Let us look at a small category as

$$\begin{tikzcd} \mathrm{Mor} \arrow[d, shift right=2, "s"'] \arrow[d, shift left=2, "t"] \\ \mathrm{Ob} \end{tikzcd}$$

Consider a group G, there are two canonically associated categories. The first is

$$G \rightsquigarrow \left(\begin{tikzcd} G \times G \arrow[d, shift right=2, "s = \mathrm{pr}"'] \arrow[d, shift left=2, "t = \text{left mul}"] \\ G \end{tikzcd} \right) := EG$$

Such that for each pair of objects $g, g' \in G$

$$\begin{tikzcd} g \arrow[loop left, "{(g,e)}"] \arrow[rr, bend left, "{(g, g'g^{-1})}"] & & g' \arrow[loop right, "{(g',e)}"] \arrow[ll, bend left, "{(g', gg'^{-1})}"] \end{tikzcd}$$

we have $\mathrm{Hom}_{EG}(g, g') \cong \{*\}$

The second is the usual category with only one object

$$BG := \left(\begin{array}{c} G \\ \downarrow \\ \{*\} \end{array} \right)$$

We have at the same time two pullbacks

$$\begin{tikzcd} \left(\begin{array}{c} G \\ \| \; \| \\ G \end{array} \right) \arrow[r] \arrow[d] & EG \arrow[d] \\ \left(\begin{array}{c} \{*\} \\ \downarrow \\ \{*\} \end{array} \right) \arrow[r] & BG \end{tikzcd}$$

$$\begin{tikzcd} \left(\begin{array}{c} \{*\} \\ \downarrow \\ \{*\} \end{array} \right) \arrow[r] \arrow[d] & \left(\begin{array}{c} \{*\} \\ \downarrow \\ \{*\} \end{array} \right) \arrow[d] \\ \left(\begin{array}{c} \{*\} \\ \downarrow \\ \{*\} \end{array} \right) \arrow[r] & BG \end{tikzcd}$$

Remedy: Derived Functors