

- FLORIN MANEA, *Deciding according to the shortest computations.*
Faculty of Mathematics and Computer Science, University of Bucharest.
E-mail: flmanea@gmail.com.

In this paper we propose, and analyze from the computational complexity point of view, a new variant of nondeterministic Turing machines. Such a machine accepts a given input word if and only if one of its shortest possible computations on that word is accepting; on the other hand, the machine rejects the input word when all the shortest computations performed by the machine on that word are rejecting. Our main results are two new characterizations of $\mathbf{P}^{\mathbf{NP}^{\lceil \log \rceil}}$ and $\mathbf{P}^{\mathbf{NP}}$ in terms of the time complexity classes defined for such machines.