

A pair of Köthe spaces between which all continuous linear operators are bounded

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Abstract. D.Vogt's characterization of pairs of Fréchet spaces between which all continuous linear operators are bounded is used to show that the space of continuous linear operators from a Köthe space of type d_2 to a Köthe space of type d_1 consists of bounded linear operators. This provides an alternative proof of a result of V. P. Zahariuta.

Keywords: Fréchet space, Montel space, Schwartz space, Nuclear space, Köthe space, bounded operator, compact operator.

Özet

Anahtar kelimeler: Fréchet uzay, Montel uzay, Schwartz uzay, Nükleer uzay, Köthe uzay, sınırlı operatörler, kompakt operatörler.

1. Introduction

The terminology for the theory of Fréchet spaces is standard and we refer to [2]. Throughout this work E and F will denote two Fréchet spaces, with increasing systems of seminorms $\|\cdot\|_k$ and $\|\cdot\|_k$, respectively. For An infinite matrix $A = [a_{nk}]$ of non-negative entries, which satisfies (i) for each k and n , $a_{n,k} \leq a_{n,k+1}$; (ii) for each n there exists k such that $a_{n,k} > 0$, we define the Köthe sequence space of order p , $1 \leq p < \infty$, by

$$\lambda^p(A) \triangleq \left\{ x = (x_n)_{n=1}^{\infty} : \|x\|_k^p \triangleq \left(\sum_{n=1}^{\infty} (|x_n| a_{n,k})^p \right)^{\frac{1}{p}} < \infty \right\}$$

and the one of order ∞ by