

## Exercises

E10.j.11 [OVP] Topics:compact.Prerequisites:[OV6].

Let  $(X, d)$  be a metric space, and let  $A_n \subseteq X$  be compact non-empty subsets such that  $A_{n+1} \subseteq A_n$ : then  $\bigcap_{n \in \mathbb{N}} A_n \neq \emptyset$ .

*(This result can be derived from [OJ6]; but try to give a direct demonstration, using the characterization of "compact" as "sequentially compact", i.e. the first point in [OV3]).*

**Solution 1.** [OVQ]