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APPLICATIONS OF MAX ALGEBRA TO DIAGONAL SCALING OF MATRICES*

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Dedicated to Pauline van den Driessche on the occasion of her 65th birthday in appreciation of her contributions to the fields of linear algebra and mathematical biology.

Abstract. Results are proven on an inequality in max algebra and applied to theorems on the diagonal similarity scaling of matrices. Thus the set of all solutions to several scaling problems is obtained. Also introduced is the "full term rank" scaling of a matrix to a matrix with prescribed row and column maxima with the additional requirement that all the maxima are attained at entries each from a different row and column. An algorithm which finds such a scaling when it exists is given.

Key words. Max algebra inequality, Diagonal scaling, Term rank scaling, Algorithm.

AMS subject classifications. 15A24, 15A15, 15A48, 90C27.

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