Definition (Semigroup morphism). A morphism between semigroups

$$\mathbf{S} = \langle \mathbf{S}, \S_{\mathbf{S}} \rangle$$
 and $\mathbf{T} = \langle \mathbf{T}, \S_{\mathbf{T}} \rangle$.

is a function

$$F: \mathbf{S} \to \mathbf{T}$$

such that for all $x, y \in S$,

$$F(x \circ_{\mathbf{S}} y) = F(x) \circ_{\mathbf{T}} F(y).$$