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Matrix vector products of the coefficients of the conformal welding maps

The Conformal Welding Theorem states that, given a quasi-symmetry ϕ on the unit circle, there exists a unique pair of quasiconformally extendible, one-to-one and holomorphic maps F and G satisfying $G^{-1} \circ F = \phi$. We first introduce power matrices, matrix representations for formal power series at 0 and at ∞. Analyzing the block structure of these representations, we demonstrate that the coefficients of F and G can be determined using convergent matrix operations in the case when ϕ is analytic on an annulus.