

The Axiomatic Method and a Problem in Social Choice

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The Axiomatic Method and a Problem in Social Choice Roberto Lucchetti Social Choice deals with the problem of finding a fair social output from a given input. The most striking example of this is when considering voting systems: here the point is either to rank candidates or to find a winner of an election, given the preferences of the individuals (agents, electors ...). Probably the first, surely the most famous result in Social Choice is the Arrow theorem, one of the most influential results of the last century, at least in Social Sciences. It is based on the so called axiomatic approach. This means that a simple and short list of properties a given solution should fulfill is proposed, and from this list a solution is identified. This method was introduced independently in the early fifties by Arrow [1], dealing with the issue of aggregating preferences of a group of people over at least three alternatives, in a consistent social preference system, Nash [2], with his famous solution of the bargaining problem, and Shapley [3], with his most famous and used solution in transferable utility cooperative theory.

Starting from these results, this axiomatic method was extensively used in Social Sciences, and it is still used.

In this talk I consider the following problem:

Given a finite set N and a complete preorder over the subsets of N , how to derive a complete preorder over N . A typical example of this situation could be the problem that a chair of a department can face when requested to rank her professors, having a ranking over the various subgroups of these professors (research units). We propose and explain four properties such a method should fulfill, and we prove existence and uniqueness of the method [4].

References

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- [4] Giulia Bernardi, Roberto Lucchetti, Stefano Moretti, Ranking objects from a preference relation over their subsets, submitted.