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Correction to my paper: “On pairs of matrices with property  $L$ ”

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CORRECTION

to my paper ON PAIRS OF MATRICES WITH PROPERTY L

Jiří KOPÁČEK, Praha

The proof of Theorem 2 in [1] is not correct. We have used, that the orthonormal basis  $t_1^{\dot{\beta}}(\alpha), t_2^{\dot{\beta}}(\alpha), \dots, t_{p_{\dot{\beta}}}^{\dot{\beta}}(\alpha)$  in eigensubspace  $N_{\dot{\beta}}(\alpha)$  of matrix  $A(\alpha)$  may be taken analytic in some neighbourhood of each point  $\alpha_0 \neq \alpha_{2k}$ . But in general the procedure of orthonormalisation violates (in general) analyticity.

Nevertheless the theorem is true. This may be seen as follows: In [1] we have proved that under the conditions of the theorem 2 the matrix  $A(\alpha) = \alpha A + B$  is diagonalizable for all  $\alpha$  complex. Since  $B$  is diagonalizable, it follows that  $\alpha A + \beta B$  is diagonalizable for all  $\alpha, \beta$  complex. By the theorem 4 in [2] we get that  $A$  and  $B$  are diagonalizable simultaneously and therefore they commute.

References

- [1] J. KOPÁČEK: On pairs of matrices with property L, Comment. Math. Univ. Carolinae 8(1967), 453-457.
- [2] T.S. MOTZKIN, O. TAUSKY: Pairs of matrices with property L, II. TAMS 80(1955), 387-401.