

15[X, Z].—H. HERMES, *Enumerability, Decidability, Computability*, translated by G. T. Herman & O. Plassmann, Academic Press, New York, 1965, x + 245 pp., 24 cm. Price \$9.75.

This book is a translation from the German. It is an introduction to the theory of computability (variously known as the theory of recursive functions, the theory of algorithms, etc.), in many ways comparable with the reviewer's *Computability and Unsolvability*, and requiring little of the reader by way of prerequisite.

After an introductory intuitive account of the notion of algorithm, Turing's analysis of computation is presented and used to introduce the formal theory of Turing machines. Turing computability is then defined and shown to be equivalent to μ -recursiveness (a function is μ -recursive if it is obtainable from suitable initial functions by composition, primitive recursion and minimalization) and to Herbrand-Gödel-Kleene recursiveness. Unsolvability (undecidability) results are obtained for Turing machines, Three systems (word problem for semigroups), the first and second order predicate calculi, and formal arithmetic. There are brief accounts of the arithmetic hierarchy, universal Turing machines, Church's notion of λ -definability, and recursive analysis. There is no discussion of partial recursive functions, reducibility (relative computability), or the pathology of recursively enumerable sets (e.g., simple sets are not discussed).

The exposition is careful and clear and the book is to be recommended to those seeking an introduction to computability theory.

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