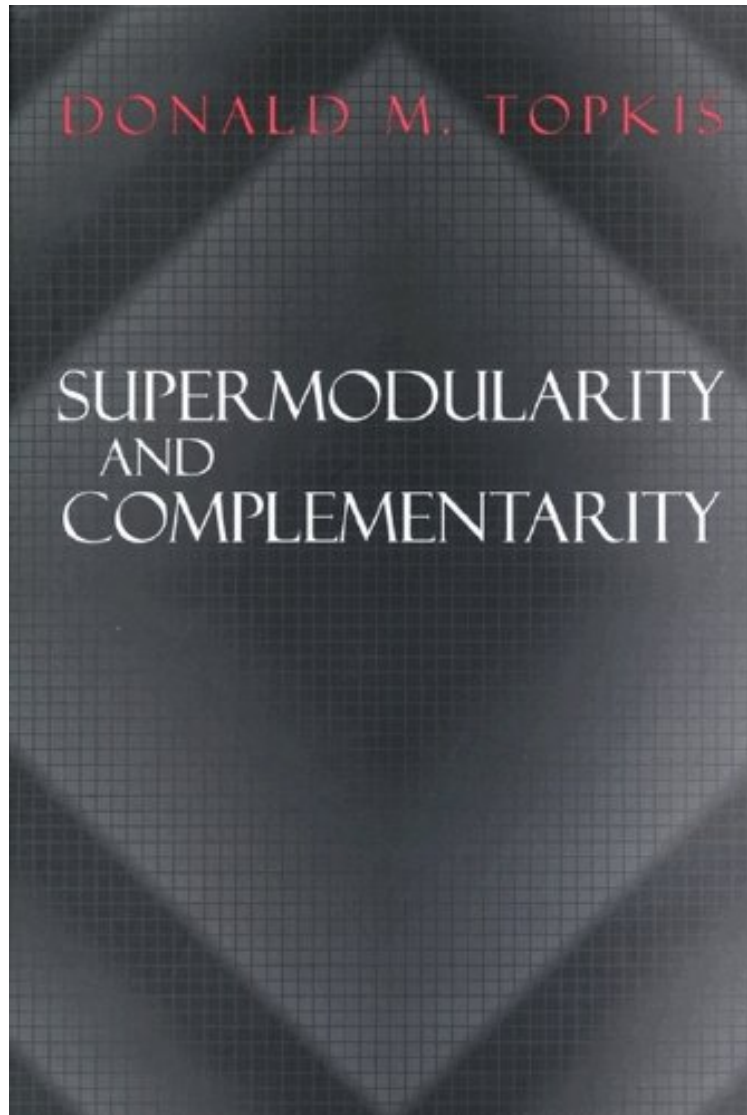


# Supermodularity and Complementarity (Frontiers of Economic Research)

*Donald M. Topkis*

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**Donald M. Topkis : Supermodularity and Complementarity (Frontiers of Economic Research)** before purchasing it in order to gage whether or not it would be worth my time, and all praised Supermodularity and Complementarity (Frontiers of Economic Research):

0 of 0 people found the following review helpful. Five StarsBy Ursis MajorThis is one of the twentieth century's most important books on mathematical economics and operations research.4 of 6 people found the following review helpful. Comprehensive and mathematically rigorousBy Serguei NetessineSupermodularity and complementarity is an often

overlooked area in economics and optimization. Few books devote any time at all to this subject (for a brief and simple coverage of the topic see book by Sundaram "A first course in optimization theory"). Topkis provides a self-contained treatment of this important area of knowledge and gives many new theoretical tools that must be a part of any mathematical programming or game theory course at a graduate level. 3 of 3 people found the following review helpful. Great contribution to the literature  
By Phillip J. Lederer  
This book is the result of Don Topkis's original work on submodularity theory. As often occurs in original work, the inventor is not able to explain its structure in the most intuitive terms. That being said, this book is a valuable reference to all who are using submodularity theory in research. I think this theory is probably the most significant contribution to optimization theory in the years after Danzig, Kuhn-Tucker and Rockafeller. Give the guy a hand!

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.

About the Author  
Donald M. Topkis is a Professor at the University of California at Davis.