

Experimental approximations with shifts of $\Phi(\mathbf{z}) := \exp(\mathbf{az})/\mathbf{z}$

Gerhard Opfer, Hamburg, Germany

In some papers^{*)} Walter Hengartner and the present author have shown that in the class of holomorphic functions, defined in the complex plane with the possible exception of the origin, the function mentioned in the title is the only one which generates Haar spaces on a given compact subset D of the complex plane, which contains the origin in its interior, by applying shifts $v_j(z) := \Phi(z - s_j)$, where n is any positive integer, and $s_j, j = 1, 2, \dots, n$ are pairwise distinct points outside D .

The Haar space $H := \langle v_1, v_2, \dots, v_n \rangle$ thus, allows interpolation and uniform approximation of any continuous function defined on D .

For several functions, including the inverse gamma function, we will compute near best approximations, numerically in the Haar space H and show their behavior.

^{*)} One example is: Shift generated Haar Spaces on Compact Domains in the Complex Plane, Constr. Approx. **22** (2005), 113–132.