

## **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  $\text{Id}_{\mathbf{P}} : \mathbf{P} \rightarrowtail \mathbf{P}$  is given by ??.
4. *Composition operation*: Given morphisms  $\mathbf{d} : \mathbf{P} \rightarrowtail \mathbf{Q}$  and  $\mathbf{e} : \mathbf{Q} \rightarrowtail \mathbf{R}$ , their composition  $\mathbf{d} \circ \mathbf{e} : \mathbf{P} \rightarrowtail \mathbf{R}$  is given by ??.