COST Action IC1205 on Computational Social Choice: STSM Report
Applicant: Daniel Paulusma
Home institution: Durham University
Home country: United Kingdom
Host: Dr Peter Biro
Host institution: Hungarian Academy of Sciences
Host country: Hungary
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Summary:

We (Biro, Kern, Paulusma) continued our collaboration on matching games. We study a model of social choice that can be illustrated by the following example:

Consider a group of soccer teams participating in a series of friendly matches with each other. Suppose each team has some specific target number of matches to play. For logistic reasons, not every two teams can play against each other. Each match brings in some revenue, which is to be shared by the two teams involved. The goal is to construct a schedule, such that there exist no two unmatched teams that were better off by playing against each other.

The above problem is called the stable fixtures problem and generalizes the well-known problems: stable marriage/assignment game, stable roommates/matching game and multiple partners assignment. In a recent paper (WG 2015) we characterized the set of stable solutions and determined the complexity of the core membership problem when every player i has capacity $b(i)$ at most 2. Afterwards we showed co=NP-completeness if $b=3$.

During the visit in Budapest we solved the two most important gaps in our knowledge, that is, we proved

    (i)   an alternative characterization of the core
    (ii)   testing core non-emptiness is NP-complete if $b=3$.

We also discussed a number of related problems and are currently writing down our results with an aim to submit a paper to an international conference later this year and to combine the new conference paper with our WG 2015 paper into a new journal paper.