

1125-30-1148

**C. David Minda\*** ([minda@ucmail.uc.edu](mailto:minda@ucmail.uc.edu)), Department of Mathematical Sciences, Cincinnati, OH 45221-0025. *Quotients of hyperbolic metrics*. Preliminary report.

Suppose that  $\Omega_j$  is a hyperbolic region in  $\mathbb{C} \cup \{\infty\}$  with hyperbolic metric  $\lambda_j$ ,  $j = 1, 2$ , and  $\Omega_1 \subsetneq \Omega_2$ . Sharp elementary upper and lower bounds for  $\lambda_1(z)/\lambda_2(z)$  in terms of the hyperbolic distance relative to  $\Omega_2$  from  $z$  to  $\partial\Omega_1 \cap \Omega_2$  are discussed. These bounds were originally established and employed in complex dynamics. We show that these bounds have important consequences for the theory of the hyperbolic metric. For instance, it is plausible that  $\lambda_1$  and  $\lambda_2$  have similar behavior near the common boundary  $\partial\Omega_1 \cap \partial\Omega_2 \neq \emptyset$ . The bounds imply that  $\lambda_1(z)/\lambda_2(z) \rightarrow 1$  when  $z$  tends to an appropriate part of  $\partial\Omega_1 \cap \partial\Omega_2$ . (Received September 15, 2016)