

Approval Gap of Weighted k -Majority Tournaments

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A k -majority tournament T on a finite set of vertices V is defined by a set of $2k - 1$ linear orders on V , with an edge $u \rightarrow v$ in T if $u > v$ in a majority of the linear orders. We think of the linear orders as voter preferences and the vertices of T as candidates, with an edge $u \rightarrow v$ in T if a majority of voters prefer candidate u to candidate v . In this talk we introduce weighted k -majority tournaments, with each edge $u \rightarrow v$ weighted by the number of voters preferring u . We define the maximum approval gap $\gamma_w(T)$, a measure by which any dominating set of T beats the next most popular candidate. This parameter is analogous to previous work on the size of minimum dominating sets of (unweighted) k -majority tournaments. We give some results and open questions.

Keywords: k -majority tournaments, voting theory, dominating set, linear orders