

$$\text{Tr}_{\mathbf{P}, \mathbf{Q}}^{\mathbf{R}}(\mathbf{d}) : \mathbf{P}^{\text{op}} \times \mathbf{Q} \xrightarrow{\quad} \mathbf{Pos} \quad \mathbf{Bool}$$

$$\langle a^*, b \rangle \mapsto \bigvee_{c \in \mathbf{R}} \mathbf{d}(\langle a, c \rangle^*, \langle b, c \rangle).$$