$$\operatorname{Tr}_{\mathbf{A},\mathbf{B}}^{\mathbf{C}}(f): \mathbf{A}^{\operatorname{op}} \times \mathbf{B} \to_{\mathbf{Pos}} \mathbf{Bool}$$

$$\langle a^*, b \rangle \mapsto \bigvee f(\langle a^*, c \rangle, \langle b^*, c \rangle).$$