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Hashtag Politics: A Twitter sentiment analysis of the 2015 Canadian Election using a randomized block design model

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Abstract

Our goal was to determine the sentiment to which people talked about federal parties on the social media platform Twitter in the weeks prior to the 2015 Canadian Federal Election. It's feasible that if reference to one party more than others appears more often in tweets with positive words, then Twitter users may be expressing more positive thoughts and feelings towards that party. This type of data mining (called a "sentiment analysis") is becoming common as social media becomes a major method of communication in the world. It is possible that sentiment on social media platforms like Twitter towards entities like political parties, brands, or companies can be indicative of sentiment of those entities outside of social media as well.

We developed a randomized block design model for analysis of 140 character messages ("tweets") about the 2015 Canadian Federal Election on Twitter. Our factor of interest was sentiment in regards to popular hashtags (a word or phrase preceded by a hash (#) that is used to identify messages on specific topics), and we blocked for time of day and day of the week as nuisance variables that may influence sentiment. Data was collected from Twitter's Application Programming Interface (API) statistical program R. Using a word lexicon (Minqing and Bing, 2004) that attributes positive or negative scores to words, we

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summed the sentiment of each tweet, and tested sentiment of tweets containing hashtags of interest using an Analysis of Variance test.

References

Minqing Hu and Bing Liu. "Mining and Summarizing Customer Reviews." Proceedings of the ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD-2004), Aug 22-25, 2004, Seattle, Washington, USA.