Characteristics and Interest Topics Extraction of Non-Partisan Clusters in Social Media : Case Study of the National Funeral for Former PM Shinzo Abe

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Extended Abstract

Many studies have focused on political discussions between liberals and conservatives on social media but have largely overlooked the non-partisan clusters. Recent research suggests that only a small percentage of users engage in enthusiastic partisan clusters [2], while the majority show little political interest. Moreover, offline surveys also revealed that a large portion of the population indicated they were non-partisan [5]. Therefore, understanding the roles and interests of non-partisan clusters in political discussions is crucial for a more comprehensive understanding of political discussions and effective political decision-making. However, current research on non-partisan clusters is limited, with most studies only exploring their network structure [3, 4]. Thus, research needs to be expanded into their roles and interests in political discussions.

In this study, we aim to examine the differences in interest topics, time series trends in posts and stances, and the reach of posts between partisan and non-partisan clusters in political discussions on Twitter. Specifically, we seek to answer the following research questions: RQ1) How much do non-partisan clusters participate in the political discussion that has attracted significant public attention? RQ2) How do partisan and non-partisan clusters differ in their interest across topics and opinion tendencies? RQ3) How do non-partisan clusters interact with partisan clusters? We analyzed a discussion on Twitter about the national funeral of former Prime Minister Shinzo Abe, one of Japan's leading conservative politicians, and the appropriateness of holding the funeral, which attracted significant public attention in Japan.

We collected 24,554,816 Japanese tweets containing the word "Kokuso (i.e., national funeral in Japanese)" from 1,094,461 users from July 6 to October 22, 2022. We conducted the following three processes in preparation for our analysis: Labeling tweets with favor or against using the fine-tuning BERT model (acc:0.96, f1:0.96); Labeling tweets with the sentiment using ML-ASK [6]; Classifying tweets by topic model Top2Vec [1] and merging them by 37 critical topics. We grouped these major topics into four categories: 1) the national funeral itself, 2) reasons for the protest, 3) protest actions, and 4) others (Table 1).

Using the Leiden method [7], we classified users by RT networks and obtained four major clusters covering 95% of users. The fourth was removed because conspiracy theories were mainly posted in this cluster, and they had little interaction with other clusters. We estimated the ideological value of each cluster from the weighted average of the number of RTs to tweets from representative accounts of major Japanese newspapers and their ideological value. As a result, we extracted a liberal cluster (244,371 users), a conservative cluster (202,768 users), and a non-partisan cluster (253,614 users). In addition, we confirmed that most of the users in the extracted non-partisan cluster did not retweet partisan tweets.

We found that the non-partisan users were more interested in events than high-context discussions. In addition, the proportion of neutral tweets was significantly higher than the liberal cluster at 31/37 topics and significantly higher than the conservative cluster at 36/37 topics. (Fig 1; $p < .05$). Conversely, the liberal cluster showed high interest in discussions about the pros and cons of the national funeral. The conservative cluster was highly interested in anti-liberal.

Furthermore, non-partisan users were not always interested in the national funeral, and their political views were inconsistent compared to the liberal partisan users. Although each cluster had about the same number of users, the liberal cluster had about 5.8 times as many tweets as the non-partisan cluster, and the conservative cluster had about 2.7 times as many tweets as it, showing a large gap between the clusters. The liberal cluster always participated in the discussion, and most were against the national funeral. The conservative cluster was not as enthusiastic as the liberal cluster; they were evenly divided in their favor and against each day. On the other hand, the non-partisan cluster showed a significant burst in tweets in mid-July, when PM Kishida announced the national funeral, and in late September, the day of the funeral. Although the opposition was predominant in many cases, the proportion of users in favor temporarily increased when such a significant event occurred, suggesting that events easily influenced this cluster (Fig 2).

We also found that the non-partisan cluster stabilizes the political discussion between liberal and conservative clusters (Fig 3). While the partisan cluster completed most of its tweets in its cluster, and there are almost no tweets between the two, the non-partisan cluster exchanged a relatively high percentage of messages with the partisan cluster. This result supported the existing studies [5]. We additionally found that neutral tweets circulated more frequently between non-partisan and liberal clusters. Neutral tweets were more likely to reach from the conservative cluster to the non-partisan cluster. In contrast, negative tweets were more likely to reach from the non-partisan cluster to the conservative cluster.

Focusing on non-partisan clusters can lead to a comprehensive understanding of political discussions. Most of the media coverage was about opposition to the national funeral. Opposition to the national funeral was predominant on Twitter, as were non-partisan clusters. However, the liberal cluster was the most vocal in its opposition, while the non-partisan cluster tended to react calmly to the event. While the partisan clusters did not interact as much, the non-partisan cluster was at the center of both, stabilizing the discussion. Although social media influences the formation of public opinion and social phenomena, the results of this study suggest that public opinion could be formed differently from the actual situation if we are unaware of such biases.

References

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Category	Topic
The national funeral itself [a]	Funeral procession(*on the day), Messages of condolence(*by ex PM Suga), Guests(*from abroad), Condolence(*from the public), Holiday, Past PMs, Public opinion poll, Ceremonial Format, Law
Protest reasons [b]	Forced condolence, Finance, Scandal(*about Mr. Abe), Bid, Costs, Covid-19, Unification Church(*Cult associated with LDP), Attendance, SUNTORY, Natural disasters(*that occurred just before the national funeral), Diet, Corruption(*about Tokyo Olympic)
Protest action [c]	Protest demonstration, Suicide(*by fire for protest), Left-wing radicals, Ethical questions(*for the Left), Lawsuit
Others [d]	Mass media, Opposition parties, Suspect Yamagami(*who killed Mr.Abe), Biased news reporting, Myanmar, Boowy(*a musician who protested it), Problematic statements(*by LDP members), Radio, China, Hashtag jack, Queen Elizabeth's funeral

Table 1: The four categories of topics extracted using Top2Vec.

[a] Topics that mainly referred to events related to the natural funeral, not the pros and cons of it.
[b] Topics that mainly referred to the pros and cons of it.
[c] Topics which mainly referred to protest actions of it in the real world.
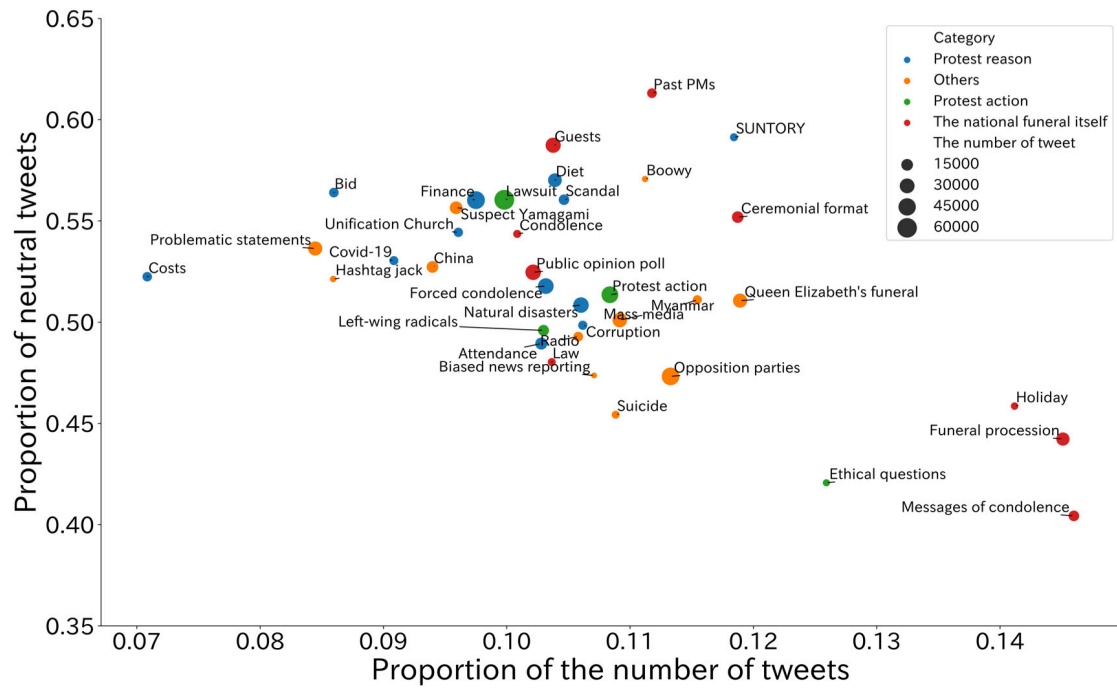[d] Topics that did not mention it directly, and most of them were events.
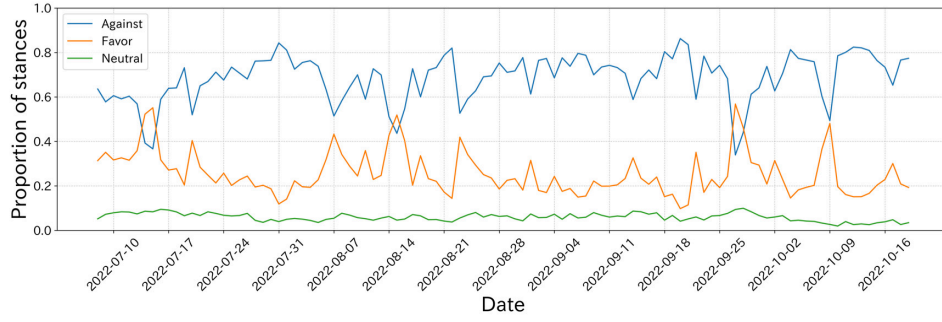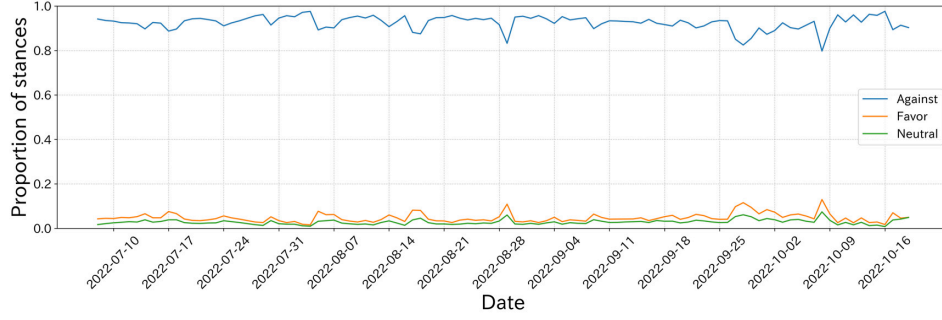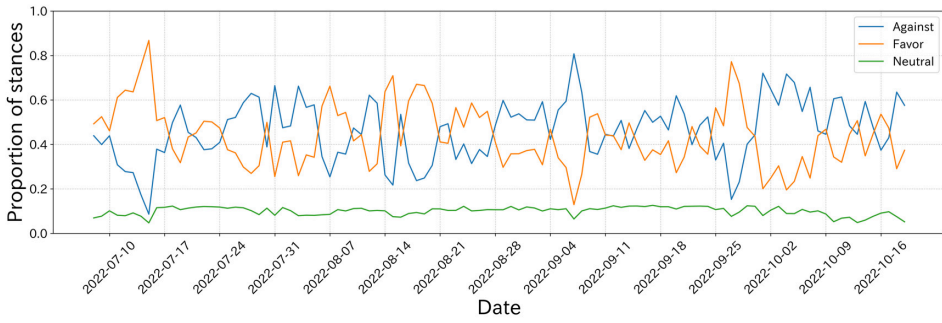

Figure 1: The proportion of the number of tweets and neutral tweets on each topic on the non-partisan cluster.

(a) The non-partisan cluster

(b) The liberal cluster

(c) The conservative cluster

Figure 2: The proportion of stances trends of users of each cluster per day.: Users with more protesting tweets were considered against, and vice versa and users with the same number of tweets were considered neutral per day.
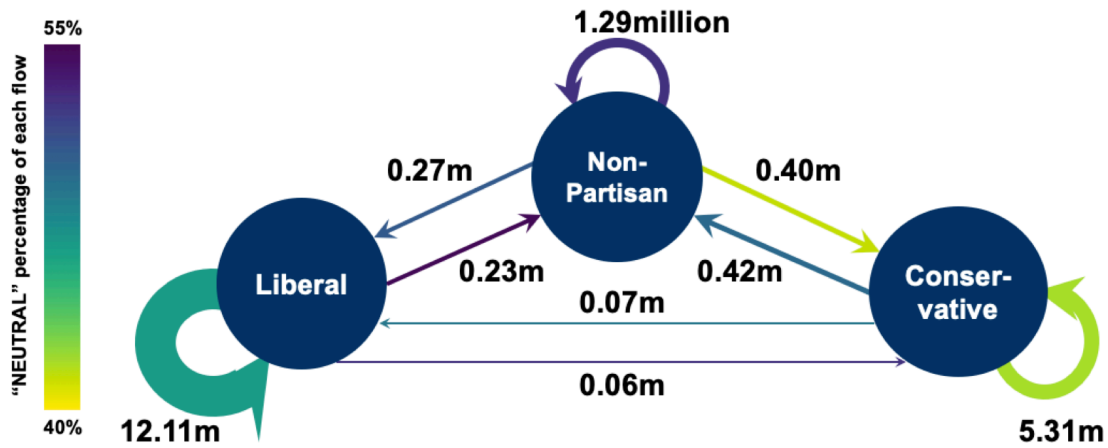

Figure 3: The number of reach tweets and the percentage of neutral[a] tweets in each flow.[b]
[a]ML-ASK gave this label. [b]The width of the arrows is not precisely proportional to the number of tweets.