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OPTIMALITY OF THE REARRANGEMENT INEQUALITY WITH APPLICATIONS TO LORENTZ–TYPE SEQUENCE SPACES

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Abstract. We characterize the sequences $(w_i)_{i=1}^{\infty}$ of non-negative numbers for which

$$\sum_{i=1}^{\infty} a_i w_i \quad \text{is of the same order as} \quad \sup_n \sum_{i=1}^{n} a_i w_{1+n-i}$$

when $(a_i)_{i=1}^{\infty}$ runs over all non-increasing sequences of non-negative numbers. As a by-product of our work we settle a problem raised in [1] and prove that Garling sequences spaces have no symmetric basis.

Mathematics subject classification (2010): 26D15, 46B15, 46B20, 46B25, 46B45.
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