

***,'Experimental interaction' between epistemic cultures
,trading zone',***

or:

***How social theory and software construction
may benefit from one another***

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Lines of argumentation and the background of experience

The relations between sociology and artificial intelligence have changed during the last decade. Sociologists have partly given up their indifferent attitude towards artificial intelligence. The first ones engaged in a harsh critique of the claims what computer programs of the fifth generation could do. They did it from outside. The next ones studied the practice and process of software construction from inside. Some of them have found the way to a constructive technology assessment. And some have initiated a reflexive mode of technology development where sociological inquiry is embedded in the processes of conception and design. Sociologists are confronted now with the products of the computer scientists: the symbolic objects, the interfaces, the knowledge machines, and the architectures of virtual reality. As these products expand times and places of social interaction and as they mediate human agency and social relations more and more, sociologists are challenged to rethink their classical concepts of agency and sociality.

Artificial intelligence and software construction have changed too. The psychological and cognitive concept to mimick the human mind, for instance that of an expert, and its problem-solving processes has lost ground in comparison to new approaches like those of distributed artificial intelligence and of multi-agent systems. These approaches put emphasis on social concepts of cooperation between deliberate agents or on sociological concepts of interaction and society construction. Additionally, practical problems are coming up to integrate different communication networks, information systems and data banks into a homogeneous system. These problems have favoured the rise of agent technologies to wrap the established systems and to handle the problems of search, exchange and adaptation by agents. One can say that the perspective under which software is designed is now changing from mimicking a closed mind to the construction of an open society constituted by the interactions of autonomous agents.

In this paper I follow two lines of argumentation. The first line concerns the ways how Sociology and the branches of Computer Sciences called "Distributed Artificial Intelligence" (DAI), "Multi-Agent Systems" (MAS), and "Agent-Oriented Programing" (AOP) may relate to one another. I shall propose a kind of reflexive and cooperative interrelationship, which spells out the concept of interdisciplinarity as an arena of experimental interaction between two different "epistemic cultures". My considerations

are backed by the three-year experience of a sociological research project on the construction and use of expert systems which was embedded in a network of software engineers and computer linguists.

The second line is about the concepts and subjects in both epistemic cultures. Concepts of agency, sociality and objectuality constitute a common "trading zone" where metaphors are exchanged, though the subjects are different. Socionics or Social Computation should not only foster the migration of metaphors and facilitate their translations into the respective scientific communities. I shall argue that a common pragmatic testbed can be developed during an experience of concrete cooperation. A Dewey-Durkheim test is proposed to enlarge the restricted technical testbeds and to replace the psychologically narrowed Turing test.

At the end I shall raise the more philosophical question whether a technical system which assimilates more and more to a social system can be conceived and used any longer as an efficient technical system, if technology is defined as a robust reduction of contingencies and a reliable controller of consequences. Facing the successful institutionalisation of intelligent and mobile agents in the "open society" of cyberspace we have to rethink our traditional concepts of sociality and technicity.