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On the rate of convergence
of Bleimann, Butzer and Hahn type operators

In 1980 Bleimann, Butzer and Hahn ([4]) constructed for any real function f on the interval $R_0 := [0, +\infty]$ a sequence of positive linear operators $L_n^{[1]}$ defined by

$$(1) \qquad L_n^{[1]}(f; x) = (1 + x)^{-n} \sum_{k=0}^{n} \binom{n}{k} x^k f\left(\frac{k}{n - k + 1}\right), \quad n \in N := \{1, 2, \cdots\}.$$

The approximation properties of the Bleimann, Butzer and Hahn operators defined by (1) have been studied by (among others) Abel [1], Abel and Ivan [2], Khan [5], Srivastava and Gupta [6], and Vecchia [7]. These investigations were also motivated by the fact that $L_n^{[1]}$ is an operator of probabilistic type.

The aim of this paper is the study of the rate of convergence of a two-dimensional generalization of the Bleimann, Butzer and Hahn operators.

References

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