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

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