

TWO INVERSE EIGENPROBLEMS FOR SYMMETRIC DOUBLY ARROW MATRICES*

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Abstract. In this paper, the problem of constructing a real symmetric doubly arrow matrix A from two special kinds of spectral information is considered. The first kind is the minimal and maximal eigenvalues of all leading principal submatrices of A , and the second kind is one eigenvalue of each leading principal submatrix of A together with one eigenpair of A . Sufficient conditions for both eigenproblems to have a solution and sufficient conditions for both eigenproblems have a nonnegative solution are given in this paper. The results are constructive in the sense that they generate algorithmic procedures to compute the solution matrix.

Key words. Symmetric doubly arrow matrices, Inverse eigenproblem.

AMS subject classifications. 65F15, 65F18, 15A18.

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