$$\mathbf{f} \otimes \mathbf{g} : (\mathbf{A} \times \mathbf{C})^{\mathrm{op}} \times (\mathbf{B} \times \mathbf{D}) \rightarrow_{\mathbf{Pos}} \mathbf{Bool},$$

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