

Logics for Social Behaviour

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Research interests

- Mathematical Finance
- Social Choice
- Decision Theory
- Ultraproducts
- Nonstandard Analysis
- Convex analysis
- Macroeconomics and Microeconomics

What we have done

- We apply ultraproducts to a problem of macroeconomic theory.
- Modern macroeconomic theory looks for microeconomic foundations.
- It considers how these microeconomic entities in an economy make their decisions and then how these many individuals' choices give rise to economy-wide macroeconomic outcomes.

- Since in realistic models, consumers and firms are heterogeneous, an accurate and comprehensive mathematical description of the aggregate behaviour is typically an intractable Problem.
- One solution is to assume the existence of a **representative agent**.
- The assumption of a representative agent is ubiquitous in mathematical models of macroeconomics.

- We construct a **representative utility function** for infinite-dimensional **social decision** problems, based on an bounded ultrapower construction with respect to a non-principal ultrafilter (via the Kirman and Sondermann correspondence in 1972).
- We also provide sufficient conditions for our new results to be satisfied in economic applications.

Working paper

- Bedrosian, G. and Herzberg, F., Microeconomic foundations of representative agent models by means of ultraproducts, *Working paper number 514 in Center for Mathematical Economics, Bielefeld University, July 2014.*

➔ SSRN: Social Science Research Network

**Thank you
for your attention!**