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**Numerical Calculation of Conformal Mapping
to a Disk Minus Finitely Many Horocycles**

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Abstract. The Riemann mapping to the complement in a disk of a finite union of disjoint disks bounded by horocycles has a Schwarzian derivative in the form of a simple rational function $R = R[\{z_k\}, \{r_k\}](z)$ with two accessory parameters z_k, r_k for each vertex w_k . It is shown that if the prevertices z_k are presupposed (while the w_k are undetermined), there exists a unique set of values $\{r_k\}$ for which R is the Schwarzian derivative of such a horocyclic mapping. These values depend on the combinatorial structure of the adjacencies of horocycles. An algorithm is developed for calculating the correspondence, and numerical examples are presented.

Keywords. Numerical conformal mapping, Schwarzian derivative, horocycle domain, cusp, Broyden's method.

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