

## Exercises

9.101 [OVC] Difficulty: \*\*. Let  $(X_i, d_i)$  be compact metric spaces, for  $i \in \mathbb{N}$ , and choose  $y_{i,k} \in X_i$  for  $i, k \in \mathbb{N}$ . Show that there exists a subsequence  $k_h$  such that, for every fixed  $i$ ,  $y_{i,k_h}$  converges, that is, the limit  $\lim_{h \rightarrow \infty} y_{i,k_h}$  exists.