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A GENERALIZATION OF MOORE–PENROSE BIORTHOGONAL SYSTEMS*

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Abstract. In this paper, the notion of Moore–Penrose biorthogonal systems is generalized. In [Fiedler, Moore–Penrose biorthogonal systems in Euclidean spaces, *Lin. Alg. Appl.* 362 (2003), pp. 137–143], transformations of generating systems of Euclidean spaces are examined in connection with the Moore-Penrose inverses of their Gram matrices. In this paper, g-inverses are used instead of the Moore–Penrose inverses and, in particular, the details of transformations derived from reflexive g-inverses are studied. Furthermore, the characterization theorem of Moore–Penrose inverses in [Fiedler and Markham, A characterization of the Moore–Penrose inverse, *Lin. Alg. Appl.* 179 (1993), pp. 129–133] is extended to any reflexive g-inverse.

Key words. Generalized inverses, Moore–Penrose inverses, Biorthogonal systems.

AMS subject classifications. 15A03, 15A09.

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