

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

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

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