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Multinorms, p -multinorms, and Banach lattices

Let $1 \leq p \leq \infty$ and X be a vector space. For every $n \in \mathbb{N}$, let $\|\cdot\|_n$ be a norm on X^n . The resulting sequence of norms is called a p -multinorm provided $\|A\bar{x}\|_m \leq \|A: \ell_p^n \rightarrow \ell_p^m\|_n \cdot \|\bar{x}\|_n$ for every "multivector" $\bar{x} \in X^n$ and every $m \times n$ scalar matrix A . In the cases $p = 1$ and $p = \infty$, these spaces were introduced by G.Dales and M.Polyakov. p -multinorms can be characterized as certain norms on $\ell_p \otimes X$ and (under certain assumptions) as subspaces of Banach lattices. This is a joint work with G.Dales, N.Laustsen, and T.Oikhberg.