$$\mathrm{Tr}^{C}_{A,B}(f) \colon A^{\mathrm{op}} \times B \xrightarrow{\quad}_{\mathbf{Pos}} \mathbf{Bool}$$

$$\langle a^*, b \rangle \mapsto \bigvee_{c \in C} f(\langle a^*, c \rangle, \langle b^*, c \rangle).$$