The Brazilian Chamber of Deputies (BCoD) is part of the legislative power in Brazil and has 513 seats currently occupied by representatives across 30 (!) parties. With so many parties, we can ask: are they really representing the plurality of ideas and interests of the society? How parties are organized and how their allegiances change over time?

To understand the structure and dynamics of the BCoD, we constructed a time-evolving network of representatives, which are connected if they have similar voting patterns in proposals. We considered data from 1995 to 2019. A backbone extraction method is used to remove spurious links and the networks are analyzed in terms of community detection (based on the Louvain method) and average shortest paths among parties, which we name party isolation.

A similarity score is computed as the difference between the number of agreements and disagreements in votes to proposals. Representatives are connected if their similarity score is above zero. A similarity score is computed as the difference between the number of agreements and disagreements in votes to proposals. Representatives are connected if their similarity score is above zero.

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The average effective number of communities was found to be just 3.37, indicating the formation of large coalitions. We found the presence of parties that are always aligned with the government independently of their position in the political spectrum. This may be an indication of the practice of cronism. We found an increase in isolation for the presidency party just before the beginning of the latest impeachment process in Brazil, which can be an early indication of the trial decision. In the future, we plan to explore the potential of these methods in detecting political crisis and related events.