On a ball in a metric space of knots by delta moves

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By $\mathcal{K}$, we denote the set of all knots in S^3. For two knots K and K', we denote the minimum number of necessary times of delta moves for the sake of obtaining K' from K by $d_\Delta(K, K')$. Then $(\mathcal{K}, d_\Delta)$ is a metric space. Let n be an integer more than or equal to 0. And let k and ℓ be natural numbers with $1 \leq \ell < k$. We consider a ball $B_n^\Delta(K) = \{K' \in \mathcal{K} | d_\Delta(K, K') \leq n\}$. First, we show that for any knots K_1 and K_2 with $d_\Delta(K_1, K_2) = k$ (≥ 2), $B_\ell^\Delta(K_1) \cap B_{k-\ell}^\Delta(K_2)$ has infinitely many knots. And we consider the following question: If $B_n^\Delta(K_1) = B_n^\Delta(K_2)$, then are K_1 and K_2 the same knot type? We show some results for the question.

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