Data science can tell us which political party is dominating

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Young scientists from the University of Auckland and Victoria University of Wellington have come up with a novel way to figure out which party or parties in New Zealand's Parliament are dominating any particular political debate or discourse.

Te Pūnaha Matatini Whanau members Ben Curran and Demival Vasques Filho (University of Auckland), and Kyle Higham and Elisenda Ortiz (Victoria University of Wellington) collaborated on the project, and their research findings have just been published in *PLoS ONE*, a leading international scientific journal.

Their paper, "Look who's talking: Two-mode networks as representations of a topic model of New Zealand Parliamentary speeches," shows how the popularity of different topics debated in Parliament change over time, and proposes an approach that can reveal which party or parties are dominating the debate within certain topics.

"It is difficult for any society to simply and easily track political debate and discussion over time," says co-author Demival Vasques Filho. "With the large number of speeches by Members of Parliament, it becomes impossible to cover them all using [existing] qualitative approaches. This new method can provide a summary of the activity of Members of Parliament and how they are engaging with subjects of interest to New Zealand society."

While all political speeches made in the New Zealand Parliament are available publicly through a database called Hansard, the large volume of detail and documentation it produces would deter most people from accessing or using it.

The new method uses machine learning to analyse all the documents in Hansard and group them according to topic. The presence of keywords makes it possible to identify the core topic or topics – for example, education, housing, economy, and so on – of each document. The algorithm therefore enables inferences about the topics of many thousands of documents in Hansard without anyone having to actually read them all. Statistical information that is of interest can then be extracted from the data.

"We believe that a range of people can benefit from this new approach," says Demival. "Political scientists, for example, can use it to support their analyses. Journalists can also benefit, as it helps to provide more transparency to political activity. We also aim to give the public easy access in the near future, so everyone can keep track of the activity and engagement of their Parliamentary representatives."

More information: Ben Curran et al. Look who's talking: Two-mode networks as representations of a topic model of New Zealand parliamentary speeches, *PLOS ONE* (2018). [DOI: 10.1371/journal.pone.0199072](#)

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