

Erratum: Representation and Duality in Weighted Spaces of Analytic Functions, Vol. 34 (1985), 319–335

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It has been pointed out by K. Stroethoff and others that there is a flaw in the proof of the second assertion in Corollary (3.6) of [1]. If ω satisfies C_q (defined with respect to pseudohyperbolic disks of radius r), then it is trivial that ω will satisfy C_q using disks of smaller radius $r_0 < r$. What needs to be done in order to verify that the class C_q is independent of choice of r is to show that $\omega(E(a, r_0)) \leq C\omega(E(a, r))$ whenever $r_0 > r$ and ω satisfies C_q with respect to r . Inequality (3.7) certainly has the larger r on the left but the C_q assumption is there based on the larger r rather than the smaller. In essence we must be able to prove (3.7) from a weaker assumption. Since Corollary (3.8) relies on Corollary (3.6), its proof is also flawed.

We can correct the flaws in both proofs by proving (3.8) using only the correct portion of (3.6) and using (3.8) to finish Corollary (3.6). The details follow.

Suppose ω satisfies C_q for some $r \in (0, 1)$. Using (3.7) with $r_0 = r/2$ (the correct portion of Corollary (3.6)), we have $\omega(E(a, r)) \leq C\omega(E(a, r/2))$. The proof of Corollary (3.8) as given suffices to establish that $\tilde{\omega}(z) \leq C\tilde{\omega}(\zeta)$ provided $\rho(z, \zeta) < r/2$. If $\rho(z, \zeta) < s < 1$, then there exist z_0, z_1, \dots, z_n , with n depending only on s , such that $z_0 = z$, $z_n = \zeta$, and $\rho(z_k, z_{k-1}) < r/2$, $k = 1, 2, \dots, n$. Then $\tilde{\omega}(z) \leq C^n \tilde{\omega}(\zeta)$ and Corollary (3.8) is established. Now assume again that ω satisfies C_q for $r \in (0, 1)$. Then $\omega' = \omega^{-q'/q}$ satisfies $C_{q'}$ for this same r . Let $r_0 > r$. We need to show that $\omega(E(a, r_0)) < C\omega(E(a, r))$ and a similar inequality for ω' . The set $E(a, r_0)$ can be covered with $M = M(r, r_0)$ sets $E(a_j, r)$, where $a_j \in E(a, r_0)$ (so that $\rho(a_j, a) < r_0$). Then

$$\begin{aligned}\omega(E(a, r_0)) &\leq \sum_{j=1}^M \omega(E(a_j, r)) \\ &= \sum_{j=1}^M \tilde{\omega}(a_j) m(E(a_j, r)) \leq\end{aligned}$$