through Hasse diagrams of assorted shapes and structures, but after this general introduction, except in one short chapter on convex sets, attention centers chiefly on Boolean algebras. It is shown through examples that the equalities of set theory have analogues in the equivalences of switching circuits and of propositional logic. The discussion proceeds at the notational level, no attempt being made to locate the source of the analogies. Numerous exercises are included, along with complete solutions.

There are some errors. To correct these, it should be pointed out to prospective young readers that (p. 23) not all lattices have universal elements, that (p. 46) the second illustrative example on switching circuits is incorrectly worked out, that (pp. 58–59) the remarks and usages concerning logical and material implication are misleading, that (p. 59) the exercise in which the reader is asked to prove that a conditional statement is logically equivalent to its converse contains an unfortunate misprint, and that (p. 60) C. S. Peirce's name is repeatedly misspelled.

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66[Z].—L. I. Gutenmakher, *Electronic Information-Logic Machines*, John Wiley & Sons, Inc., New York, 1963, x + 170 pp., 23 cm. Price $8.00.

The term "information-logic machines" describes systems capable of dealing with data presented in written form. These machines are considered to be able to perceive, to store, and to manipulate such data. Their purpose is to mechanize much of the intellectual work of mankind, just as earlier machines reduced the need for man to perform physical labor.

Electronic Information-Logic Machines contains, basically, two kinds of material; on the one hand, concise and practical descriptions of hardware implementations in use today; on the other, some preliminary calculations and speculation as to the work such machines may eventually be expected to perform.

Professor Gutenmakher intends for his systems to go well beyond what is normally understood by "information retrieval." For example, it would be possible to store the 100,000,000 or so titles thus far accumulated by man, and, then, by clever programming, by "specialized algorithms," to synthesize new information from the old.

In Chapter 6 he discusses at great length the problems in indexing, classifying, and translating to a common *machine-oriented* language the literature in the physical sciences. Again, he does not stop there but continues on to show how his information-logic machine will propose ways to, say, synthesize new substances based on what is stored in the chemistry literature. The machine will, in effect, be "teaching" and "self-instructing" in the sense of up-dating its stored files with results of experiments run to confirm its "suggestions." [On p. 156 the translators appear to be carried away by Professor Gutenmakher's futuristic mechanical brain and have it do its own experimental testing as well!]

In summary, Professor Gutenmakher is highly informative in his discussions of hardware and in the calculations to justify the future use of "info-logic" machines; and also quite entertaining in the "scientific science-fiction" approach to the ultimate capability of these systems, programmed, but no longer limited, by humans! His citation of U. S. and other Western literature is generous, and perhaps his book is too strongly influenced by some of our own "automation addicts" whose philosophies are: "if one can count the bits involved, one can mechanize the process" or "it's just a matter of 'zeros' and 'ones', what could be simpler?" In Russia, as in the U. S., the tendency to confuse some of the simpler facts of information theory with the far less understood theory of knowledge and brain functions is thus apparent. The book, then, is useful, not only for what it says explicitly but also for what it implies—that the blue sky knows no iron curtain!

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67[Z].—THEODORE E. HARRIS, *The Theory of Branching Processes*, Prentice-Hall, Inc., Englewood Cliffs, N. J., 1963, xiv + 230 pp., 24 cm. Price $9.00.

This book presents a systematic and thorough treatment of a class of Markov processes called "branching processes." The simplest example is the Galton-Watson process $\mathcal{Z} = \{Z_n : n = 0, 1, 2, \cdots\}$, where $Z_0 = 1$ and the conditional distribution of Z_n, given $Z_{n-1} = k$, is that of the sum of k independent, identically distributed non-negative integer-valued random variables. In the classical interpretation, Z_n is the number of descendants in the nth generation of the progenitor ($Z_0 = 1$). The chapter headings are:

Chapter I.	The Galton-Watson branching process
Chapter II.	Processes with a finite number of types
Chapter III.	The general branching process
Chapter IV.	Neutron branching processes (one-group theory, isotropic case)
Chapter V.	Markov branching processes (continuous time)
Chapter VI.	Age-dependent branching processes
Chapter VII.	Branching processes in the theory of cosmic rays (electron-photon cascades)

The mathematical level required to read this book is about that of Feller, although there is frequent use of material that is found in books such as those by Doob and Loève. A large number of theorems, remarks, and examples are given without proof. Since there are no problems, these "loose ends" provide a perfect opportunity for the reader to check his comprehension of the material.

This book is highly recommended as an authorative and well written exposition by a significant contributor to this field.

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68[Z].—H. D. HUSKEY & G. A. KORN, editors, *Computer Handbook*, McGraw-Hill Book Company, Inc., New York, 1962, xviii + 21 (individually numbered) sections, 24 cm. Price $25.00.

The *Computer Handbook* presents the general principles of the design and utilization of both analog and digital computers. Sufficient detail is presented in both