

Illustration for Lemma ???. The boundary Harnack principle cannot be used to estimate increments between  $y$  and  $y'$  due to the singularity at  $z$ . Instead, we demonstrate regularity within the smaller ball by leveraging harmonicity in the larger ball.

Figure 1: Illustration for Lemma ??: Regularity within the smaller ball  $D \cap B(Q, 3\delta_D(y))$  using harmonicity in the larger ball.

The figure above shows the region  $D \cap B(Q, 3\delta_D(y))$ , which is a smaller ball centered at  $Q$  with radius  $3\delta_D(y)$ , where  $\delta_D(y)$  is the distance from  $y$  to the boundary  $\partial D$ . The larger ball  $B(Q, r)$  is used to ensure harmonicity properties, while the singularity at  $z$  is handled independently.