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Banach space valued functions*. Preliminary report.

Here we study quantitatively the high degree of approximation of sequences of linear operators acting on Banach space valued Fréchet differentiable functions to the unit operator, as well as other basic approximations including ones under convexity. These operators are bounded by real positive linear companion operators. The Banach spaces considered here are general and no positivity assumption is made on the initial linear operators whose we study their approximation properties. We derive pointwise and uniform estimates which imply the approximation of these operators to the unit assuming Fréchet differentiability of functions then we continue with basic approximations. At the end we study the special case where the approximated function fulfills a convexity condition resulting into sharp estimates. We give applications to Bernstein operators. (Received June 14, 2017)