

## OPTIMAL STOPPING PROBLEM ON GRAPHS – DIRECTED PATH CASE

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We consider the following on-line decision problem. The vertices of a directed path of a known length are being observed one by one in some random order by a selector. At time  $t$  the selector examines the  $t$ th vertex and knows the directed graph induced by the  $t$  vertices that have been already examined. The selector's aim is to choose the currently examined vertex maximizing the probability that this vertex is the "uppermost" one, i.e., the only one that does not have an outgoing edge. An optimal algorithm for such a choice (in other words, optimal stopping time) is given. For a cardinality  $n$  of the directed path considered, the probability  $p_n$  of the right choice according to the optimal algorithm is given, and it is shown that  $p_n \sqrt{n} \rightarrow \sqrt{\pi}/2$  as  $n \rightarrow \infty$ .