

COST Action IC1205 on Computational Social Choice: STSM Report

Applicant: Barrot Nathanaël

Home institution: Lamsade, PSL, Paris-Dauphine University

Home country: France

Host: Federica Ricca

Host institution: La Sapienza, Università di Roma

Host country: Italy

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This STSM has allowed Federica and me to work on the subject of Political Districting. This problem consists in subdividing a given territory into a fixed number of districts, in order to perform an election in each of these districts. There are multiple criteria to assess the quality of a subdivision, the main three being population equilibrium, contiguity and compactness. Finding an optimal subdivision with respect to those criteria is a NP-hard problem and Federica has studied heuristics to solve approximately this problem. During this visit, we were able to explore a new heuristic for this problem, which is related to graph partitioning. This heuristic is based on a general property of p -partition that can be used in many applications. We started to explore this heuristic in the context of Flat Costs Service Minimization.

Furthermore, I was able to discuss my PhD work on Approval voting with Federica, Fabio Tardella and Andrea Scozzari. Following this discussion, we want to adapt some of their results, from the operational research domain to the problem of finding a winning committee using Approval Voting and Hamming distances.

I was also able to present my PhD work at the seminar of the "Dipartimento di Metodi e Modelli per l'Economia, il Territorio e la Finanza."

On a more global scale, this visit was the occasion to discover the research domains shared by this Department at La Sapienza and the Lamsade, and start a hopefully long-term relation between these two entities.

Finally, I thank the coordinators of Cost Action IC1205 for allowing me to do this STSM.