Who is driving the conversation? Analysing the nodality of British MPs and journalists on online platforms

Extended Abstract

In political science, *nodality* - the capacity to share and receive information - is one of the key tools that government uses to make policy[1]. Nodality used to be something that government possessed almost by virtue of being government, as the "water mill" at the centre of society's information networks. But in a digital era, governmental actors face greater competition for nodality. Widespread use of the internet means that journalists, public figures and even citizens themselves can acquire nodality, which can challenge government's capacity to capture public attention and to communicate efficiently with society at large. In every policy-related conversation, there is constant jostling for position. The nodality of an agent needs to be seen *with respect* to the other agents, and governmental actors have no monopoly on nodality. Framed within the context of policy making in the UK, we seek to analyse the nodality of actors on online platforms to determine how they fare in the competition for public attention. While our ultimate aim is to analyse a more diverse set of actors, such as governmental departments, NGOs, councils and public figures, in this paper we first test our methodology on a smaller subset of elite actors: British Members of the Parliament (MPs) and journalists. On the one hand, MPs have a specific role in the policy-making process, where they represent constituents, participate in the law-making process of Parliament, and have the capacity to enforce law if they are part of government. On social media, they have relative freedom to write about different topics, but need to follow party guidelines when addressing sensitive issues. On the other hand, journalists also have certain freedom to write about the issues they work on, while also following guidelines of their publishing houses. We thus work with two set of actors who have the capacity to develop nodality, while representing important institutions in the policy-making public conversation. We focus our study on four different topics of conversation on Twitter: 1) The Ukraine War, 2) the Cost of Living Crisis, 3) Brexit and 4) the COVID-19 pandemic. Each topic is directly related to an important public policy issue facing the UK. Our research questions are: How can we measure nodality on online conversational networks and how do network metrics contribute to this? Which set of actors has the most nodality for a given topic? How does relative nodality of actors and topics change over time?

We analyse Twitter data obtained for 581 MPs and 8,606 journalists between January 14, 2022 and January 13, 2023. We classify tweets using a weak-supervision classifier [2] and construct a directed weighted graph for each topic where actors form nodes and any interaction from j to i, such as a retweet, mention or reply, is captured as an information edge[1] $i \to j$. The weight of an edge w_{ij} is the number of times j has interacted with i. Our analysis pipeline for each of the topics is as follows: (1) we perform a Granger causality test [3] on the time series of the aggregated activity of both sets of actors (MPs and journalists) to then (2) explore which are the most important nodes using centrality measures (such as in-degree, out-degree,

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[1]Thus an edge $i \to j$ represents the dissemination of information from i to j.

betweenness and eigenvalue centrality). Finally, we (3) analyse how journalists interact with MPs on any given topic by comparing the interaction network to a null model. Results from the Granger-causality test (1) give us an initial oversight of the "macro" tendencies of interactions between the two sets of actors considered here. We find that journalists typically lead the conversations on COVID-19 and Brexit, and Granger-cause MP activity for up to a 7-day lag, whereas for the Ukraine War and the cost of living crisis the results are less clear. The activity time series for the cost-of-living crisis topic is shown in Figure 1a. Using the approach outlined in (2), we determine the most central nodes in the network. A network is constructed for each topic (Figure 1b). This analysis allows us to identify different actors which have constructed or maintained different dimensions of nodality. For instance, we find that the Labour MP Zara Sultana has low nodality on the cost-of-living crisis conversation (or assumes a peripheral position) in the MP-MP interaction network, but has a central position (or high nodality) in the MP-journalist interaction network. Zara Sultana is a bank-bench opposition MP —yet appears to play a more influential role in the policy conversation than other MPs with more authority or organisational capacity at their disposal. This shows how the development of nodal resources can provide a policy actor with some kind of advantage over actors with greater levels of other resources. Finally to explore how journalists contribute to the nodality of MPs, we study the 'interaction bias' in a journalist-MP network[2]. More specifically, we compare the journalist-MP network to a configuration model where edges are randomised assuming a fixed degree-sequence [4]. Here we determine if journalists interact with MPs more or less than expected at random in a null model[3]. In Figure 1c we show how journalists from the ten most trusted media outlets in the UK[4] interact with MPs on the issue of the cost-of-living crisis. We find that many of these media outlets have significantly more interactions with Conservative MPs as compared to Labour MPs and MPs from other parties. The ultimate aim of this work is to understand how these actors are able to increase and deploy their nodality, drive the conversation and influence others on online platforms. These results will allow us to consider the relative nodality of different policy actors, and when combined with other (already collected) data, to understand the extent to which government agencies have maintained their capacity to wield nodality as a policy tool.

References

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[2] Alexander Ratner et al. Training complex models with multi-task weak supervision. *Proc. AAAI Conference on Artificial Intelligence*, 33:4763–4771, 2019.

[3] Clive WJ Granger. Investigating causal relations by econometric models and cross-spectral methods. *Econometrica: journal of the Econometric Society*, pages 424–438, 1969.

[4] Michael Molloy and Bruce Reed. A critical point for random graphs with a given degree sequence. *Random structures & algorithms*, 6:161–180, 1995.

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[2]These networks capture retweets, replies and mentions directed from a journalist to an MP.

[3]Note that we do not comment on the type of interaction here (positive or negative) and are only comparing the observed network to a null model to determine if journalists interact with political parties more or less than at random.

[4]As per the 2022 Report by Reuters Institute - https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2022-06/Digital_News-Report_2022.pdf
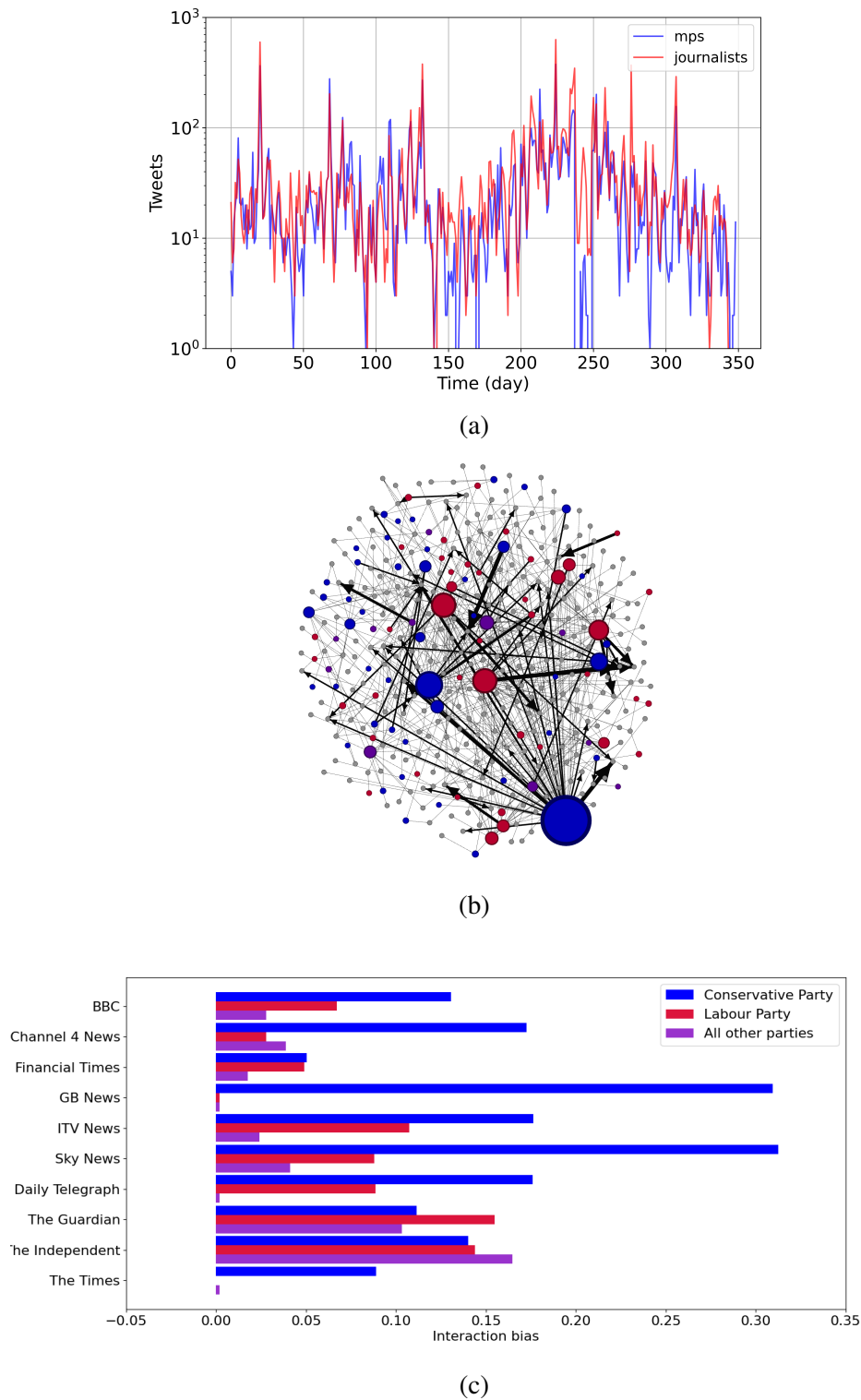
(a)

(b)

(c)

Figure 1: Interactions between MPs and journalists on Twitter on the Cost of Living Crisis topic.