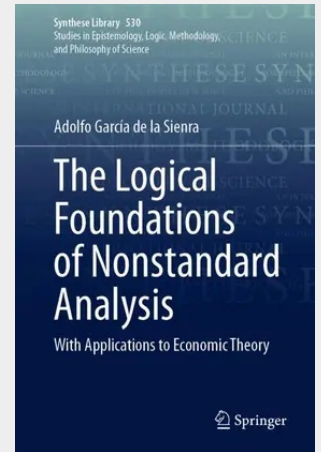


# The Logical Foundations of Nonstandard Analysis

With Applications to Economic Theory

This book provides a thorough and systematic presentation of the foundations of Nonstandard Analysis with applications to economic theory. Starting from scratch, from Ackermann's set theory, it moves carefully to Boolean algebra, first order logic, ultraproducts, nonstandard universes, the system of hyper-real numbers, nonstandard analysis proper (including a disquisition on topology relevant for economic theory), and, finally, nonstandard economics. The chapter on nonstandard economics includes a complete discussion and proof of Richter's theorem about the existence of a utility representation for every preference structure of cardinality up to that of the continuum. It contains proofs of the main methodological theorems for economic theory, mainly fixed point theorems and concludes by proving the existence of equilibria for social systems. Covering topics such as ontology, logic, and set theory, this book is of interest to broad range of philosophers of science, economists and mathematicians.

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