57 #18228 68A20

Radziszowski, S.

Programmability and P = NP **conjecture.**

Fundamentals of computation theory (*Proc. Internat. Conf.*, *Poznań-Kórnik*, 1977), *pp.* 494–498. *Lecture Notes in Comput. Sci.*, *Vol.* 56, *Springer*, *Berlin*, 1977.

The author defines programs and time complexity abstractly. He considers a relational structure (a set of functions and relations) over the set of natural numbers and a system of real-valued functions. One of the real-valued functions is intended to measure complexity of strings of natural numbers, the others (which correspond to functions and relations of the structure) measure time needed for computation of the value of a relation or a function of a given argument. The set of programs is defined using substitution, if-then-else and while-do instructions. For nondeterministic programs we also have choice. Now we can introduce complexity classes in a natural way. In particular, we can formulate a $\mathrm{P}=\mathrm{NP}$? problem relativized to our system. The author is interested in systems in which $\mathrm{P}=\mathrm{NP}$? is equivalent to the original $\mathrm{P}=\mathrm{NP}$?. He presents some systems that satisfy this requirement but gives only a sketch of the proof.

{For the entire collection see MR 57#11147.}

Pavel Pudlak (Prague)