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ON PROPERTIES OF SYSTEMS OF LINEAR DIFFERENCE EQUATIONS

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Consider a system of liner difference equations with variable coefficients

(1) where n = 0, 1, 2, , xn is a vector from the Euclidean the space Rd and An is a d d matrixes of coefficient. We assume that E + An is nondegenerate for all n 0 So system (1) has the unique solution. We study the problem of reduction of the system (1) to a system with constant coefficients. Yn+1 = yn + Byn , (2) Where B is a constant matrix. Definition 1. A linear difference system is called reducible if there exists a lyapunov transformation that reduces it to a system with constant coefficients (2). We establish reducibility conditions. Theorem1. the linear difference system (1) is reducible if and only if a certain fundamental matrix Xn of it is representable in the form (3) Where E is the d d identity matrix and B is a certain constant d d matrixes.

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