Păun, Gheorghe
The generative mechanisms of economic processes. (Mecanisme generative ale proceselor economice). (Romanian. English summary) Zbl 0535.90002
Seria Matematici Moderne Aplicate. Bucureşti: Editura Tehnică. 248 p. Lei 9.00 (1981).

Table of contents: Preface (by S. Marcus), 1. General remarks on the modelling of economic processes by means of formal language theory; 2. Preliminary notions of formal language theory; 3. Problems of paths in graphs; 4. Action systems with economic applications; 5. The simulation of a queueing process; 6. The influence of the working time interval on the linguistic model complexity; conclusion; bibliography.

In this book the author ingeniously introduces the concepts of generative mechanisms of economic processes in the sense of constructing a grammar- automaton associated to a given economic process, Σ, such that the process' evolution can be simulated by this grammar-automaton. Of practical interest is the fact that the generative mechanisms of economic processes, as defined by the author, are sufficiently general to include the solution of a variant of the travelling salesman problem with time restrictions (a computer program, called REPIGAL, is obtained); Zilinskaya's problem, problems of paths in graphs, problems of aggregation and loss of information in hierarchical systems and others. Each of the later chapters includes references to articles at an appropriate level. The book is remarkable for the illustrative examples, for its research area and for further investigations. From a pedagogical point of view I would recommend this book as an ideal introduction to economic modelling. An extensive bibliography is provided.

Reviewer: P.Stavre

MSC:

91B62	Economic growth models
90-02	Research exposition (monographs, survey articles) pertaining to operations research and mathematical programming
68Q45	Formal languages and automata
90C35	Programming involving graphs or networks
90B99	Operations research and management science
91B06	Decision theory
90C10	Integer programming

Cited in **1** Review
Cited in **2** Documents

Keywords:

modelling of economic processes; formal language theory; paths in graphs; queueing; generative mechanisms; travelling salesman problem with time restrictions; hierarchical systems