COST Action IC1205 on Computational Social Choice: STSM Report

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The main purpose of my STSM was to carry out joint work with Katarína Cechlárová, in the scope of task WG4 – Matching Mechanisms. I had also the opportunity to participate in the weekly seminar of the department. During this mission, entitled "Models and algorithms for variants of house allocation problems", we discussed some aspects of the Portuguese legislation for teachers recruitment for public schools. We addressed phases of the national competition where there are candidates with permanent posts in schools or school clusters (who apply for some kind of mobility and cannot be left unmatched) and candidates without a permanent post (who seek one) [1, 2]. In this setting, the candidates are sorted according to well-defined criteria that lead to a strictly ordered master list. The problem can be modelled as a variant of a house allocation problem with ordinal preferences and existing tenants. The candidates express their preferences over alternatives, but their preference lists can be incomplete and can contain ties. During this STSM, we discussed my previous work on this problem, rephrasing the notion of "applicant optimal TR-stable matching" as "lexicographically minimal weakly stable matching", which we found less misleading in view of the existing literature. We developed a simpler version of the algorithm introduced in [3] for finding such a matching and worked on proofs of its correctness.

When this mission took place, the Portuguese government was facing problems resulting from errors in the placement of candidates in another stage of the competition (for fixed-term contracts in schools and clusters of schools with autonomy). To understand the reasons, I studied the amendments to the teacher recruitment legislation, introduced in May 2014. These amendments have forced a centralisation of an hiring scheme which was running in a completely decentralised way in the previous years and in which each institution (school or school cluster) has its own master list. That renders the allocation problem NP-hard.

References

[1] DGAE - Direcção-Geral da Administração Escolar (Concursos 2014). http://www.dgae.mec.pt/web/14654/171

[2] P. Santiago, G. Donaldson, A. Looney and D. Nusche. OECD Reviews of Evaluation and Assessment in Education, 2012 (pp. 77–78). http://www.oecd.org/edu/school/50077677.pdf

[3] A.P. Tomás. Weak Stable Matchings with Tenants and Ties. In Proceedings of CSCLP 2006 (pp. 255–264). http://centria.di.fct.unl.pt/events/csclp06/csclp2006.pdf