and $t|\alpha_i| < i^{-2}$ for all $i = 1, 2, \ldots$. Hence $F(tx) = 0$ and $(tx, 0) \in C_r(F, z_0)$. It means $L \subset C_r(F, z_0)$ and so (v) is verified.

On the other hand, (1.3) is violated. In fact, let

$$z_n = \frac{1}{n}(e_n, 0), \quad n = 2, 3, \ldots.$$

Then $z_n \to (0, 0)$ and for each $x = \sum_{i=1}^{\infty} \alpha_i e_i \in X$ we have

$$\|z_n - (x, Fx)\| = \max\left(\left\|\frac{1}{n}e_n - x\right\|, |Fx|\right) \geqq \frac{1}{2}\left|\frac{1}{n} - \alpha_n\right| + \frac{1}{2}|Fx|.$$

If $\alpha_n < n^{-2}$, then

$$\|z_n - (x, Fx)\| \geqq \frac{1}{2}\left|\frac{1}{n} - \alpha_n\right| > \frac{1}{2}\left(\frac{1}{n} - \frac{1}{n^2}\right) \geqq \frac{1}{4} \cdot \frac{1}{n} = \frac{1}{4}\|z_n\|.$$

If $\alpha_n \geqq n^{-2}$, then

$$\|z_n - (x, Fx)\| \geqq \frac{1}{2}\left|\frac{1}{n} - \alpha_n\right| + \frac{1}{2}|\alpha_n| \geqq \frac{1}{2} \cdot \frac{1}{n} = \frac{1}{2}\|z_n\|.$$

Hence

$$d(z_n, F) > \tfrac{1}{4}\|z_n\|, \quad n = 2, 3, \ldots.$$

ACKNOWLEDGEMENT

The author wants to thank the referee for his helpful comments and references.

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