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Finitely strictly singular operators between James spaces

In this talk we will show that the strictly singular operator without invariant subspaces constructed by C. J. Read is finitely strictly singular. This result is obtained from the following fact: if $k \leq n$ then every k-dimensional subspace of $\mathbb{R}^n$ contains a zigzag of order k, that is, a vector $x = (x_i)_{i=1}^n$ with $|x_i| \leq 1$ for all i such that $x_{m_i} = (-1)^i$ for some $m_1 < m_2 < \cdots < m_k$.