Exercises

E21.1.6 [1PH] We will use the definitions and results of the Section [2CF], in particular [0YD].

Fix $\tilde{\gamma} : \mathbb{R} \to X$ continuous and periodic (of period 1); we can define the map $\hat{\gamma} : S^1 \to X$ through the relation

$$\hat{\gamma}\Big((\cos(t), \sin(t))\Big) = \tilde{\gamma}(t) \ .$$

Show that this is a good definition, and that $\hat{\gamma}$ is continuous.

Use the exercise [0V8] to show that every closed simple arc, when viewed equivalently as a map $\hat{\gamma} : S^1 \to X$, is a homeomorphism with its image.