Relevance of Negative Links in Graph Partitioning: A Case Study Using Votes From the European Parliament

Israel Mendonça[1], Rosa Figueiredo[*1], Vincent Labatut[1], and Philippe Michelon[1]

[1]Laboratoire Informatique d'Avignon – Université d'Avignon – France

Résumé

In this paper, we want to study the informative value of negative links in signed complex networks. For this purpose, we extract and analyze a collection of signed networks representing voting sessions of the European Parliament (EP). We first process some data collected by the VoteWatch Europe Website for the whole 7 th term (2009-2014), by considering voting similarities between Members of the EP to define weighted signed links. We then apply a selection of community detection algorithms, designed to process only positive links, to these data. We also apply Parallel Iterative Local Search (Parallel ILS), an algorithm recently proposed to identify balanced partitions in signed networks. Our results show that, contrary to the conclusions of a previous study focusing on other data, the partitions detected by ignoring or considering the negative links are indeed remarkably different for these networks. The relevance of negative links for graph partitioning therefore is an open question which should be further explored.

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Fichier de présentation : http://jgss.sciencesconf.org/conference/jgss/rfigueiredo.pdf

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[*]Intervenant