GROUPS OF MATRICES THAT ACT MONOPOTENTLY*

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Abstract. In the present article, the authors continue the line of inquiry started by Cigler and Jerman, who studied the separation of eigenvalues of a matrix under an action of a matrix group. The authors consider groups $G$ of matrices of the form $\begin{bmatrix} G & 0 \\ 0 & z \end{bmatrix}$, where $z$ is a complex number, and the matrices $G$ form an irreducible subgroup of $GL_n(\mathbb{C})$. When $G$ is not essentially finite, the authors prove that for each invertible $A$ the set $GA$ contains a matrix with more than one eigenvalue.

The authors also consider groups $G$ of matrices of the form $\begin{bmatrix} G & I \\ 0 & 1 \end{bmatrix}$, where the matrices $G$ comprise a bounded irreducible subgroup of $GL_n(\mathbb{C})$. When $G$ is not finite, the authors prove that for each invertible $A$ the set $GA$ contains a matrix with more than one eigenvalue.

Key words. Invertible matrices, Matrix groups, Distinct eigenvalues, Irreducible groups, Unitary group, Monopotent matrices.

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