

**Definition.** Given a graph  $\langle \mathcal{V}, \mathcal{E} \rangle$  and a labeling of each edge  $e \in \mathcal{E}$  with a poset  $\textcolor{red}{R}_e$ , the *design complexity*  $\text{DC}(\langle \mathcal{V}, \mathcal{E} \rangle)$  is defined as

$$\text{DC}(\langle \mathcal{V}, \mathcal{E} \rangle) = \min_{F \text{ is an AFS}} \text{width}\left(\prod_{e \in F} \textcolor{red}{R}_e\right).$$