A Generalization of a Theorem of Boyd and Lawton
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Abstract. The Mahler measure of a nonzero $n$-variable polynomial $P$ is the integral of $\log |P|$ on the unit $n$-torus. A result of Boyd and Lawton says that the Mahler measure of a multivariate polynomial is the limit of Mahler measures of univariate polynomials. We prove the analogous result for different extensions of Mahler measure such as generalized Mahler measure (integrating the maximum of $\log |P|$ for possibly different $P$'s), multiple Mahler measure (involving products of $\log |P|$ for possibly different $P$'s), and higher Mahler measure (involving $\log^k |P|$).