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Timothy Sauer* (tsauer@gmu.edu), Fairfax, VA 22030. *Chaos in expansive rank-type equations*. Preliminary report.

Rank-type difference equations evolve according to a rule that chooses at each step the k th largest of a set of functions of past values. Recent results establish that under the assumption that all functions are contractive, rank-type equations converge to a fixed point. At the opposite extreme, rank-type equations choosing from a set of expansive functions, the dynamics are much more diverse. We propose conditions in the expansive case under which solutions are bounded or chaotic, and offer some open problems. (Received September 21, 2011)