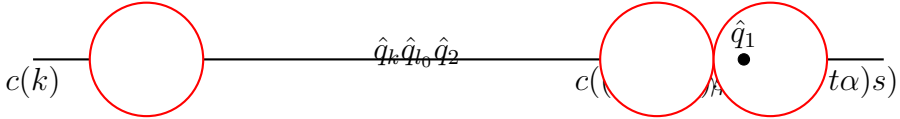

Figure 1: Picture in Case 1. The disks $B(\hat{q}_k)$'s cover the segment connecting $c((\gamma_k+\beta)s)$ and $c((\gamma_k+\beta+t\alpha)s)$. There is a smallest l_0 such that $d(q_k, \hat{q}_{l_0}) \geq (\beta - t\alpha)s$.