

$$\begin{array}{lcl}
 \textit{lift}_{X,Y} : (X \rightarrow Y) & \longrightarrow & (X \rightarrow Y \times \mathbf{M}) \\
 \\
 f & \longmapsto & \left\{ \begin{array}{lcl}
 \textit{lift}_{X,Y} f : X & \longrightarrow & Y \times \mathbf{M} \\
 \\
 x & \longmapsto & \langle x, \textit{id}_{\mathbf{M}} \rangle
 \end{array} \right.
 \end{array}$$