

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

$$\mathbf{d} : \mathbf{F}^{\text{op}} \times \mathbf{R} \xrightarrow{\text{Pos}} \mathbf{Bool}.$$

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