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Some generalizations of the space bv_p of p-bounded variation sequences

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Abstract

The spaces bv_p and bv_∞ of sequences of p-bounded variation have recently been introduced by Başar and Altay [F. Başar, B. Altay, On the space of sequences of p-bounded variation and related matrix mappings, Ukrainian Math. J. 55 (1) (2003) 136–147], where $1\leq p<\infty$. In the present paper, the sequence spaces $bv(u,p)$ and $bv_\infty(u,p)$ of non-absolute type have been defined and it has been proved that the spaces $bv(u,p)$ and $bv_\infty(u,p)$ are linearly isomorphic to the spaces $\ell(p)$ and $\ell_\infty(p)$ of Maddox, respectively. Besides this, the α-, β- and γ-duals of the spaces $bv(u,p)$ and $bv_\infty(u,p)$ have been computed and the basis of the space $bv(u,p)$ has been constructed. The classes $(bv(u,p):\ell_\infty)$ and $(bv(u,p):c)$ of infinite matrices have been characterized and the characterizations of some other classes have also been derived by means of a given basic lemma. The final section of the paper has been devoted to some consequences about the rotundity of the space $bv(u,p)$.

Keywords: Paranormed difference sequence space; α-, β- and γ-duals of a sequence space; Matrix mappings and rotundity of a sequence space

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