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Erdős–Ko–Rado Theorem for permutation groups

The *Erdős-Ko-Rado* theorem asserts that if $\mathcal{F}$ is a family of k-subsets of $[n]$ where $n > 2k$, then $|\mathcal{F}| \leq \binom{n-1}{k-1}$. Moreover, this bound is sharp and is only attained by families of k-subsets containing a specific element. This theorem can be extended to groups. Two permutations $\sigma, \tau \in \mathrm{Sym}(n)$ are *intersecting* if there exists $i \in [n]$, such that $\sigma(i) = \tau(i)$. A group G, viewed as a permutation group of the set $[n]$, is said to have the *Erdős-Ko-Rado* (EKR) property if families of intersecting permutations are no larger than the size of the stabilizer of a point. Moreover, if only cosets of a stabilizer of a point are the intersecting families that attain this bound, then G is said to have the *strict* EKR property. I will talk about the EKR property and the strict property for 2-transitive and transitive groups.