

Moise : An Organizational Model for Multi-Agent Systems

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Abstract. This paper proposes an organizational model for a multi-agent system. This model is based on three major concepts: the roles which constrain the agents' individual behaviors, the organizational links that regulate the social exchanges between these agents and the groups which constrain the layout of agents' aggregates involved in strong interactions. This model will be illustrated with examples of intelligent assistants to explore and to manage the administrative tasks of an educational master training.

Keywords: Organization, Social structure, Role, Organizational link, Group.

1 Introduction

At the beginning of Distributed Artificial Intelligence (DAI), the researches were mainly focused on the design of agent's architecture with sophisticated reasoning capabilities [?],[?]. Recently, the focus has moved on the social aspects of knowledge and action [?],[?],[?]. Researches are directed toward the definition of social mechanisms that install cooperative modes in the society of agents. The agents' organization - structural aspect of a cooperative collection of agents [?] - is one point of interest.

According to [14], two main approaches can be distinguished : *agent-centered* and *organization-centered*. In *agent-centered* approach, the agents compute themselves their relations such as joint-intentions, joint-commitments [6], dependence networks [21] and *use* them in the course of their interactions. In an *organization-centered* one, relations are defined, a priori (by the designer) or during execution (by the agent themselves), and are *imposed* on the agents [25],[11].

Agents are by definition autonomous. They decide on the basis of their individual beliefs, goals, etc., how to act in the environment and with the agents