

COST Action IC1205 on Computational Social Choice: STSM Report

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During this STSM "Fair Division with Ontologically Reasoning Agents", which took place in ILLC (Institute for Logic, Language and Information) University of Amsterdam between dates 01/09/2016 and 30/09/2016, I had a chance to work with Ulle Endriss. In particular, together we have developed a formal framework for fair-division which was based on weighted description logics, a multi-agent extension of goal bases and my earlier work.

The main novelty that the framework enables is that, it enriches the classical group decision making problem in the sense of one is able to express the ontological conflict over the objects that e.g., they want to share, in agents knowledge bases. To represent the preferences agents have, we have used a cardinal framework based on weighted criteria/goals aggregated via logical satisfaction relation. One very interesting and natural question which arises is that *how the ontological conflict in agents knowledge bases affect the fair division problem e.g.,, is it easier to come up with a fair allocation in case that agents disagree on the nature of objects?* In studying this question, we have defined a similarity measure which tells how much agents (dis)agree on the goals they have. Since the problem was combinatorially very rich, we have started with analysing simpler cases where each agent has the same goals, but differ minimally. We have done some investigation, however we will continue further collaboration in this very interesting direction.

Besides, during my visit, I had a chance to meet many young and senior researchers in ILLC, especially relevant to my interest since the all of them were working in some pure and applied logic. All in all, my research visit resulted in a way that I have discovered many interesting research question, got a long term research agenda, in the direction of my PhD research. The long technical discussions I had with my host, im particular, was very useful.

I am grateful to Cost Action, for making this visit possible.