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The best choice problem for upward directed graphs.  

(English)  

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Summary: We consider a generalization of the best choice problem to upward directed graphs. We describe a strategy for choosing a maximal element (i.e., an element with no outgoing edges) when a selector knows in advance only the number \( n \) of vertices of the graph. We show that, as long as the number of elements dominated directly by the maximal ones is not greater than \( c_1 \sqrt{n} \) for some positive constant \( c_1 \) and the indegree of remaining vertices is bounded by a constant \( D \), the probability \( p_n \) of the right choice according to our strategy satisfies \( \lim \inf_{n \to \infty} p_n \sqrt{n} \geq \delta > 0 \), where \( \delta \) is a constant depending on \( c_1 \) and \( D \).

MSC:

90C35 Programming involving graphs or networks  
60G40 Stopping times; optimal stopping problems; gambling theory

Keywords:

directed graph; secretary problem; optimal stopping problems; gambling theory

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References:

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