

### Aufgabe

Let  $(X, d)$  be a length space. Prove the following.

- (a) The closure  $\overline{B_r(x)}$  of a ball  $B_r(x)$  is equal to the closed ball  $\bar{B}_r(x)$ .
- (b) Let  $x, y \in X$  and  $r_1, r_2 > 0$  such that  $d(x, y) = r_1 + r_2$ . Show that  $\bar{B}_{r_1}(x)$  and  $\bar{B}_{r_2}(y)$  have nonempty intersection.