

# *Measures of Topic Centrality for Online Political Engagement*

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## Abstract

The advent of social media has enabled political parties to engage with the broader populous in new and unforeseen ways – and the ability to bypass the traditional mediating forces of mass media allows for an unfiltered promotion of policy, ideology and party stances. Drawing on Twitter data leading up to the 2019 Canadian Federal Election, this paper develops two novel, graph-based methods that capture how different categories of messages drive different patterns of political engagement. Through the two proposed variations of topic centrality – one which measures how central a topic was to the general discourse, and one which measures how central a topic was to a particular voting bloc – statistically significant variations in topic centrality are then shown and discussed.

**Keywords:** *centrality, political communication, social media, topic modeling*

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## 1 Introduction

The way information is distributed and received has changed significantly over the past decade. As Cogburn and Espinoza-Vasquez argue, Barack Obama's 2008 presidential campaign was a watershed moment in social media campaigning – and in the subsequent

decade, from Macron to Brexit to the Five Star Movement, social media has played an increasing role in how politics is conducted (3). The same holds true for Canada, between 2013 and 2018 the share of Canadian federal media expenditure spent on digital advertising rose from 27% to 65%, a 140% increase, making the study of new media critical from a social science perspective (1). Over the past 12 years, political elites have subverted traditional models of political communication by using social media to directly promote various policies, topics and issues to the electorate<sup>1</sup>(5).

Additionally, it is important to note that not all messages promoted by political elites are likely to serve the same purpose. Some topics may be logistical in nature, informing party affiliates of campaign events; other topics may be promoted in an attempt to rally that party's core voting bloc; others, finally, may be an attempt to attract engagement from new, untapped demographics. The latter two categories are in many ways analogous to Robert Putnam's conception of social capital (6). Here, Putnam draws the distinction between two forms of social capital: bonding social capital, which occurs within a group – and bridging social capital, which unites different demographics (6). Therefore, the research question being proposed is: are their data to support the notion that some political messages are bonding in nature, rallying members within a group, while other political messages are bridging in nature? This question will be answered within the context of the 2019 Canadian Federal Election with the tweets of Canada's five major, english speaking party leaders: Andrew Scheer, Elizabeth May, Jagmeet Singh, Justin Trudeau, and Maxime Bernier.

In order to answer this question, a justification of Canadian politics and social media data in this context will be given. Then an overview of the data collected and a formal definition of the political engagement graph used will allow for the exploration of two measures of topic centrality: total network topic centrality, and party leader topic centrality. Finally, results from this process and a discussion of their implications will highlight possibilities for future research.

### 1.1 Social Media in the Canadian Context

While it is clear that technology is changing how information is received, and thus also changing how politics is conducted, it may not be clear the role of Canadian politics in this context. However, Canada's political system is a fertile environment to test the importance of political messaging, because relative to most liberal democracies, it is dominated by party politicians. As Carty put it:

*No obvious simple geographic reality, no common linguistic or religious homogeneity, no common revolutionary experience or unique historical moment animated [Canada] or gave it life. Canada was created when a coalition of party politicians deemed it to be in their interest to do so, and it has been continuously grown, reshaped and defended by its politicians.*(2)

Thus, it is not surprising that Canada's electoral system encourages electoral pragmatism – and developed large, “big tent” parties that are among the most organizationally weak and decentralized of established democracies (2). This system defines political parties as

<sup>1</sup> The terms policy, issue and topic will be used interchangeably to refer to categories of messages.

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brokers of the often conflicting, weakly integrated electorate — as opposed to mobilizers of distinct communities, articulating claims rooted in their pre-existing interests. In this way, parties act as the principal instruments of national accommodation, rather than democratic division (2).

The dominance of parties in Canadian politics, their amorphous ideological stances, and the many intersectional geographic, linguistic and religious cleavages have given birth to what's been coined the brokerage party system (2). The need to capture pluralities in a diverse range of electoral districts means that most parties have to take stances on most issues, and thus when a user engages with a specific issue, it doesn't necessarily invoke a specific party or vice versa.

Social media data, culled from platforms like Twitter, are inherently relational – and thus lend themselves well to being represented as graphs. An empirical analysis that observes and measures how users behave and engage with political parties online privileges this relational aspect of social media. Social network analysis helps avoid the pitfalls of survey data, famously described by Allen Barton as “a sociological meat grinder, tearing the individual from [their] social context” (4).

## 2 Methods

### 2.1 Data

### 2.2 Topic Modeling

### 2.3 Topic Centrality

#### 2.3.1 Eigenvector Centrality

#### 2.3.2 Total Network Topic Centrality

#### 2.3.3 Party Leader Topic Centrality

## 3 Results

### 3.1 Topic Saliency

### 3.2 Total Network Topic Centrality

### 3.3 Party Leader Topic Centrality

## 4 Discussion

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