PROBABILISTIC ANALYSIS OF SOME SEQUENTIAL ALGORITHMS FOR BINPACKING PROBLEM

Summary – The bin-packing problem in the classical approach is to arrange the list of tasks L={a1,a2,…,an} of a size not exceeding 1 in the minimum number of bins of size 1, however, that none of the bins was overloaded. Among the ways to do such a task is a class of sequential algorithms. From sequential algorithm is required in addition to pack the tasks in such a way that tasks placed in each container (bin) consisted of a sequence:

$$\forall_{i\in J_n}\forall_{j,k,l\in D_i} j \in A(L^i)(s) \wedge l \in A(L^i)(s) \wedge j < k < l \Rightarrow k \in A(L^i)(s),\ dla\ s \in J_{\left|A(L^i)\right|}$$

In this paper is an example of sequential algorithm called S1k and carried out a full analysis of its behavior. It demonstrate the value of lower bound for efficiency factor of the algorithm ($R_{S1k} \geq 0.5$).Probability analysis was carried out for the infinite sequence of independent random variables of equal distribution $L = \{\xi_1, \xi_2, \ldots\}$This paper also show a bound of asymptotic waste ratio of S1k ($R^{\infty}_{S1k,U(0,1)} > 0.7288$)