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primitive matrix

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A nonnegative square matrix  $A = (a_{ij})$  is said to be a  $\text{primitive matrix}$  if there exists  $k$  such that  $A^k \gg 0$ , i.e., if there exists  $k$  such that for all  $i, j$ , the  $(i, j)$  entry of  $A^k$  is positive.

A sufficient condition for a matrix to be a primitive matrix is for the matrix to be a nonnegative, irreducible matrix with a positive element on the main diagonal.