
Zbl 126.08803**Erdős, Pál; Jabotinsky, E.***On analytic iteration* (In English)**J. Anal. Math.** **8**, 361-376 (1961). [0021-7670]

If $F(z) = z + \sum_{m+1}^{\infty} f_k z^k$, $f_{m+1} \neq 0$, $m \geq 1$ is any formal power series, then for every complex s there is a unique power series

$$F(s, z) = z + s f_{m+1}(s) z^{m+1} + \sum_{m+2} f_k(s) z^k$$

satisfying $F(F(s, z)) = F(s, F(z))$. Moreover $F(1, z) = F(z)$, $F(s, F(t, z)) = F(s + t, z)$, and $f_k(s)$ is a polynomial in s . If $F(z)$ and $F_s(z)$ have a positive radius of convergence, $F(s, z)$ is called an analytic s -iterate of $F(z)$. The authors investigate the nature of the set S of s -values for which $F(s, z)$ is an analytic s -iterate of $F(z)$. It is clear that if S contains a real neighbourhood of $s = 0$, then it contains the whole real axis R . The authors show that if R belongs to S , then S is the whole complex plane. Further, if S is not the whole plane, then S has plane measure zero and $S \cap R$ has linear measure zero. This work was extended by the reviewer (Zbl 113.28302) and by the second author (Zbl 113.28303).

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Classification: