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A view from above on JN$_p(\mathbb{R}^n)$

For a symmetric convex body $K \subset \mathbb{R}^n$ and $1 \leq p < \infty$, we define the space $S^p(K)$ to be the tent generalization of JN$_p(\mathbb{R}^n)$, i.e., the space of all continuous functions f on the upper-half space $\mathbb{R}^{n+1}$ such that

$$\|f\|_{S^p(K)} := \big(\sup_{\mathcal{C}} \sum_{B \in \mathcal{C}} |f_B|^p\big)^{\frac{1}{p}} < \infty,$$

where, in the above, the supremum is taken over all finite disjoint collections of homothetic copies of K. It is then shown that the dual of $S^1_0(K)$, the closure of the space of continuous functions with compact support in $S^1(K)$, consists of all Radon measures on $\mathbb{R}^{n+1}$ with uniformly bounded total variation on cones with base K and vertex in $\mathbb{R}^n$. In addition, a similar scale of spaces is defined in the dyadic setting, and for $1 \leq p < \infty$, a complete characterization of their duals is given. We apply our results to study dyadic JN$_p$ spaces.