

$$\mathit{lift}_{X,Y} : (X \rightarrow Y) \longrightarrow (X \rightarrow Y \times \mathbb{R}_{\geq 0})$$

$$f \longmapsto \left\{ \begin{array}{l} \mathit{lift}_{X,Y} f : X \longrightarrow Y \times \mathbb{R}_{\geq 0} \\ x \longmapsto \langle x, 0 \rangle \end{array} \right.$$