Electronic Journal of Linear Algebra ISSN 1081-3810
A publication of the International Linear Algebra Society
Volume 15, pp. 8-13, January 2006

ELA
http://math.technion.ac.il/iic/ela

A NOTE ON GENERALIZED PERRON COMPLEMENTS OF Z-MATRICES*

ZHI-GANG REN†, TING-ZHU HUANG†, AND XIAO-YU CHENG†

Abstract. The concept of the Perron complement of a nonnegative and irreducible matrix was introduced by Meyer in 1989 and it was used to construct an algorithm for computing the stationary distribution vector for Markov chains. Here properties of the generalized Perron complement of an $n \times n$ irreducible Z-matrix K are considered. First the result that the generalized Perron complements of K are irreducible Z-matrices is shown, and other properties are presented.

Key words. Nonnegative matrix, Z-matrix, Perron complement, Irreducibility.

AMS subject classifications. 15A48.

*Received by the editors 4 June 2005. Accepted for publication 4 January 2006. Handling Editor: Miroslav Fiedler.

†School of Applied Mathematics, University of Electronic Science and Technology of China, Chengdu, 610054, P. R. China, (eric667667@sohu.com, tzhuang@uestc.edu.cn). Supported by NCET in universities of China