$$\begin{array}{l}
\mathbf{B} \to \mathbf{P} \\
x \mapsto \begin{cases}
f(x), & \text{if } x = \iota_{\mathbf{A}}(a), & a \in \mathbf{A}, \\
g(x), & \text{if } x = \iota_{\mathbf{B}}(b), & b \in \mathbf{B}.
\end{array}$$

 $f+g: A+B \rightarrow P$