Definition (Design Problem). A design problem (DP) is a tuple $\langle F, R, \mathbf{d} \rangle$, where F, R are posets and $\mathbf{d}$ is a monotone map of the form

$$\mathbf{d} : F^{\mathrm{op}} \times R \to_{\textbf{Pos}} \textbf{Bool}.$$

We represent it by an arrow $\mathbf{d} : F \longrightarrow R$.