

$$\begin{array}{ccccccc}
0 & & 0 & & 0 & & \\
\downarrow & & \downarrow & & \downarrow & & \\
\mathrm{Hom}(x, z_1) & \longrightarrow & \mathrm{Hom}(x, z_2) & \longrightarrow & \mathrm{Hom}(x, z_3) & & \\
\downarrow & & \downarrow & & \downarrow & & \\
\mathrm{Hom}(x', z_1) & \longrightarrow & \mathrm{Hom}(x', z_2) & \longrightarrow & \mathrm{Hom}(x', z_3) & \longrightarrow & 0 \\
\downarrow & & \downarrow & & \downarrow & & \\
\mathrm{Hom}(x'', z_1) & \longrightarrow & \mathrm{Hom}(x'', z_2) & \longrightarrow & \mathrm{Hom}(x'', z_3) & & \\
\downarrow & & \downarrow & & \downarrow & & \\
0 & & 0 & & 0 & &
\end{array}$$