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Transversals of Families of Translates of a Convex Body.

Let \mathcal{F} be a family of translates (or positive homothets) of a given convex body K in \mathbb{R}^n . The transversal number $\tau(\mathcal{F})$ of \mathcal{F} is the cardinality of a smallest set that intersects all members of \mathcal{F} . The independence number (aka. matching number) $\nu(\mathcal{F})$ of \mathcal{F} is the maximum cardinality of a subfamily of \mathcal{F} consisting of pairwise disjoint sets. We investigate the relationship of these two quantities and show how they are related to the problem of illuminating the boundary of a convex body K . (Received August 12, 2008)