RANK DROPS OF RECURRENCE MATRICES∗

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Abstract. A recurrence matrix is a matrix whose terms are sequential members of a linear homogeneous recurrence sequence of order \( k \) and whose dimensions are both greater than or equal to \( k \). In this paper, the ranks of recurrence matrices are determined. In particular, it is shown that the rank of such a matrix differs from the previously found upper bound of \( k \) in only two situations: When \((a_j)\) satisfies a recurrence relation of order less than \( k \), and when the \( n \)th powers of distinct eigenvalues of \((a_j)\) coincide.

Key words. Linear recurrence relations, Matrix rank, Recurrence matrices.

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