

$$\begin{array}{ccccc}
 & & \text{Hom}(X, \text{Bool}) \times L(X) & \xrightarrow{\text{filter}_X} & L(X) \\
 & \nearrow^{\text{Hom}(f, \text{Bool}) \times \text{id}_{L(X)}} & & & \searrow^{L(f)} \\
 \text{Hom}(Y, \text{Bool}) \times L(X) & & & & L(Y) \\
 & \searrow_{\text{id}_{\text{Hom}(Y, \text{Bool})} \times L(f)} & & & \nearrow_{\text{id}_{L(Y)}} \\
 & & \text{Hom}(Y, \text{Bool}) \times L(Y) & \xrightarrow{\text{filter}_Y} & L(Y)
 \end{array}
 \qquad
 \begin{array}{c}
 X \\
 \downarrow f \\
 Y
 \end{array}$$