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SOME SUBPOLYTOPES OF THE BIRKHOFF POLYTOPE*

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Abstract. Some special subsets of the set of uniformly tapered doubly stochastic matrices are considered. It is proved that each such subset is a convex polytope and its extreme points are determined. A minimality result for the whole set of uniformly tapered doubly stochastic matrices is also given. It is well known that if x and y are nonnegative vectors of $\mathbb{R}^n$ and x is weakly majorized by y, there exists a doubly substochastic matrix S such that $x = Sy$. A special choice for such S is exhibited, as a product of doubly stochastic and diagonal substochastic matrices of a particularly simple structure.

Key words. Doubly-stochastic matrices, Inequalities, Polytopes, Majorization.

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