Definition (Intersection of design problems). Given design problems $\mathbf{f} : \mathbf{A} \nrightarrow \mathbf{B}$ and $\mathbf{g} : \mathbf{A} \nrightarrow \mathbf{B}$, their *intersection* is denoted $(\mathbf{f} \wedge \mathbf{g}) : \mathbf{A} \nrightarrow \mathbf{B}$, defined by:

$$(\mathbf{f} \wedge \mathbf{g}) : \mathbf{A}^{\mathrm{op}} \times \mathbf{B} \to_{\mathbf{Pos}} \mathbf{Bool}$$

$$\langle a^*, b \rangle \mapsto f(a^*, b) \wedge g(a^*, b).$$