

Report of STSM

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Cost Action *IC0801*

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Purpose of the visit

This short term scientific mission was organized to investigate the possibilities for integration of ADELFE methodology [1] and OperA framework [2].

The ADELFE methodology, developed at IRIT, takes a bottom up perspective on organizational behavior. Global behavior emerges from the interactions between individual agents. On the other hand, the OperA framework proposes a platform to describe desired global behavior in terms of normative and social structures that guide and frames the behavior of individual agents.

We planned to jointly develop a meta-model transformation between the two models that provides an integrated model for adjustable autonomy within the limits of a social setting.

Description of the work

Our work has been aimed at providing a transformation between OperA and ADELFE for, on the one hand, grant much freedom to designed agents from OperA (OperA describes a set system) and on the other hand bring a nominal behavior to designed agents from ADELFE.

The relations between both methodologies have been studied by analyzing different concepts and by linking them to after design transformation. Indeed, the first step was working out of glossary in order to make easier the establishment of links. In OperA, roles, norms, objectives, rights, interaction structure, etc. are determined although in ADELFE, cooperative agents, skills, believes, social attitude, environment, etc. are defined.

In order to check the opted links are sensible, an application example was studied. The chosen example was a university representation: how does secretary draw up a timetable. The design system shows the exchange between students (who chose the courses whereby they are interested), teachers and secretary (who supervises preferences and jungles between available classrooms, teacher's availability and student's enrollment). We designed twice the simulation one according to ADELFE and the other according to OperA.

The performed comparison consolidates the different found links.

Moreover, the application example was implemented following the previously established links. Then a transformation was designed.

Future collaborations

A side effect of this STSM was the discovery of potential collaborations. On the one hand, this work should be thorough in order to one day combine Operetta and Adelfe Toolkit or MAY. On the other hand, working on methodologies fragmentation and combining method fragment using self-organization in a scope of my PhD, collaboration is planned to fragment OperA.

Projected publications/articles resulting or to result from the STSM

Publications are planned for this work. A paper describing the work process and the obtained results will be submitted to the MALLOW workshop.

(<http://mallow2010.emse.fr/>, COIN)

References

- [1] Bernon, C., Gleizes, M., Peyruqueou, S., Picard, G.: ADELFE: A Methodology for Adaptive Multi-agent Systems Engineering. In: Petta, P., Tolksdorf, R., Zambonelli, F. (eds.) ESAW 2002. LNCS (LNAI), vol. 2577, pp. 156–169. Springer, Heidelberg (2003)
- [2] V. Dignum, F. Dignum, and J.J. Meyer. An agent-mediated approach to the support of knowledge sharing in organizations. Knowledge Engineering Review, 19(2):147–174, 2004.