AI and Theories of Groups and Organizations: Conceptual and Empirical Research

An Introduction to the AAAI 93 Workshop

Research on human groups and organizations has raised a number of new and interesting concerns. These include:

- group and organizational learning
- group responsiveness and agility
- self-adapting organizations
- the nature of group and organizational knowledge
- organizations as contexts for group and individual activity
- group and organizational creativity
- groups and organizations as perceptual, remembering, cognitive units
- influences of task, structure, and social situation on group behavior.

Many of these issues have been addressed at the individual level by AI researchers. These individualist AI models have proven useful in both theory and practice. The point of this workshop is to examine how to raise the level of analysis of traditional AI investigations from individual to group and organization levels, and how to relate AI to the traditional and emerging concerns of organizational and group theories. The approach will be to explore and compare both conceptual and empirical-experimental research (including computational models and experiments, field studies, analytical approaches) on both human organizations and AI systems that address these issues. Our goal is to begin to forge a synthesis across levels and across disciplines.

This workshop has several areas of relevance for AI researchers and practitioners. First, AI is increasingly being applied to organizational-level problems such as technology integration, organizational design, information systems design and management, coordination of intelligent agents, telecommunications management, analysis, diagnosis, and large-scale systems design. Thus organizational-level questions of knowledge and action are increasingly important to AI.

Second, the environments of real human organizations are becoming ever more dynamic. However, it is still unclear how organizations can effectively learn, evolve, adapt over time, and become progressively more self-aware (via modeling and representation of their activities). While informal and noncomputational models of perception, memory, learning, creativity do exist in organizational theory, they are often used as metaphors. They lack clear (and sometimes legitimate) semantic or theoretical roots in their claims about attributed behavior of organizational agents. Such claims might be strengthened by making better connections to models of communication, learning, adaptation, cognition, and other agent-level perspectives.

Finally, computational structures are emerging which can give better accounts of, and better models for, organizational level phenomena. These include object-based concurrent computation, federated database models, and new representational logics. The conceptual modeling requirements these structures pose for organizational-level phenomena are not well-understood, but such an understanding may be crucial to successfully apply the structures in the context of organizational problem solving. This workshop is a first, small step toward that goal.

Kathleen Carley (Carnegie Mellon)
Les Gasser (USC)
David King (Comshare)
Mike Prietula (Carnegie Mellon)