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Transitive permutation groups with elements of movement m or $m-1$. (English)

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Summary: Let G be a permutation group on a set Ω with no fixed point in Ω and let m be a positive integer. If for each subset Γ of Ω the size $|\Gamma^g \setminus \Gamma|$ is bounded, for $g \in G$, we define the movement of g as the matrix $|\Gamma^g \setminus \Gamma|$ over all subsets Γ of Ω, and the movement of G is defined as the maximum of move(g) over all non-identity elements of $g \in G$. In this paper we will classify all transitive permutation groups G with bounded movement equal to m, such that G is not a 2-group but in which every non-identity element has the movement m or $m-1$.

MSC:

20B05 General theory for finite permutation groups
20B20 Multiply transitive finite groups

Keywords:

transitive permutation groups; groups of bounded movement; fixed point free elements