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THE COMBINATORIAL STRUCTURE OF EVENTUALLY NONNEGATIVE MATRICES*

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Abstract. In this paper it is shown that an eventually nonnegative matrix A whose index of zero is less than or equal to one, exhibits many of the same combinatorial properties as a nonnegative matrix. In particular, there is a positive integer g such that A^g is nonnegative, A and A^g have the same irreducible classes, and the transitive closure of the reduced graph of A is the same as the transitive closure of the reduced graph of A^g. In this instance, many of the combinatorial properties of nonnegative matrices carry over to this subclass of the eventually nonnegative matrices.

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