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Young's Inequality in Operator Algebras

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Abstract. Young's inequality in two variables is formulated so as to apply to positive Hilbert space operators. The Young-type operator inequalities herein occur in the context of von Neumann algebras, and apply to the singular numbers, the spectral preorder, and traces of positive operators. As an application, a Young inequality relative to tracial states on unital C^* -algebras is obtained and, if the tracial state is faithful, the cases of equality are completely determined.

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