

On Some Multipoint Methods Arising from Optimal in the Sense of Kung–Traub Algorithms¹

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In this paper we will examine self-accelerating in terms of convergence speed and the corresponding index of efficiency in the sense of Ostrowski–Traub of certain standard and most commonly used in practice multipoint iterative methods using several initial approximations for numerical solution of nonlinear equations due to optimal in the sense of the Kung–Traub algorithm of order 4, 8 and 16. Some hypothetical iterative procedures generated by algorithms from order of convergence 32 and 64 are also studied (the receipt and publication of which is a matter of time, having in mind the increased interest in such optimal algorithms). The corresponding model theorems for their convergence speed and efficiency index have been formulated and proved.

¹This article is dedicated to the 70th anniversary of Prof. Dr. Svetoslav Markov.