$$
\begin{array}{ccccccc}
a & & La & \xrightarrow{\text{id}} & La & \xleftarrow{\text{id}} & La \\
\uparrow f & & \uparrow Lf & & \uparrow Lf & & \uparrow Lf \\
b & \mapsto & Lb & \xrightarrow{\text{id}} & Lb & \xleftarrow{\text{id}} & Lb \\
\downarrow g & & \downarrow Lg & & \downarrow Lg & & \downarrow Lg \\
c & & Lc & \xrightarrow{\text{id}} & Lc & \xleftarrow{\text{id}} & Lc
\end{array}
$$