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ONE-SIDED SIMULTANEOUS INEQUALITIES AND SANDWICH THEOREMS FOR DIAGONAL SIMILARITY AND DIAGONAL EQUIVALENCE OF NONNEGATIVE MATRICES*

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Abstract. Results on the simultaneous scaling of nonnegative matrices involving one sided inequalities are presented. These are applied to scalings involving two sided inequalities. The proofs are graph theoretic. The setting is generalized to matrices with elements in lattice ordered Abelian groups with 0.

Key words. Nonnegative matrices, Diagonal similarity scaling, Diagonal equivalence scaling, Digraph of a matrix, Cyclic product, Cycle mean, Lattice ordered commutative groups.

AMS subject classifications. 15A24, 15A12, 15A45, 65F35.

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