$$lift_{X,Y}: (X \to Y) \longrightarrow (X \to Y \times \mathbb{R}_{\geq 0})$$

$$\begin{cases} lift_{X,Y} : X \longrightarrow (X \to Y) & \text{if } X \to Y \times \mathbb{R}_{\geq 0} \end{cases}$$

$$f \mapsto \begin{cases} lift_{X,Y} f : X \longrightarrow Y \times \mathbb{R}_{\geq 0} \\ x \longmapsto \langle x, 0 \rangle \end{cases}$$