

# READING GROUP ON EXPECTED UTILITY AND DECISION THEORY

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## 1. INTRODUCTION.

We propose to Ph.D. students a reading group focusing on utility theory and, in particular, in situations characterized by uncertainty. After examining the problem of how to obtain a numerical representation of preferences in the general (static) case, we examine the problem of choice under uncertainty. The purpose of the reading group is that of reaching a good level of familiarity with the classical works on choice under uncertainty, such as Herstein and Milnor [4], Anscombe and Aumann [1] and Savage [7].

At the same time we want to explore the models of non expected utility by studying the classical works of Schmeidler [8] and Gilboa and Schmeidler [3]. If time will permit we shall also examine other approaches, more heuristic in nature, such as the prospect theory proposed by Kahneman and Tversky [5].

A tentative schedule may thus be:

- (1) Preliminaries on partial orders;
- (2) General theory of choice;
  - Finite choice set;
  - Countably Infinite choice set;
  - General choice set;
- (3) Choice under uncertainty: the approach of Herstein and Milnor
  - Convex choice sets;
- (4) The approach of Savage
  - the axioms;
  - the representation theorem;
  - a functional analytic approach
- (5) Anscombe and Aumann lotteries
  - Compound lotteries;
  - the representation
- (6) Choquet expected utility
  - Expected utility without additivity;
  - maxmin expected utility and uncertainty aversion;
- (7) More approaches.

The basic material of the reading group, further to the papers mentioned above, will be the books by Kreps [6] and by Gilboa [2].

## REFERENCES

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- [5] KAHNEMAN, D., AND TVERSKY, A. Prospect theory: An analysis of decision under risk. *Econometrica* 47, 2 (1979), 263–291.
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