Book Review

P. H. Starke: **Abstrakte Automaten** (in German), VEB Deutscher Verlag der Wissenschaften, Berlin, 1969, 392 pages, 23 figures, price 40,– MDN.

In the preface the author states that the purpose of this book is to give a systematic account of the main results of the three branches of the theory of abstract automata, to wit deterministic, non-deterministic and probabilistic automata. The author certainly succeeded in obtaining this goal. He gives many properties concerning abstract automata together with complete and rather ample proofs and very often also motivations and short interpretations. Therefore the book is very well suited for private study of the subjects treated.

In the introduction the author describes very clearly the three types of abstract automata and how one arrives at their set theoretical definitions. Then he gives a short account of the problems which are treated and an indication of those which are not treated in the three parts making up the body of the book. Important subjects not discussed in this volume are all structural problems concerning the realisation of automata and also the algebraic theory of automata. Part I of the book discusses deterministic automata.

After defining the fundamental notions the following subjects are treated: equivalence of states and of automata, reduction of automata, homomorphisms of automata, input-output relations, regular sets and their relation to finite automata, stable and definite automata, experiments on automata.

In part II and III these same subjects, in suitably adapted form, are treated for non-deterministic and probabilistic automata, respectively.

Part II consists to a large extent of results from the systematic investigations in this field by the author.

The book contains an extensive (30 pages) list of references with many Eastern European publications, and an index.

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