

Referee's Report

I think that the paper "COMMON EXTENSIONS FOR LINEAR OPERATORS" (by Rodica-Mihaela Danet) is an interesting contribution to the theory of extensions of linear operators. In my opinion, this paper deserves to be published in the Proceedings of the Józef Marcinkiewicz Centenary Conference.

I have only a few remarks.

- The proof of Theorem 17 should be changed. It is enough to show that

$$(*) \quad v_1 + v_2 + \sum_{i=1}^n \lambda_i z_i \geq 0 \Rightarrow T_1(v_1) + T_2(v_2) + \sum_{i=1}^n \lambda_i P(z_i) \geq 0$$

for all $n \in \mathbb{N}^*$, $v_1 \in G_1$, $v_2 \in G_2$, $\{\lambda_1, \dots, \lambda_n\} \subset \mathbb{R}$, $\{z_1, \dots, z_n\} \subset M$.

Indeed, let $n \in \mathbb{N}^*$, $v_1 \in G_1$, $v_2 \in G_2$, $\lambda_1, \dots, \lambda_n \in \mathbb{R}$, $z_1, \dots, z_n \in M$ and $m \in \mathbb{N}^*$, $v'_1 \in G_1$, $v'_2 \in G_2$, $\lambda'_1, \dots, \lambda'_m \in \mathbb{R}$, $z'_1, \dots, z'_m \in M$ with $v_1 + v_2 + \sum_{i=1}^n \lambda_i z_i = v'_1 + v'_2 + \sum_{j=1}^m \lambda'_j z'_j$. Then $(v_1 - v'_1) + (v_2 - v'_2) + \sum_{i=1}^n \lambda_i z_i + \sum_{j=1}^m (-\lambda'_j) z'_j = 0$, so

$$T_1(v_1 - v'_1) + T_2(v_2 - v'_2) + \sum_{i=1}^n \lambda_i P(z_i) + \sum_{j=1}^m (-\lambda'_j) P(z'_j) \geq 0$$

and

$$T_1(v'_1 - v_1) + T_2(v'_2 - v_2) + \sum_{i=1}^n (-\lambda_i) P(z_i) + \sum_{j=1}^m \lambda'_j P(z'_j) \geq 0.$$

It follows that $T_1(v_1) + T_2(v_2) + \sum_{i=1}^n \lambda_i P(z_i) = T_1(v'_1) + T_2(v'_2) + \sum_{j=1}^m \lambda'_j P(z'_j)$.

Thus L is well defined. By $(*)$, L is positive.

- Remark 6 should be deleted.
- Page 4, line 11: it should be "convex" instead of "concave".
- Page 4, line -10: it should be " $\{\lambda_1, \dots, \lambda_n\} \subset \mathbb{R}_+$ " instead of " $\lambda_1, \dots, \lambda_n \subset \mathbb{R}_+$ ".
- Page 10, line -2: it should be " $r(z'_j)$ " instead of " $h(z'_j)$ ".
- Page 11, line 1: it should be " $r(z'_j)$ " instead of " $h(z'_j)$ ".
- Page 12, line 5: it should be "subspaces" instead of "spaces".