

**AN EXACT ALGORITHM WITH LINEAR COMPLEXITY FOR A PROBLEM OF VISITING MEGALOPOLISES****A. G. Chentsov, D. M. Khachai, M. Yu. Khachai**

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A problem of visiting megalopolises with a fixed number of “entrances” and precedence relations defined in a special way is studied. The problem is a natural generalization of the classical traveling salesman problem. For finding an optimal solution we give a dynamic programming scheme, which is equivalent to a method of finding a shortest path in an appropriate acyclic oriented weighted graph. We justify conditions under which the complexity of the algorithm depends on the number of megalopolises polynomially, in particular, linearly.

Keywords: traveling salesman problem, *NP*-hard problem, dynamic programming, precedence relations.

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