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 $\mathrm{Id}_{\mathbf{P}} : \mathbf{P} \rightarrowtail \mathbf{P}$ is given by **??**.
4. *Composition operation*: Given two morphisms $f : \mathbf{P} \rightarrowtail \mathbf{Q}$ and $g : \mathbf{Q} \rightarrowtail \mathbf{R}$, their composition $f \,\fatsemi\, g : \mathbf{P} \rightarrowtail \mathbf{R}$ is given by **??**.