Definition (Category of design problems)

The *category of design problems,* **DP**, consists of the following constituents:

1. *Objects*: The objects of **DP** are posets.

2. *Morphisms*: The morphisms of **DP** are design problems (**??**).

3. *Identity morphism*: The identity morphism $\text{Id}_{\mathbf{P}} : \mathbf{P} \nrightarrow \mathbf{P}$ is given by **??**.

4. *Composition operation*: Given two morphisms $\mathbf{d} : \mathbf{P} \nrightarrow \mathbf{Q}$ and $\mathbf{e} : \mathbf{Q} \nrightarrow \mathbf{R}$, their composition $\mathbf{d} \, \dot{9} \, \mathbf{e} : \mathbf{P} \nrightarrow \mathbf{R}$ is given by **??**.