

Fuzzy Systems, Choice Paradoxes and Optimal Committees

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The standard assumption in both individual and collective choice theory is that the individuals are endowed with complete and transitive preference relations over decision alternatives. Under specific additional assumptions these relations can be represented by utility functions. In the spatial choice theory it is typically assumed that individuals prefer the alternative closest to their optimum point in a multi-dimensional space representing alternatives. From these assumptions a host of negative results have been derived over the past decades.

This presentation examines the fundamental assumptions underlying all these negative results. Firstly, we purport to show that intransitive individual preferences make perfect sense in some circumstances. Secondly, we deal with preferences that have spatial representations. These play a prominent role in modern social choice theory. We show that the assumptions under which preferences can be spatially represented are serious and often violated. But are there alternatives to the ranking assumption? There are, most notably fuzzy preferences. When these are available, several paradoxes can be avoided. Making reasonable choices under fuzziness still requires that one's ideas are fixed with regard to the desiderata of social choices. Especially, one should make up one's mind with regard to the binary vs. positional winning intuitions. Once a stand on this traditional issue has been taken, both social choices and committee composition turn out to be relatively straight-forward.