$$\begin{array}{ccccc} a & & La \stackrel{\mathrm{id}}{\to} La \stackrel{\mathrm{id}}{\leftarrow} La \\ \uparrow^f & & \uparrow^{Lf} & \uparrow^{Lf} & \uparrow^{Lf} \\ b & \mapsto & Lb \stackrel{\mathrm{id}}{\to} Lb \stackrel{\mathrm{id}}{\leftarrow} Lb \\ \downarrow^g & & \downarrow^{Lg} & \downarrow^{Lg} & \downarrow^{Lg} \\ c & & Lc \stackrel{\mathrm{id}}{\to} Lc \stackrel{\mathrm{id}}{\leftarrow} Lc \end{array}$$