

# Essays in Honor of Lloyd Shapley: A Legacy of Game Theory and Economic Design

Lloyd Shapley, a Nobel laureate in economics, made groundbreaking contributions to the fields of game theory and economic design. This collection of essays honors his legacy and explores the impact of his work on a wide range of topics, including matching theory, market design, and social choice theory.



## The Shapley Value: Essays in Honor of Lloyd S.

**Shapley** by Alvin E. Roth

★★★★★ 5 out of 5

Language : English  
File size : 9706 KB  
Text-to-Speech : Enabled  
Screen Reader : Supported  
Enhanced typesetting : Enabled  
Print length : 346 pages



## Matching Theory

Matching theory is a branch of game theory that studies the allocation of indivisible goods to agents. It has applications in a variety of settings, such as school choice, kidney exchange, and roommate matching. Shapley's work in this area laid the foundation for many of the algorithms used in practice today.

One of Shapley's most famous contributions to matching theory is the Shapley-Gale algorithm, which is used to find a stable matching in a two-sided market. A stable matching is one in which no pair of agents would prefer to be matched to each other than they are in the current matching. The Shapley-Gale algorithm is guaranteed to find a stable matching if one exists.

## **Market Design**

Market design is the field of economics that studies the design of markets. It has applications in a variety of settings, such as electricity markets, telecommunications markets, and transportation markets. Shapley's work in this area helped to develop new theoretical tools and insights that have been used to design more efficient and fair markets.

One of Shapley's most important contributions to market design is the concept of the Shapley value. The Shapley value is a way to measure the contribution of each agent to the overall outcome of a market. It has been used to design a variety of market mechanisms, such as auctions and voting systems.

## **Social Choice Theory**

Social choice theory is the field of economics that studies the aggregation of individual preferences into a social choice. It has applications in a variety of settings, such as voting, jury selection, and committee decision-making. Shapley's work in this area helped to develop new theoretical tools and insights that have been used to design more democratic and fair social choice mechanisms.

One of Shapley's most famous contributions to social choice theory is the Banzhaf power index. The Banzhaf power index is a way to measure the power of each agent in a voting system. It has been used to study the power of different interest groups in a variety of political systems.

Lloyd Shapley was a brilliant economist who made groundbreaking contributions to the fields of game theory and economic design. His work has had a profound impact on a wide range of topics, including matching theory, market design, and social choice theory. This collection of essays honors his legacy and explores the lasting impact of his work.

Essays in Honor of Lloyd Shapley is an essential read for anyone interested in the fields of game theory and economic design. It is a fitting tribute to a great scholar and a true pioneer in the field.

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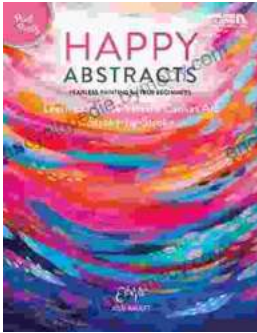
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