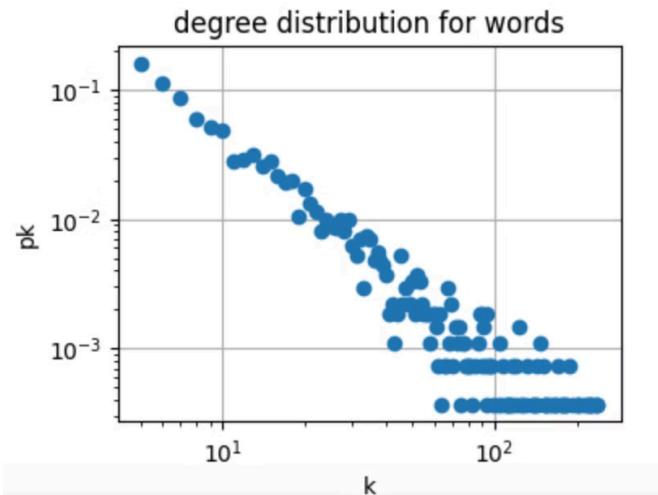
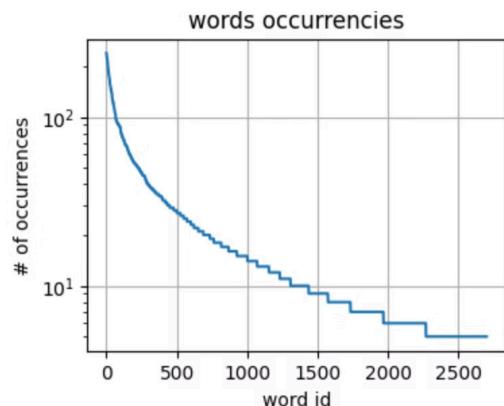
**Split data into two sets: posts 100 days before and 100 days after**

**November 5, 2024.**

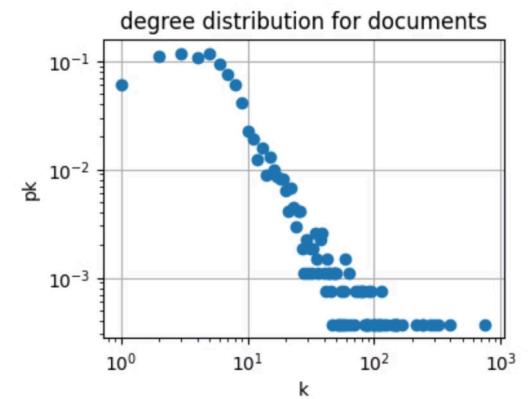
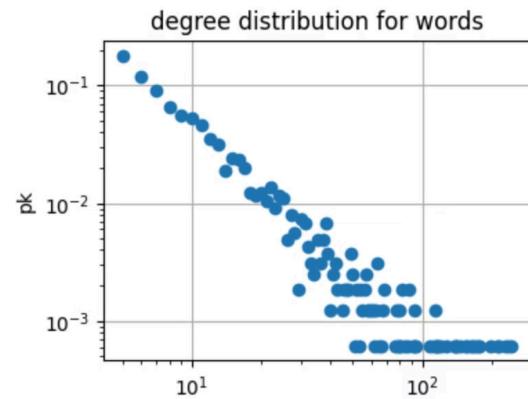
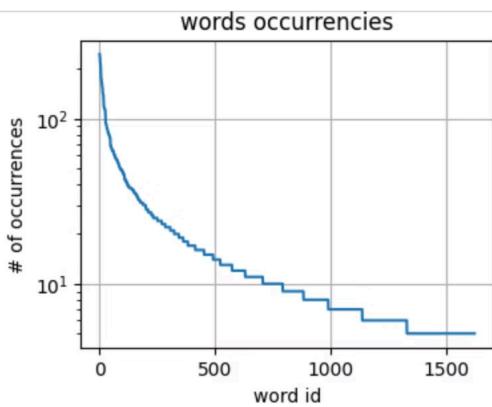


# Building the Topic Detection Class

Before



After

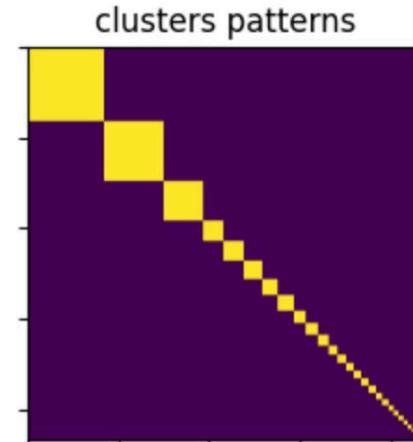
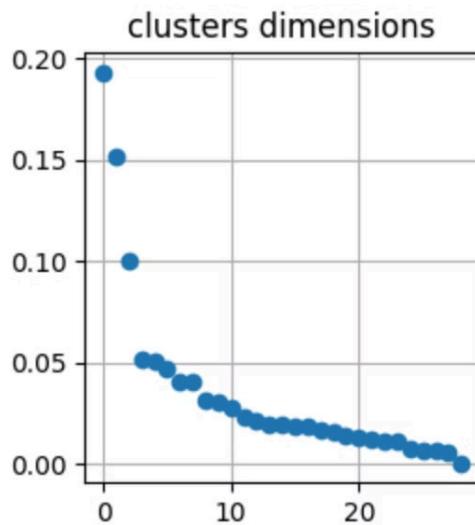


# Performing Topic Detection

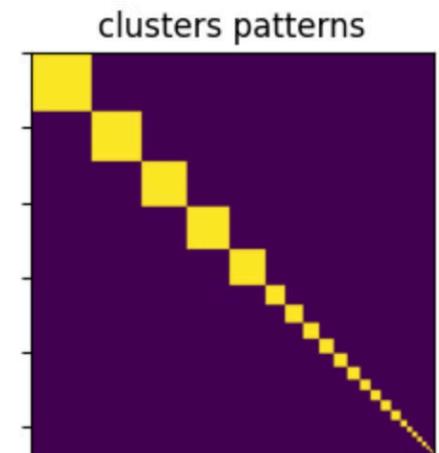
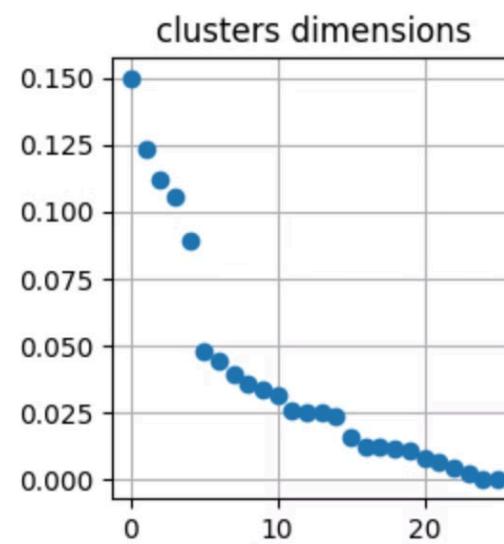
```
{'topics': 26,  
 'com': 0.8474761787811598,  
 'time': 10.177770853042603,  
 'NMI': 0.5527666793194158,  
 'Q': 0.3827196399630913,  
 'Ncut': 0.5161458227225466,  
 'Infomap': -0.006597193191062889}
```

We performed topic detection on the Reddit data using Louvain clustering. This algorithm uses a greedy approach to identify communities of nodes in a network.

Before



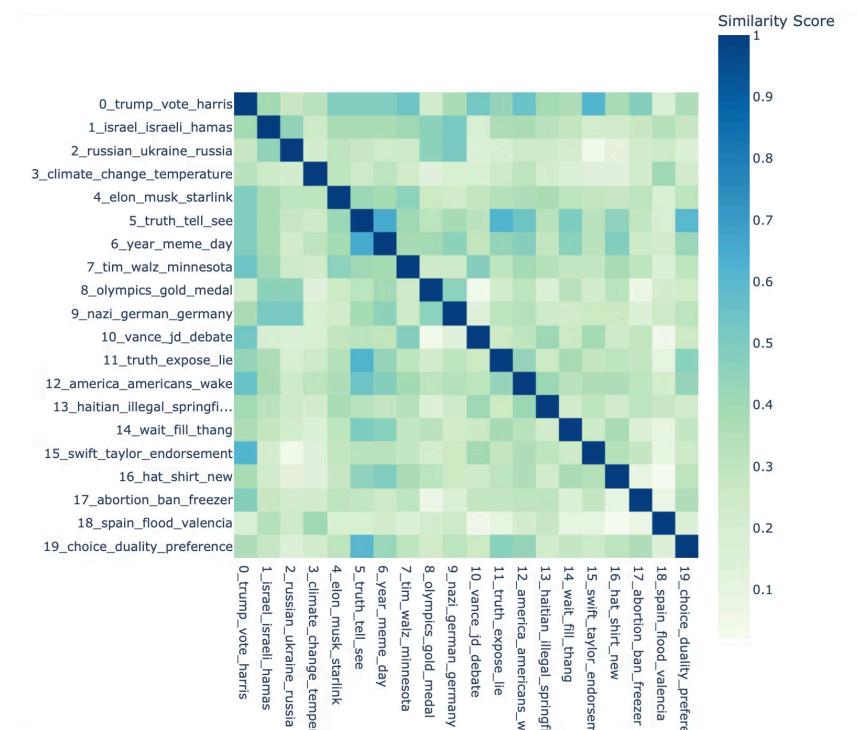
After



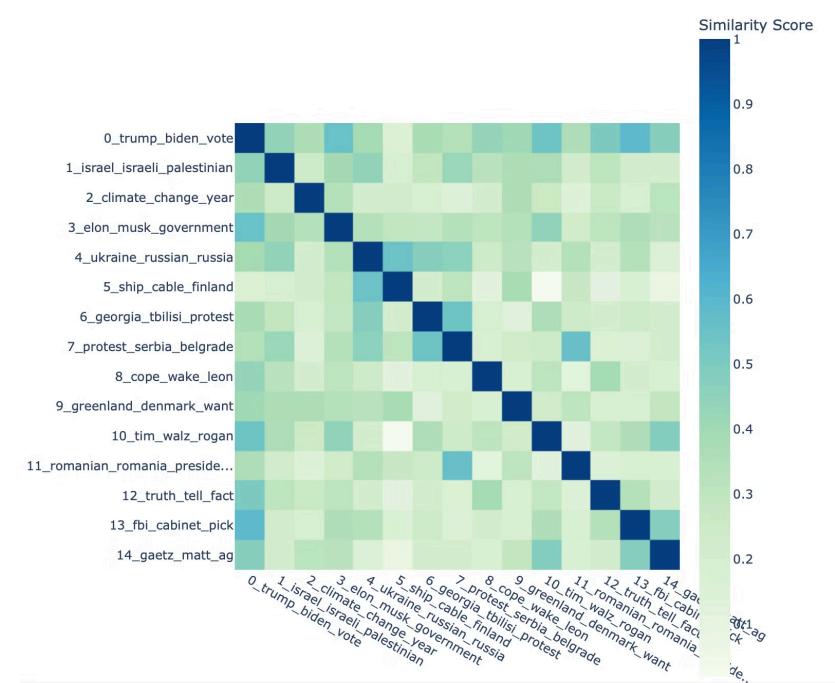
# BERTopic for thematic modeling

Topic	Count	Name	Representation	Representative_Docs
0	-1	861	-1_trump_ukraine_russia_people	[trump, ukraine, russia, people, make, preside...]
1	0	583	0_trump_biden_vote_harris	[trump, biden, vote, harris, president, kamala...]
2	1	357	1_israel_israeli_palestinian_gaza	[israel, israeli, palestinian, gaza, palestine...]
3	2	321	2_climate_change_year_more	[climate, change, year, more, temperature, glo...]
4	3	237	3_elon_musk_government_tesla	[elon, musk, government, tesla, spacex, have, ...]
5	4	203	4_ukraine_russian_russia_drone	[ukraine, russian, russia, drone, putin, ukrai...]

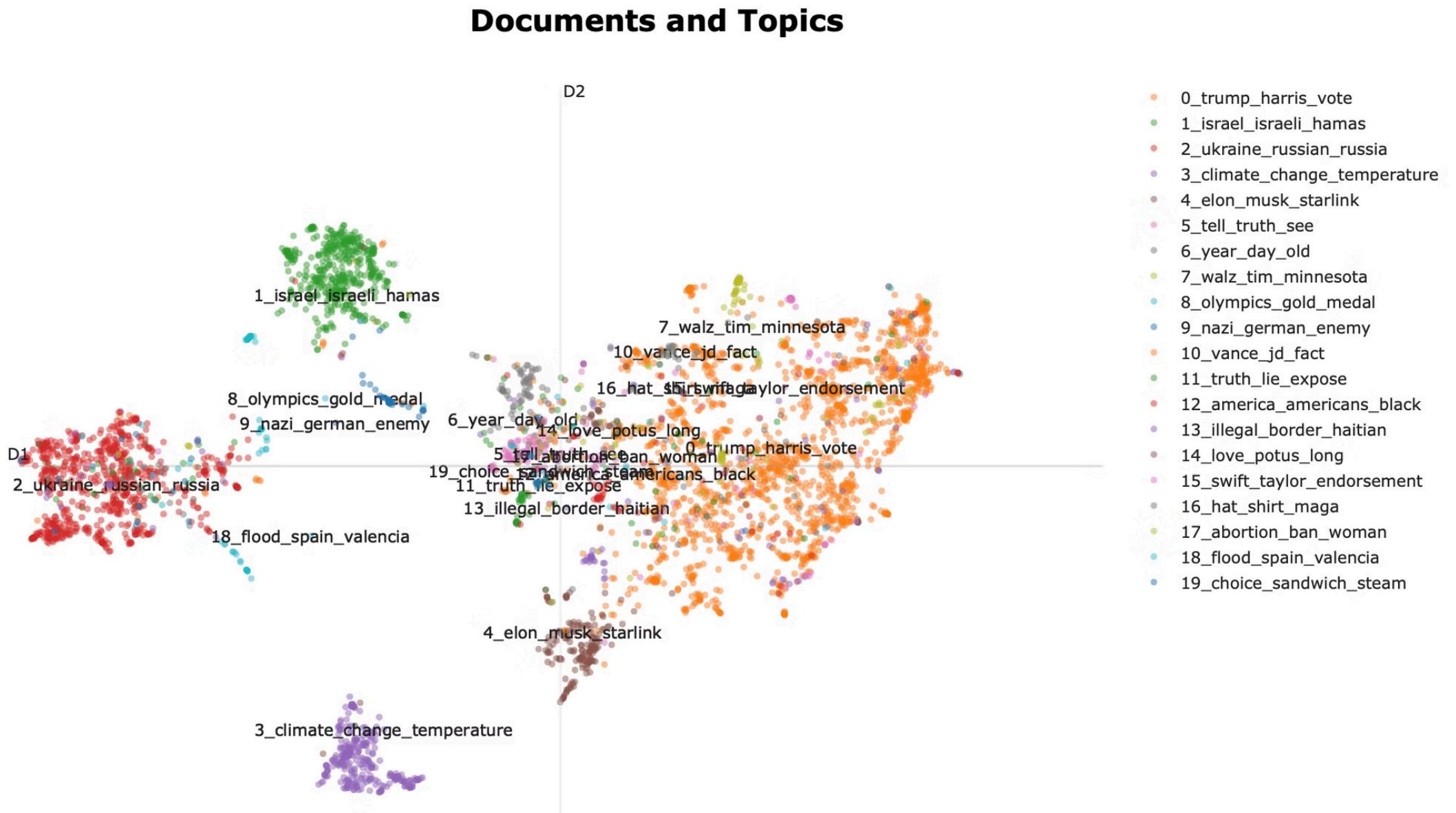
Before



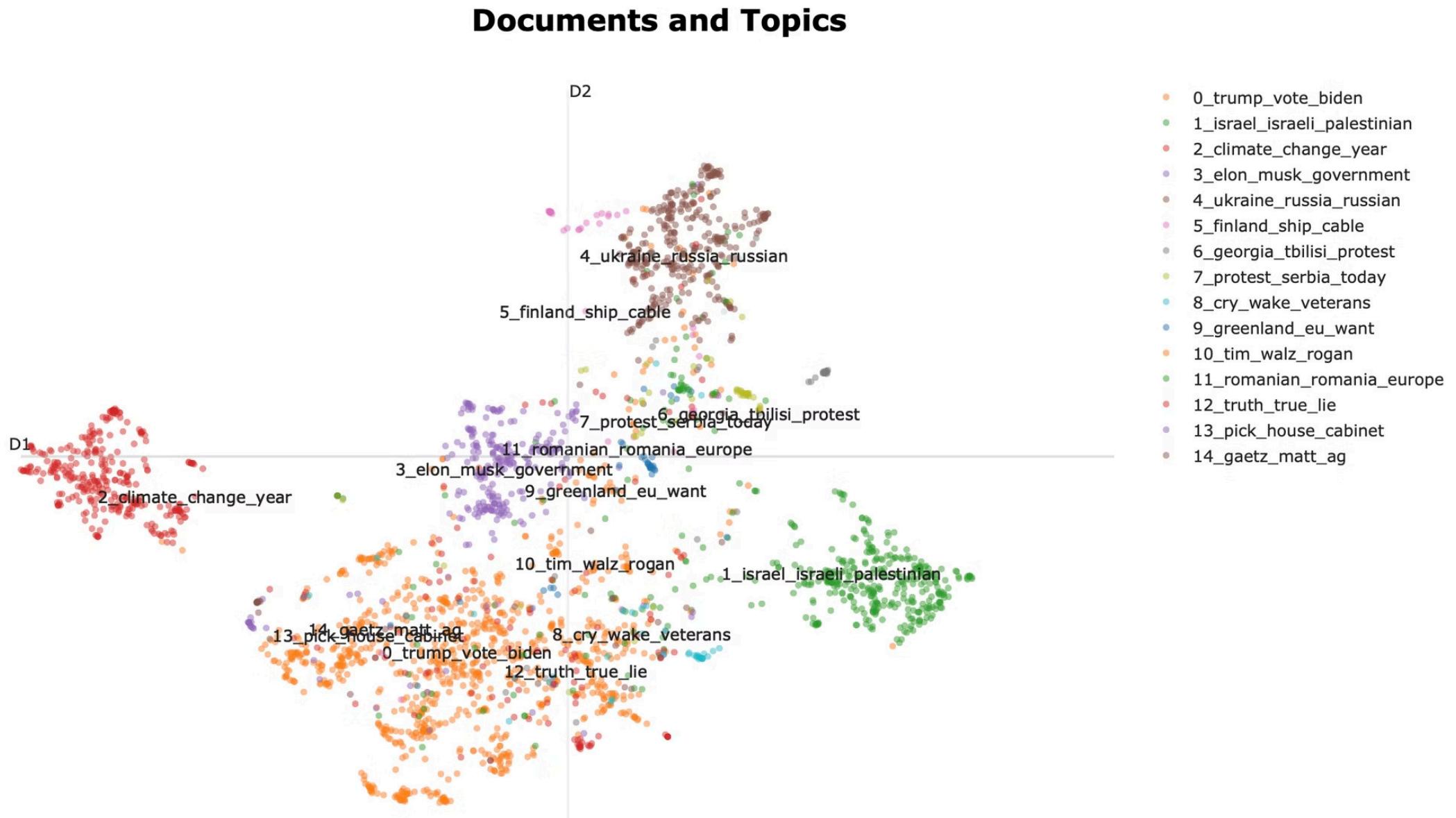
After



# Topic Modeling with BERTopic: Clustering Documents by Themes: Before

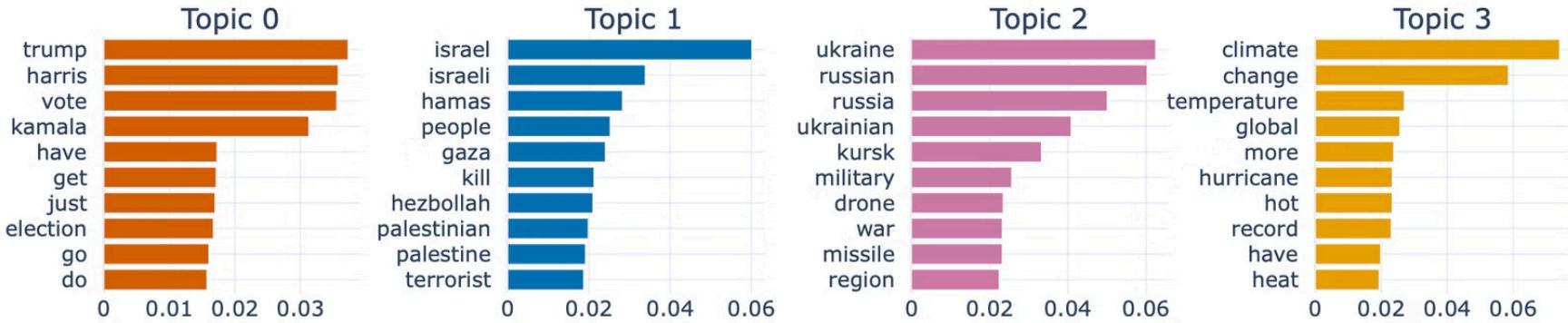


# Topic Modeling with BERTopic: Clustering Documents by Themes: After

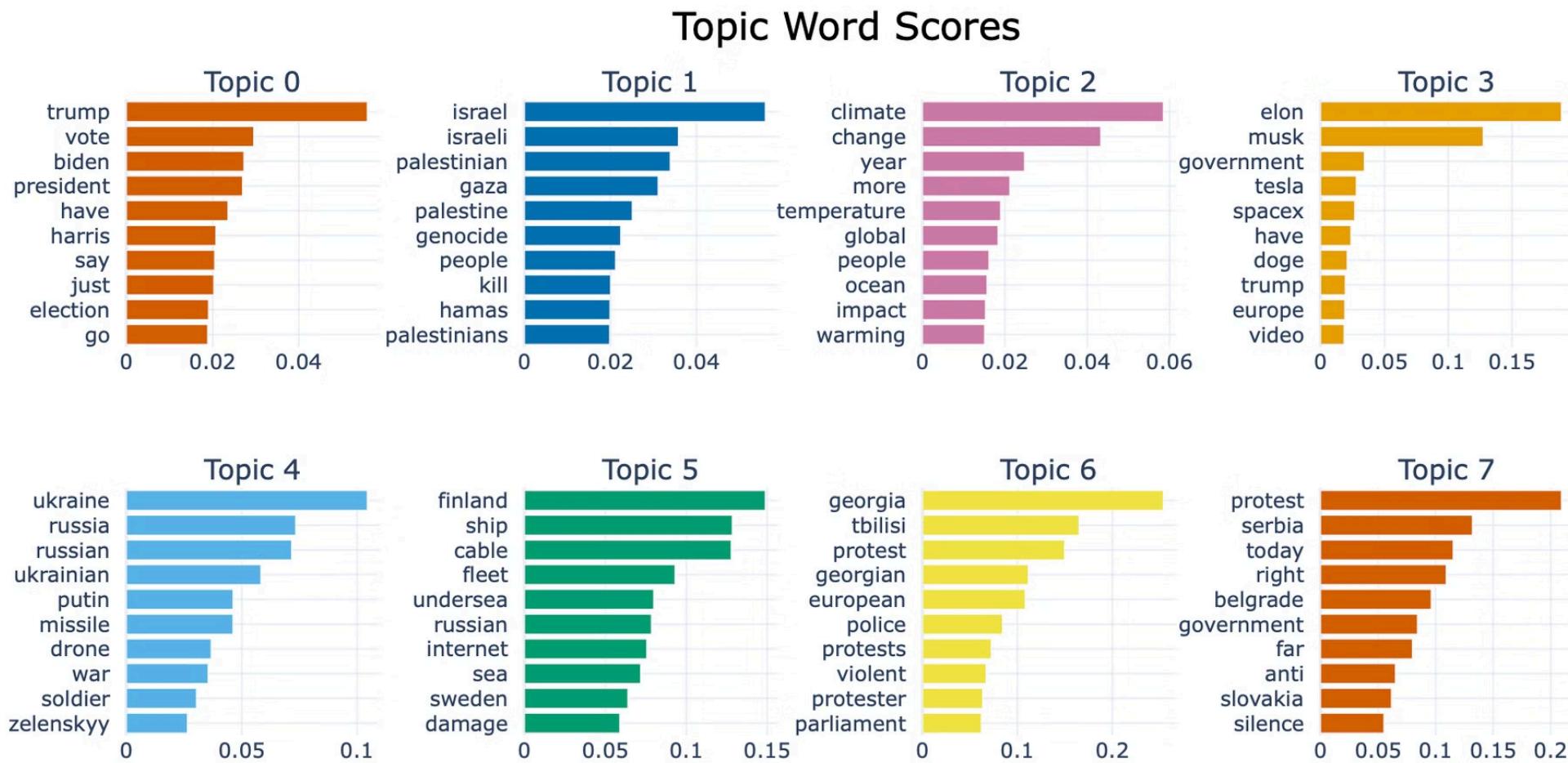


# Top Words Per Topic: Before

## Topic Word Scores



# Top Words Per Topic: After

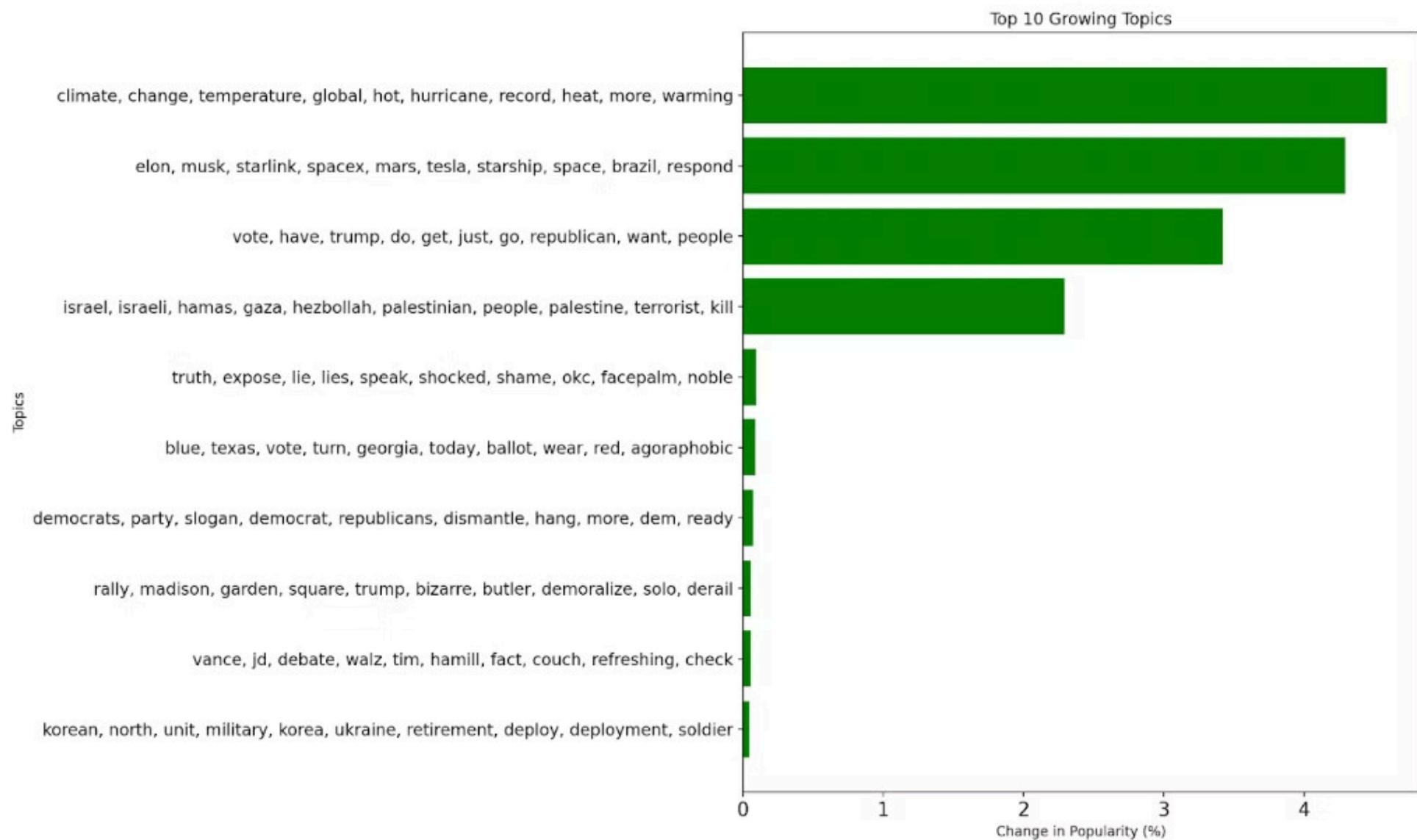


# Changes

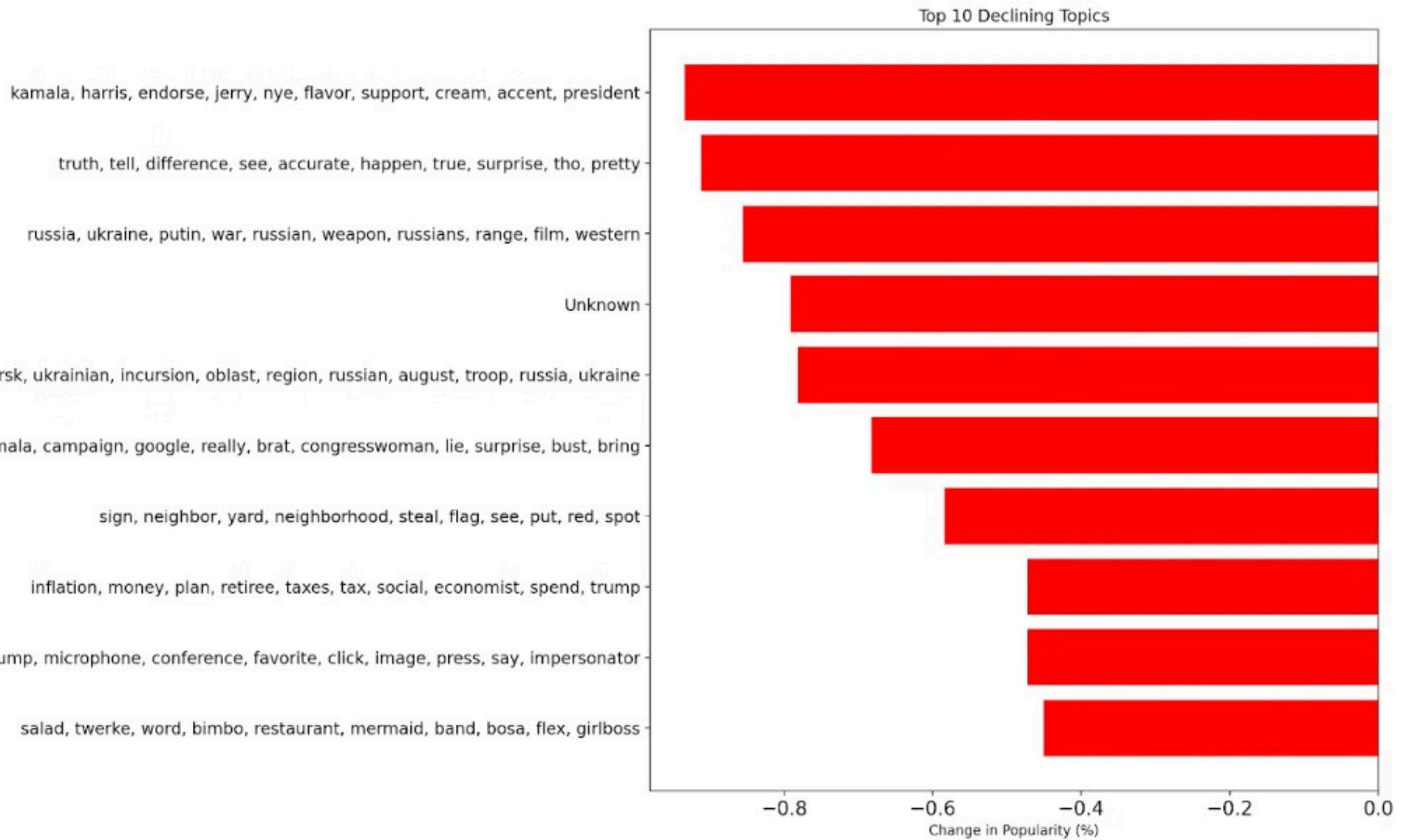
Changes **before and after elections**, using **BERTopic** for topic extraction.

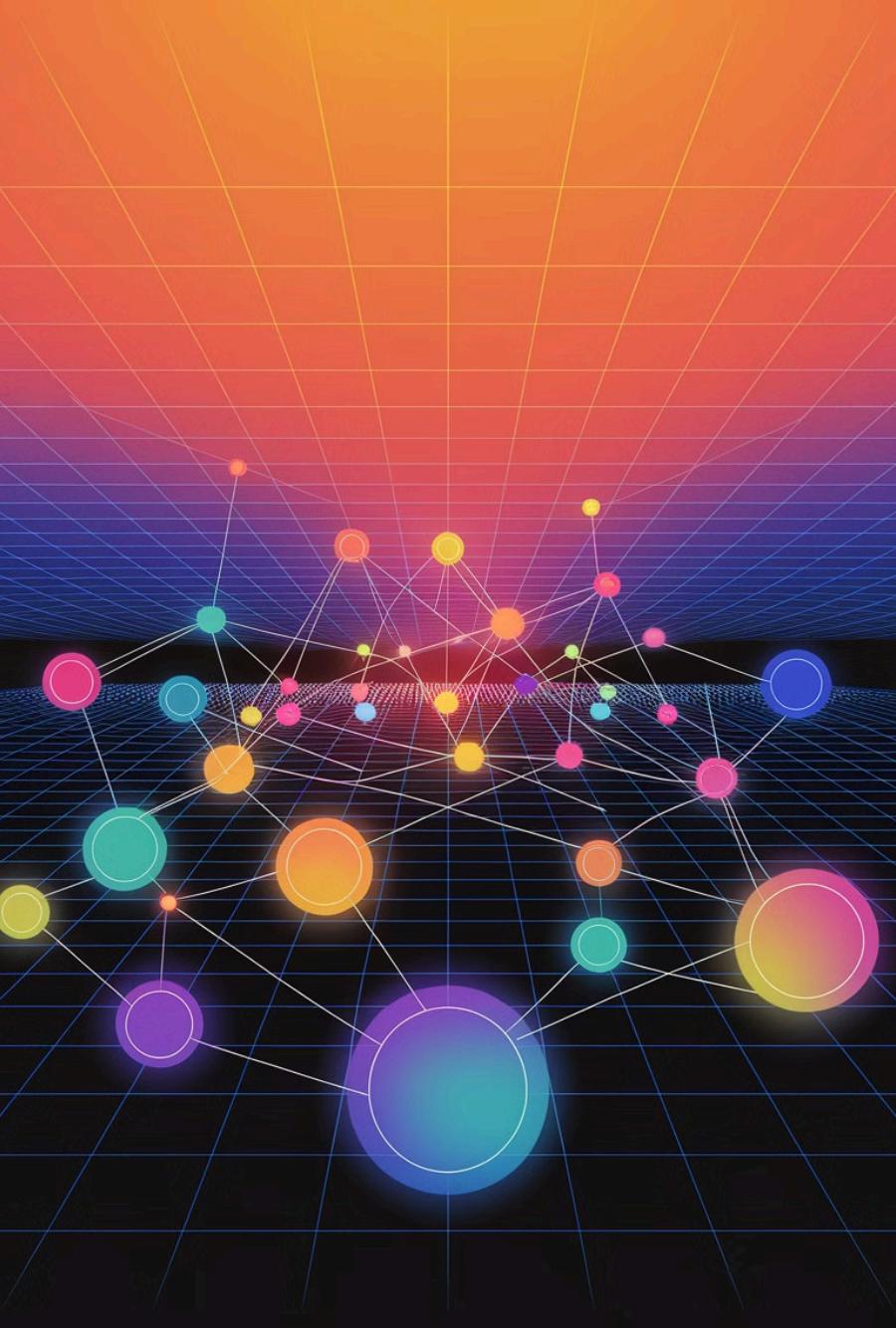
Comparing topic popularity...

	Topic_Name	Proportion_Before	Proportion_After	Change_Proportion
2	climate, change, temperature, global, hot, hurricane, record, heat, more, warming	0.071171	0.117091	4.591974
3	elon, musk, starlink, spacex, mars, tesla, starship, space, brazil, respond	0.042117	0.085091	4.297379
4	vote, have, trump, do, get, just, go, republican, want, people	0.030180	0.064364	3.418346
1	israel, israeli, hamas, gaza, hezbollah, palestinian, people, palestine, terrorist, kill	0.103604	0.126545	2.294185
27	truth, expose, lie, lies, speak, shocked, shame, okc, facepalm, noble	0.006306	0.007273	0.096642



## Topics

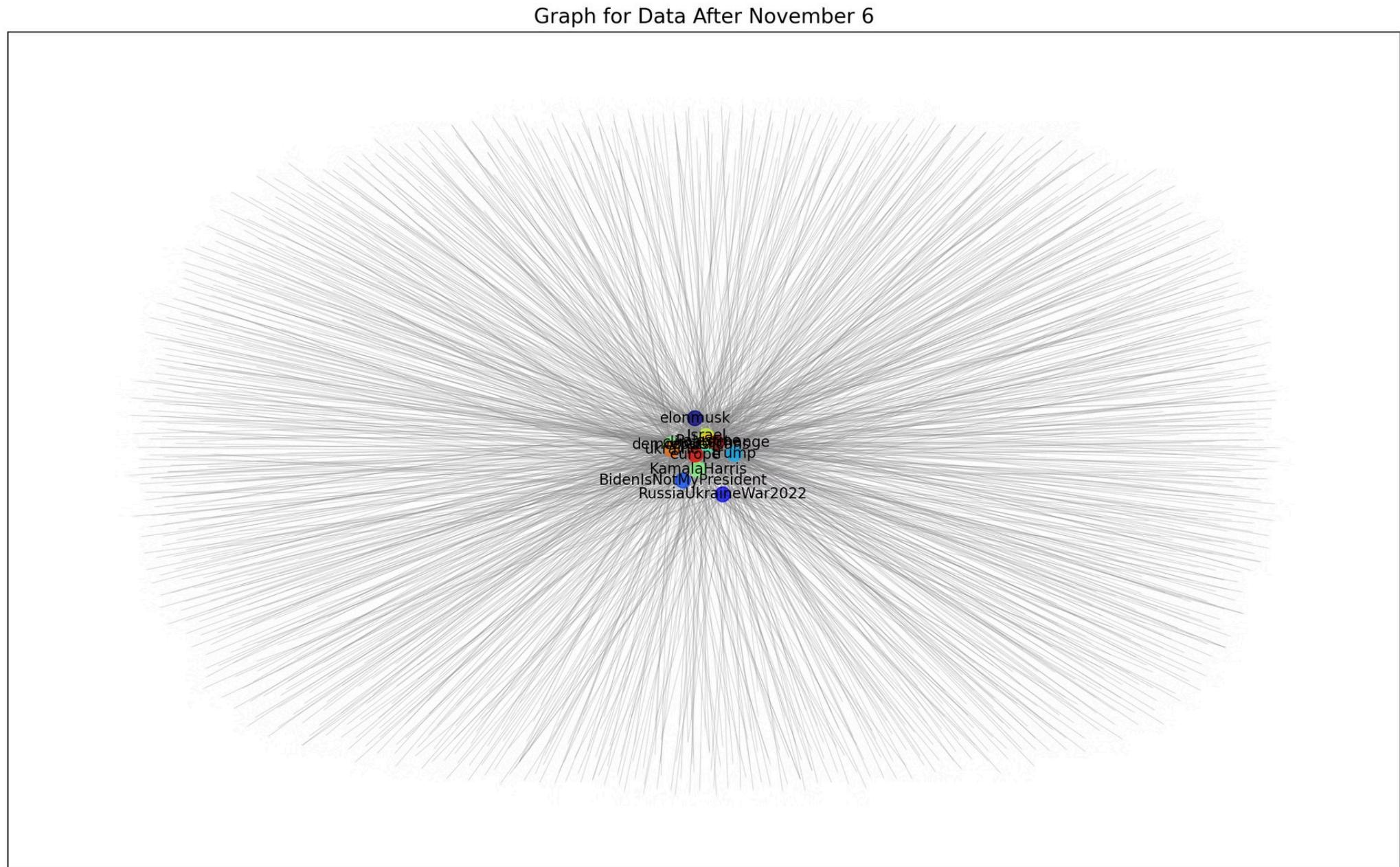




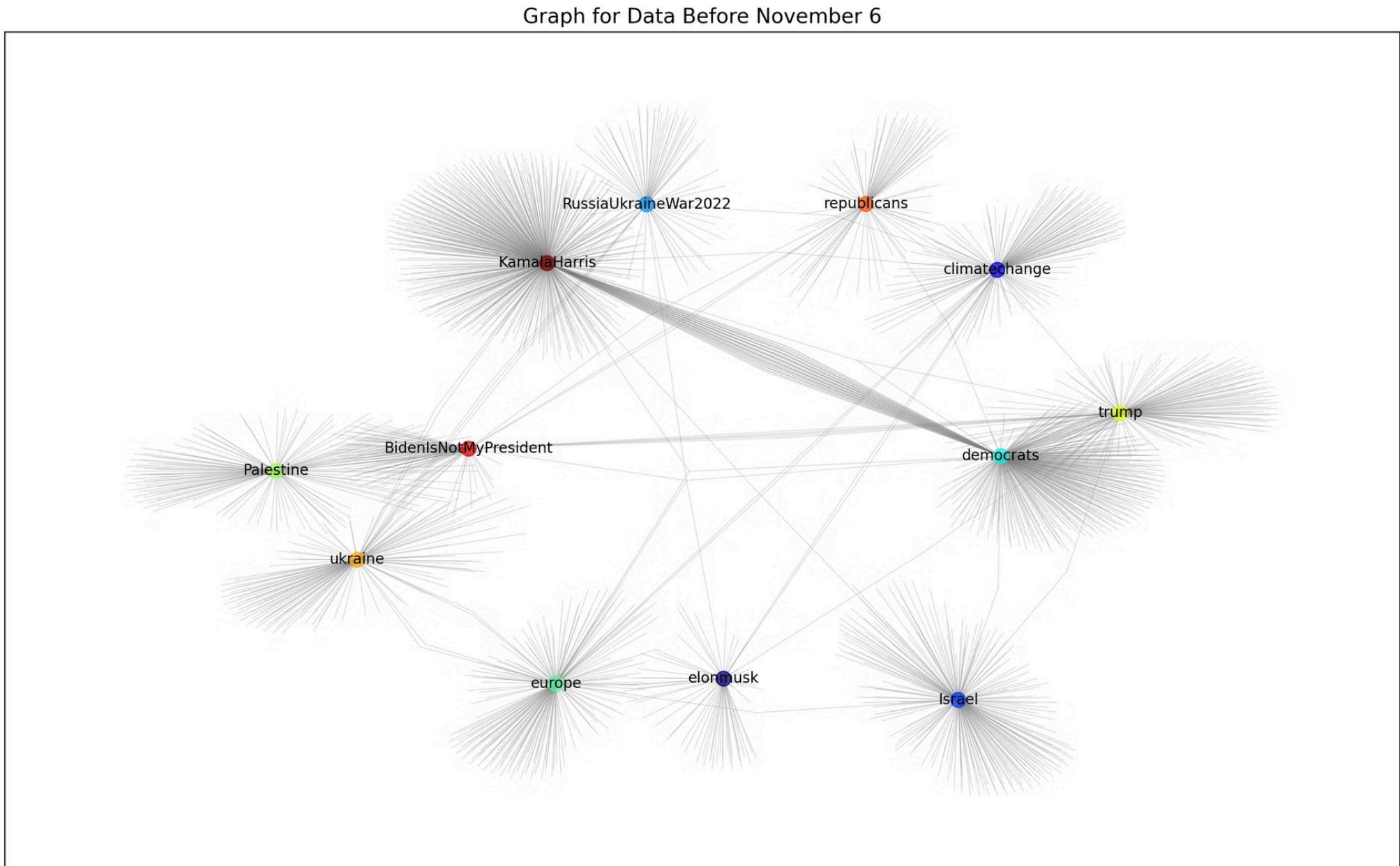
# Graphs Visualisations

We are visualising a **user-subreddit interaction graph**, where nodes represent users and subreddits, and edges indicate user participation in a subreddit. It applies the **Louvain algorithm** for community detection and uses **NetworkX** with a **spring layout** to display the clustered relationships before and after elections.

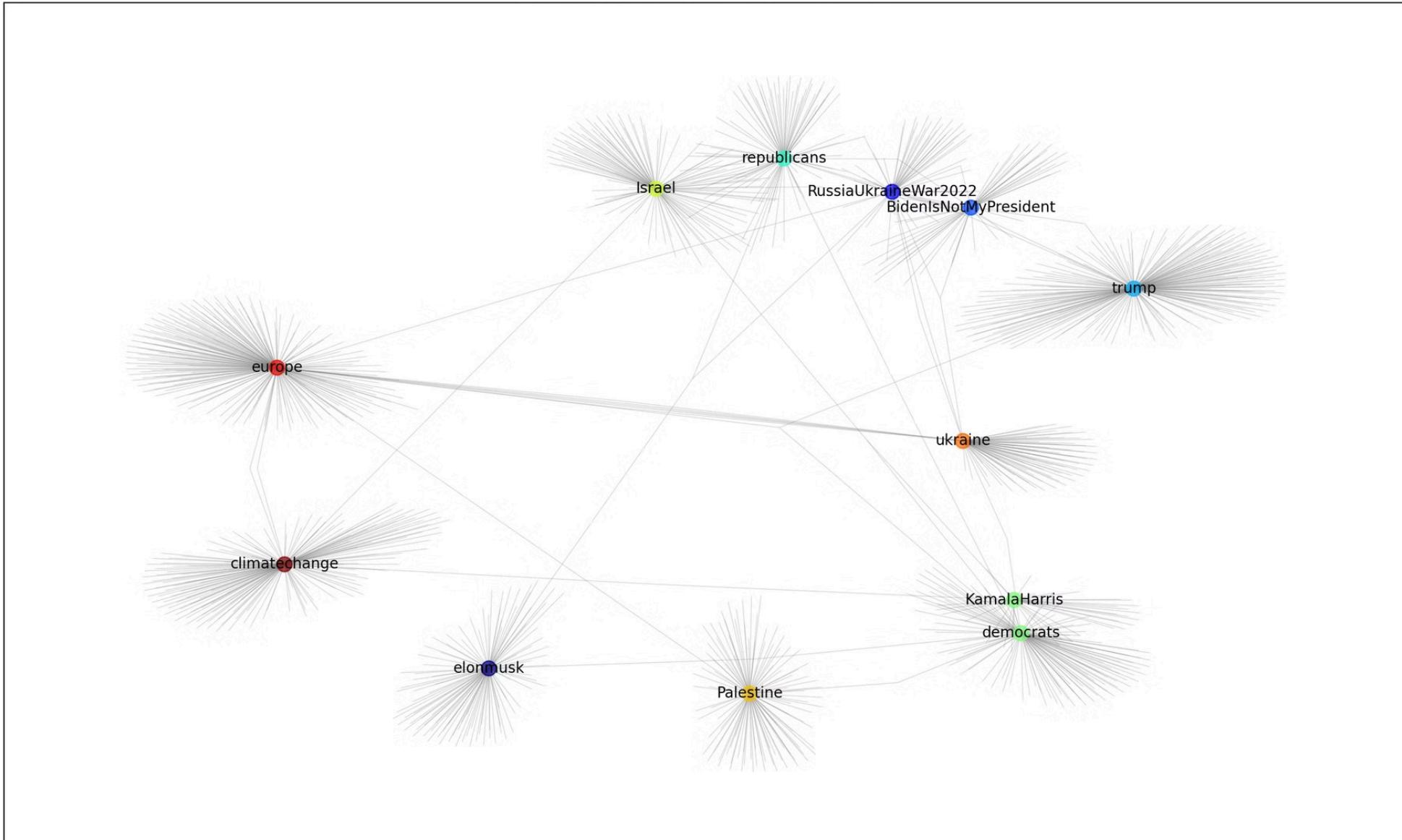
Spring layout requires **more iterations** to achieve a well-structured and stable node distribution.



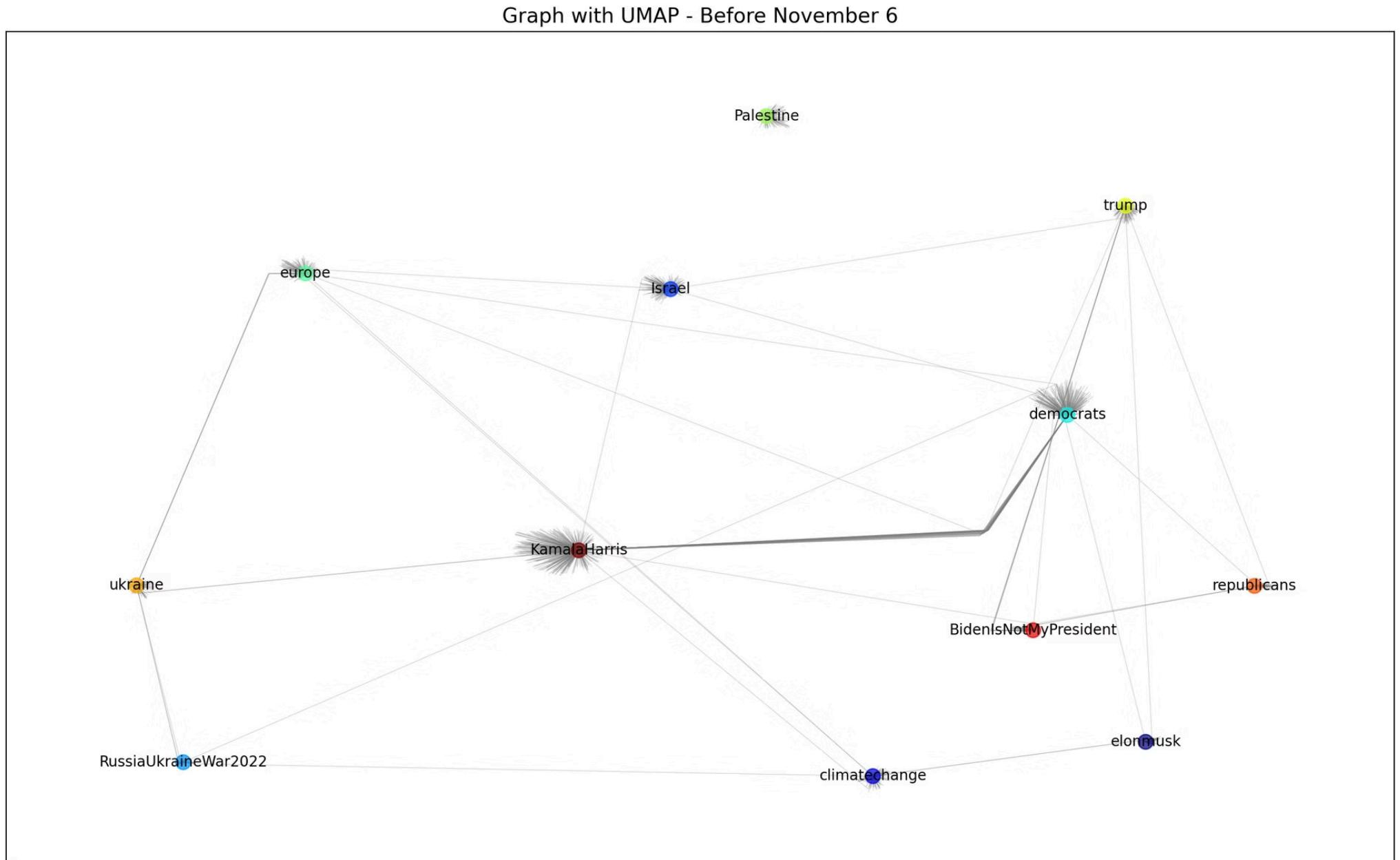
Increasing the iteration count helps improve the clarity and spacing of the graph, making the clusters and relationships more distinguishable.



Graph for Data After November 6

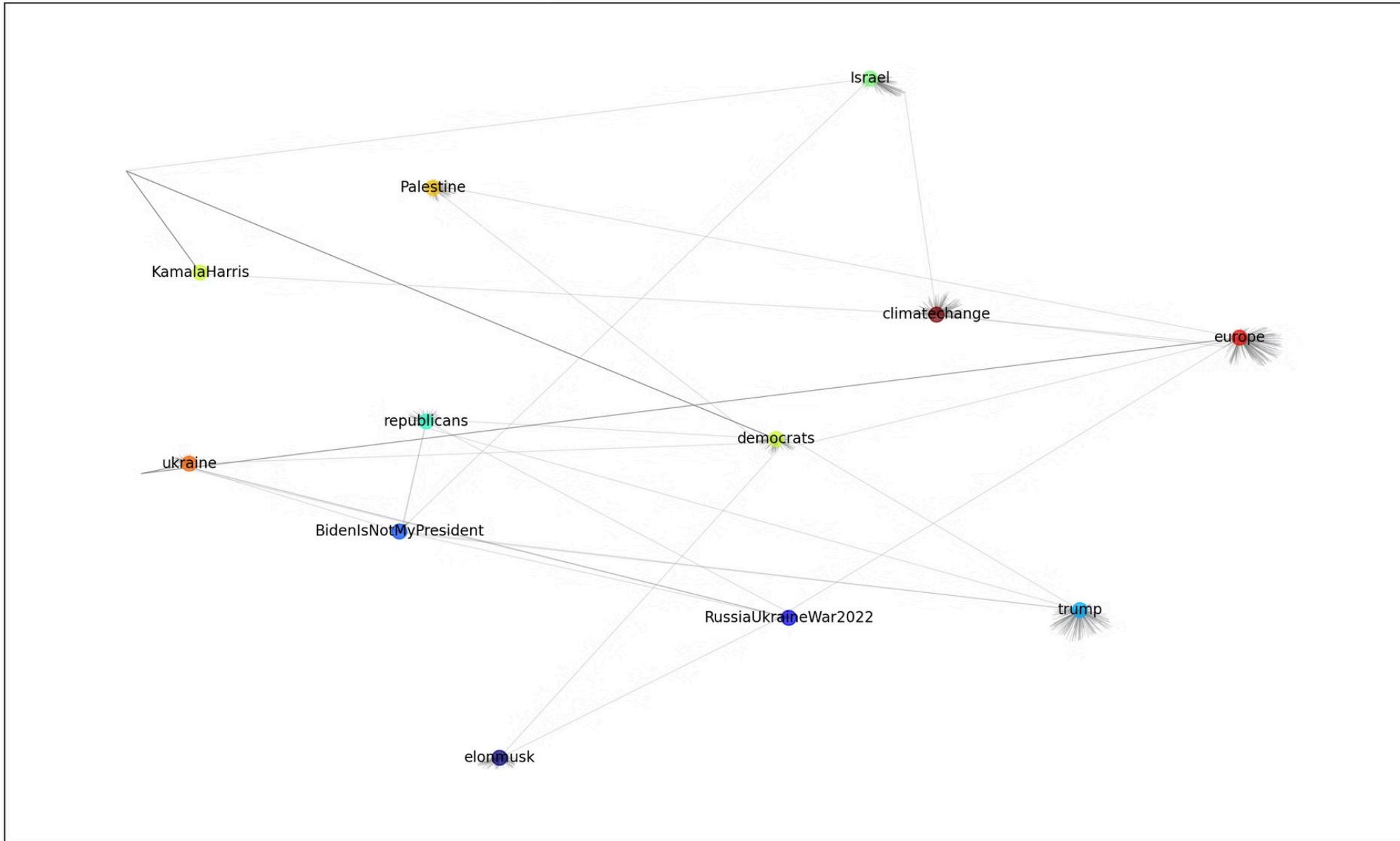


We are visualising a **user-subreddit interaction graph**, where nodes represent users and subreddits, and edges indicate user participation in a subreddit. It applies the **Louvain algorithm** for community detection and uses **UMAP** to display the clustered relationships before and after elections.



However, with our dataset, the process runs very slowly due to the computationally expensive steps

Graph with UMAP - After November 6

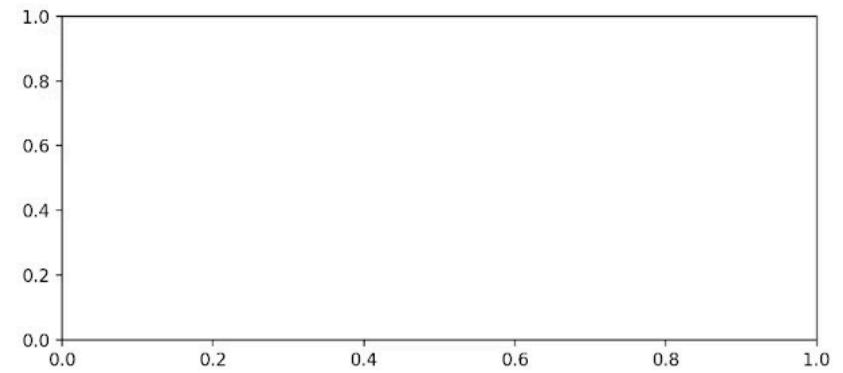
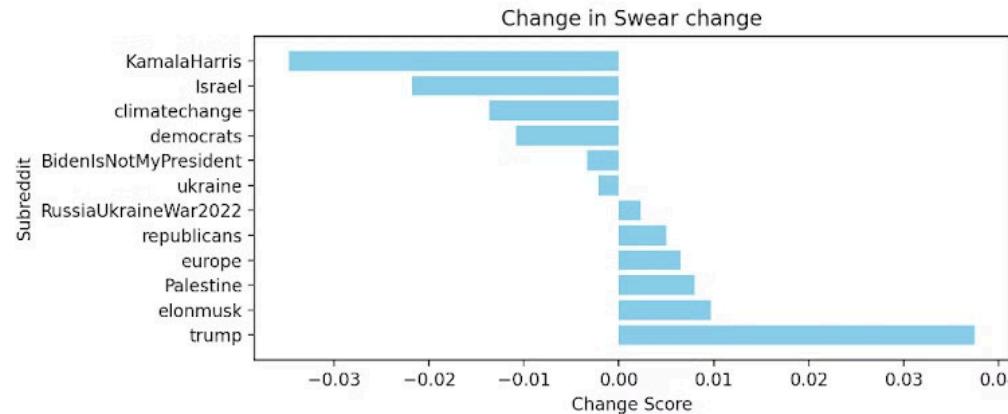
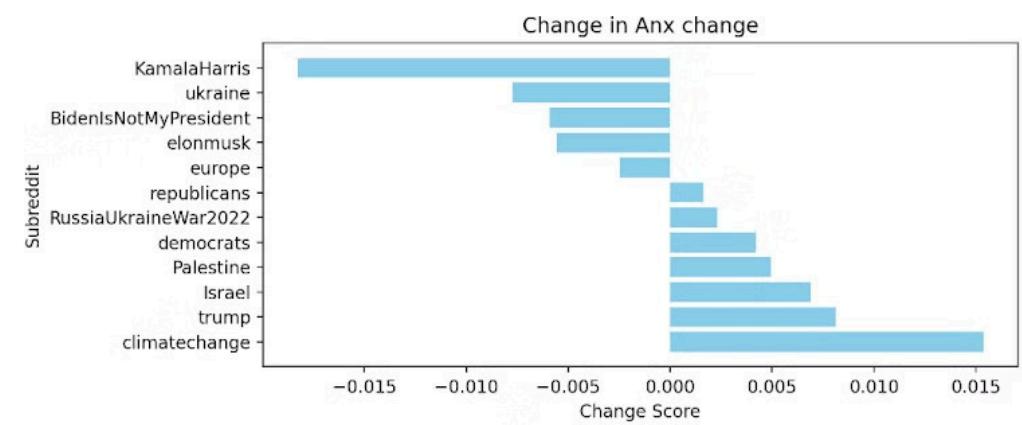
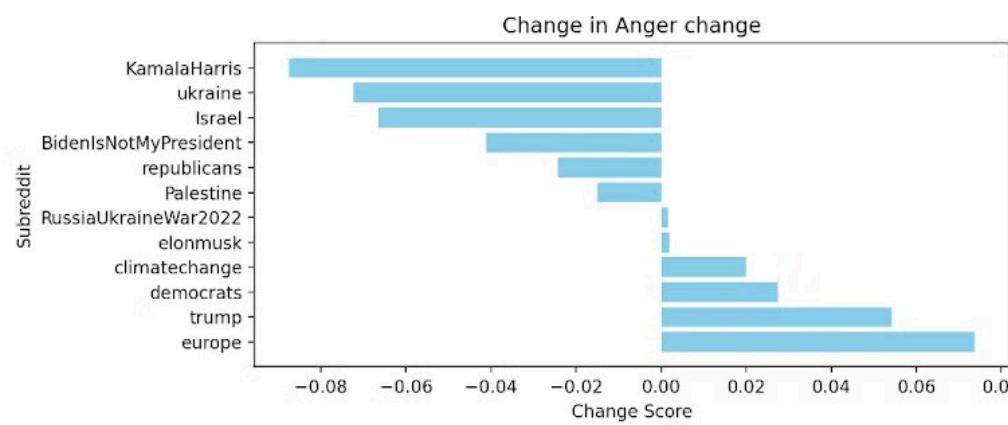
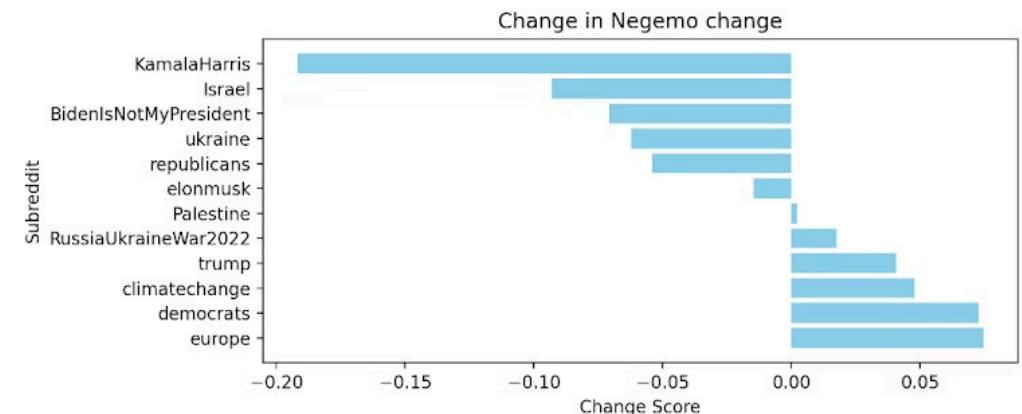
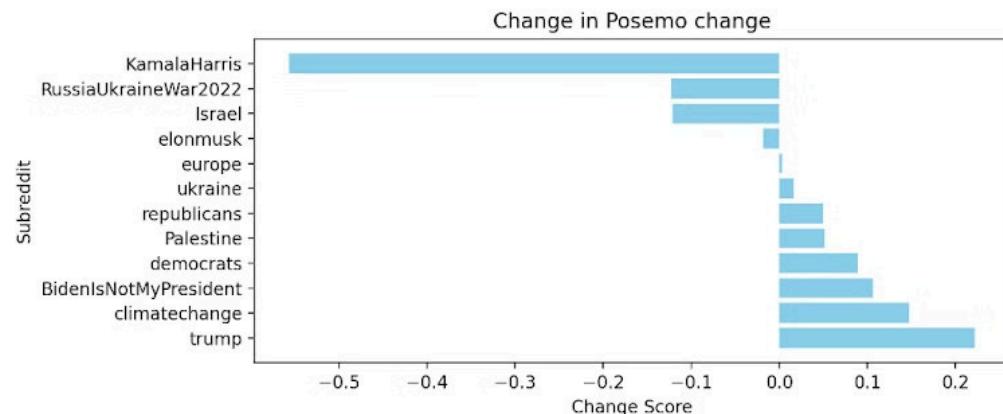


## Changes of the popularity of topics

Difference in mean values (after - before):			
subreddit	ups	num_comments	upvote_ratio
BidenIsNotMyPresident	9.505440	-1.438515	0.015734
Israel	-60.046149	-0.827697	0.005522
KamalaHarris	-1036.099031	75.294373	0.001286
Palestine	98.377268	-13.169972	0.009509
RussiaUkraineWar2022	3.604402	6.029766	-0.013140
climatechange	159.726388	24.494169	0.004745
democrats	-171.316859	107.263481	-0.007634
elonmusk	0.980529	1.591046	-0.065139
europe	3468.695082	140.322951	0.004410
republicans	7.607815	0.293986	0.068046
trump	167.107058	7.892735	0.039683
ukraine	53.209737	-15.933792	-0.000697

# Emotional and sentiment changes in posts before and after elections

We were using **LIWC for linguistic analysis** and **BERT for sentiment classification**. It calculates differences in emotional scores and visualizes these changes across subreddits.



## Word Cloud Before

A word cloud from text data posts into a single string and visualizing the most frequently used words using **WordCloud**.



# World Cloud After





# Conclusions

## 1 Summary

Changes in the topics of discussions

The key topics of discussion have changed since the election, as can be seen in the cluster charts and thematic analysis. The impact of the election can be seen in shifts in dominant topics, especially those related to politics (Trump, Biden, Republicans, Democrats).

Changes in the structure of user interactions Network analysis shows a change in the structure of communities, where after the election, users either redistributed across subreddits or increased interactions in certain political groups.

Emotional shifts

The use of BERT and LIWC revealed a change in the mood of discussions. It can be hypothesized that there was an increase in polarization of opinions after the election.

Limitations of the analysis

We recognize that 100 days is a relatively short period and Reddit is not a fully representative site. There were also many other events that indirectly influenced the discussion topics.

Trump's election significantly impacted Reddit. Future work can explore other factors.