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The indecomposable tournaments \( T \) with \( |W_5(T)| = |T| - 2 \). (Les tournois indécomposables \( T \) tels que \( |W_5(T)| = |T| - 2 \).) (English. French summary) Zbl 1273.05084


Summary: We consider a tournament \( T = (V, A) \). For \( X \subseteq V \), the subtournament of \( T \) induced by \( X \) is \( T[X] = (X, A \cap (X \times X)) \). An interval of \( T \) is a subset \( X \) of \( V \) such that, for \( a, b \in X \) and \( x \in V \setminus X \), \((a, x) \in A\) if and only if \((b, x) \in A\). The trivial intervals of \( T \) are \( \emptyset \), \( \{x\} \) (\( x \in V \)) and \( V \). A tournament is indecomposable if all its intervals are trivial. For \( n \geq 2 \), \( W_{2n+1} \) denotes the unique indecomposable tournament defined on \( \{0, \ldots, 2n\} \) such that \( W_{2n+1}[\{0, \ldots, 2n-1\}] \) is the usual total order. Given an indecomposable tournament \( T \), \( W_5(T) \) denotes the set of \( v \in V \) such that there is \( W \subseteq V \) satisfying \( v \in W \) and \( T[W] \) is isomorphic to \( W_5 \). B. Latka [J. Graph Theory 42, No. 3, 165–192 (2003; Zbl 1016.05036)] characterized the indecomposable tournaments \( T \) such that \( W_5(T) = \emptyset \). The authors [C. R., Math., Acad. Sci. Paris 350, No. 7–8, 333–337 (2012; Zbl 1242.05106)] proved that if \( W_5(T) \neq \emptyset \), then \( |W_5(T)| \geq |V| - 2 \).

In this note, we characterize the indecomposable tournaments \( T \) such that \( |W_5(T)| = |V| - 2 \).

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References:


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