**Mureşan, Adrian**

**Remarks concerning a method for accelerating the convergence of sequences.** (English)

Zbl 0819.65005
Rev. Anal. Numér. Théor. Approx. 23, No. 1, 79-87 (1994).

The main result may be presented as follows. Denote the differences of a sequence $a(n)$ $(n \geq 0)$ by $\Delta(a\|r|n)$, so that $\Delta(a\|0|n) = a(n)$, $\Delta(a\|1|n) = a(n+1) - a(n)$ and so on. Let $S(n)$ $(n \geq 0)$ be a monotonic sequence and $a(n)$ $(n \geq 0)$ be an auxiliary sequence for which, as $n$ increases, $\lim \Delta(a\|p-1|n) = L$ exists and is finite, $p \geq 1$ being fixed. Set $B(a, S\|p, k|n) = \Delta(a\|p|n)/\Delta(S\|1|k+n)$, $k \geq 0$ also being fixed. If, as $n$ increases, $\lim B(a, S\|p, k|n)$ is finite and nonzero then $S = \lim S(n)$ exists and, setting $T(n) = S(n) + \{L - \Delta(a\|p-1|n-k)/B(a, S\|p, k|n)$, the ratio $\{S - T(n)\}/\{S - S(n)\}$ tends, as $n$ increases, to zero.

Reviewer: P.Wynn (Mexico)

**MSC:**

65B05 Extrapolation to the limit, deferred corrections
40A05 Convergence and divergence of series and sequences

**Keywords:**

monotonic sequences; convergence test; convergence acceleration