Definition (Boolean profunctors). Given two posets $\mathbf{P}$ and $\mathbf{Q}$, a *boolean profunctor* from $\mathbf{P}$ to $\mathbf{Q}$ is a monotone function of the form

$$F : \mathbf{P}^{\mathrm{op}} \times \mathbf{Q} \rightarrow_{\mathbf{Pos}} \mathbf{Bool}.$$

This is also written as

$$F : \mathbf{P} \nrightarrow \mathbf{Q}.$$