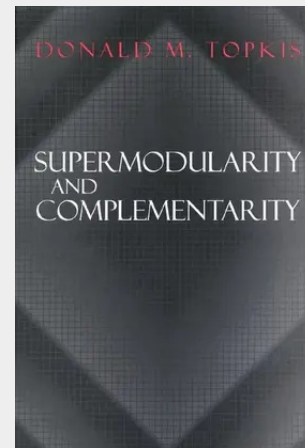


Supermodularity and Complementarity

The economics literature is replete with examples of monotone comparative statics; that is, scenarios where optimal decisions or equilibria in a parameterized collection of models vary monotonically with the parameter. Most of these examples are manifestations of complementarity, with a common explicit or implicit theoretical basis in properties of a super-modular function on a lattice. Supermodular functions yield a characterization for complementarity and extend the notion of complementarity to a general setting that is a natural mathematical context for studying complementarity and monotone comparative statics. Concepts and results related to supermodularity and monotone comparative statics constitute a new and important formal step in the long line of economics literature on complementarity. This monograph links complementarity to powerful concepts and results involving supermodular functions on lattices and focuses on analyses and issues related to monotone comparative statics. Don Topkis, who is known for his seminal contributions to this area, here presents a self-contained and up-to-date view of this field, including many new results, to scholars interested in economic theory and its applications as well as to those in related disciplines. The emphasis is on methodology. The book systematically develops a comprehensive, integrated theory pertaining to supermodularity, complementarity, and monotone comparative statics. It then applies that theory in the analysis of many diverse economic models formulated as decision problems, noncooperative games, and cooperative games.

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