Stability of disjointness preservation

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An operator T between Banach lattices E and F is said to be ε-disjointness preserving (ε-DP for short) if we have $\||Tx| \wedge |Ty|\| \leq \varepsilon$ whenever x and y are disjoint elements of E. 0-DP operators are simply called disjointness preserving, or DP for short. One can easily show that, if T is DP, then S is $3\|T - S\|$-DP. We are interested in the converse of this statement: if T is ε-DP, must it be a small perturbation of a DP operator? In many cases, the answer is positive; however, some counterexamples also exist.

We also consider stability of some related properties for Banach lattices, as well as similar questions in the non-commutative setting.

This is a joint work with P.Tradacete.

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