The Head Of the Department (HoD) Dilemma: Modeling of a decision-making methodology using Value-Based Argumentation Framework

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1 Main Aims of this Experiment

The experiment used and discussed was chosen to address three aspects: first, An application of relevance to most environments that can be easily translated to other settings where the difficulties of the choices are common. This is important to establish the applicability of the methodology to a wider range of applications. Second, short- and long-term goals and aspirations. Third, an evidence of the validity of the methodology.

Our agent is the head of an academic department (HoD) in a university, and he is faced with a dilemma of how to appropriately allocate the department's budget where he needs to balance costs and consider departmental and individual interests of his staff. Our agent (HoD) receives requests relating to travel funding to attend two specific conferences. He receives requests from three different students and needs to decide which of them to send.

2 System Description

This interactive demo will show how our agent (the HoD) will be able to take decisions on distributing his budget by firstly setting the environment with the different parameters including the identification of all the different possibilities, setting the preferences and social values of the audience and building all the possible transitions in the system. Then, the agent will show the different arguments justifying each of the possible transitions linked with the different values that each transition would promote or demote. The system will then generate and show the attack relationship among those arguments based on a critique imposed through Critical Questions (CQs). The surviving arguments will then be calculated and shown in the Preferred Extension (PE). Those surviving arguments represent actions to be taken at each stage, and those actions can be sequenced in different ways. The program will calculate the pros and cons of each path and present an analysis on that basis. Based on this analysis, the user will choose a path. The action will take place and based on the results emotions along with the value preferences will be updated causing replanning to occur.