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# A Plug-and-Play Framework for Theories of Social Group Dynamics

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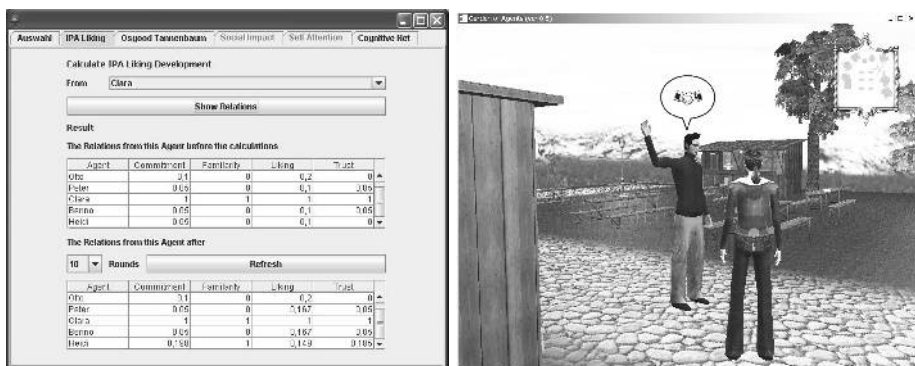
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We present an extensible framework for behavior control of social agents in a multi-agent system that has the following features. It implements a basic repertoire of socio-psychological models of behavior and interpersonal interactions that can be plugged and unplugged at will depending on the specific context of the application. This enables us to test several theories in isolation or combination to increase the transparency of the system and to investigate how the inclusion of a certain theory influences the behavior of the agents. Unlike earlier approaches, our approach is not bound to a specific theory. Thus, it becomes possible to run a simulation with the same set of agents using different theories to compare their effect.

Agent profiles are given in XML, including aspects like name, age, or personality, relationships to other agents in terms of liking, familiarity, trust, and commitment, and attitudes towards objects<sup>8</sup> in the environment. The framework was realized in JAVA and can be used either as a stand-alone application to simulate the interactions of sets of pre-defined agents (see Fig. 1 left) or as a control layer for a multi-agent application (see Fig. 1 right). So far, the framework has been tested with the virtual beergarden where agents wander around to meet friends or to build up new relationships. The users are involved as active



**Fig. 1.** Left: GUI to select and deselect supported theories. Right: The Beergarden. Agents interactions are controlled by the framework.

participants in the beergarden scenario, freely navigating with a first person view through the scenario, joining or leaving groups of other agents.

In our future work, we will employ the virtual beergarden to perform controlled experiments that investigate (i) whether human observers perceive agents following the framework as socially believable individuals and (ii) how humans respond to encounters with virtual agents opposed to encounters with real humans.