Electronic Journal of Linear Algebra ISSN 1081-3810
A publication of the International Linear Algebra Society
Volume 15, pp. 285-296, November 2006

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

ESSENTIALLY HERMITIAN MATRICES REVISITED*

S.W. DRURY†

Abstract. The following case of the Determinantal Conjecture of Marcus and de Oliveira is established. Let A and C be hermitian $n \times n$ matrices with prescribed eigenvalues $a_1, \ldots, a_n$ and $c_1, \ldots, c_n$, respectively. Let κ be a non-real unimodular complex number, $B = \kappa C$, $b_j = \kappa c_j$ for $j = 1, \ldots, n$. Then

$$\det(A - B) \in \operatorname{co}\left\{ \prod_{j=1}^{n} (a_j - b_{\sigma(j)}); \sigma \in S_n \right\},$$

where S_n denotes the group of all permutations of $\{1, \ldots, n\}$ and co the convex hull taken in the complex plane.

*Received by the editors 9 August 2006. Accepted for publication 28 October 2006. Handling Editor: Miroslav Fiedler.

†Department of Mathematics and Statistics, McGill University, 805 Sherbrooke Street West, Montreal, Canada H3A 2K6 (drury@math.mcgill.ca).