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Translation on a topological group

Definition. Left translation on a topological group

The **left translation** on G by $x \in G$ is the homeomorphism

$$\begin{aligned} L_x : G &\rightarrow G \\ a &\mapsto xa \end{aligned}$$

The **left translation action** of G is

$$\begin{aligned} L : G &\curvearrowright G \\ a &\overset{x}{\mapsto} L_x(a) = xa \end{aligned}$$

Proposition: The left translation

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is a continuous left action.



$$(L_y \circ L_x)(a) = yxa = L_{yx}(a)$$

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And it has 7 siblings.

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