Exercises

E18.6 [1KJ]

Find an example of a series $f(t) = \sum_{k=0}^{\infty} a_k t^k$ with $a_k \in \mathbb{R}$ and with radius of convergence r positive and finite, such that the limit $\lim_{t \to r-} f(t)$ exists and is finite, but the series does not converge in $t = r$.

Solution 1. *[1KK]*

Note that (by Abel's lemma) if the series converges in $t = r$ then the limit $\lim_{t \to r-} f(t)$ exists and $\lim_{t \to r-} f(t) = f(r)$.