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Boris Adamczewski*, Boris.Adamczewski@math.cnrs.fr. *Exceptional values of E - and M -functions at algebraic points.*

E -functions are entire functions with algebraic Taylor coefficients satisfying certain arithmetic conditions, and which are also solutions of linear differential equations with coefficients in $\overline{\mathbb{Q}}(z)$. They were introduced by Siegel in 1929 to generalize Diophantine properties of the exponential function, and studied further by Shidlovskii in 1956. The celebrated Siegel-Shidlovskii Theorem deals with the algebraic (in)dependence of values at algebraic points of E -functions solutions of a differential system. However, somewhat paradoxically, this deep result may fail to decide whether a given E -function assumes an algebraic or a transcendental value at some given algebraic point. Using a refinement of the Siegel-Shidlovskii theorem due to Beukers and André, we show that there exists an algorithm to determine the set of exceptional values of any transcendental E -function. Similar results are also obtained in the theory of Mahler M -functions. These results are obtained in joint works with Faverjon and Rivoal. (Received January 28, 2019)