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Section:

13. Combinatorics

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Bey, Christian, Universität Rostock, Germany

An intersection theorem for the Function lattice.

The Function lattice F_α^n consists of all n-tuples over the alphabet $\{0, 1, \ldots, \alpha\}$ endowed with an order relation defined by $(x_1, \ldots, x_n) \leq (y_1, \ldots, y_n)$ iff $x_i = 0$ or $x_i = y_i$ for all $i = 1, \ldots, n$. The rank of an element x of F_α^n is given by the number of nonzero entries in x. A subset $\mathcal{F}$ of F_α^n is called k-uniform t-intersecting if all elements of $\mathcal{F}$ have rank k and the infimum of every two elements of $\mathcal{F}$ has rank at least t.

We determine for all real λ $(0 < \lambda < 1)$ and sufficiently large n the maximum size of a $\lfloor \lambda n \rfloor$-uniform t-intersecting subset of F_α^n.