

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 $\text{Id}_A : A \rightarrowtail A$ is given by ??.
4. *Composition operation*: Given two morphisms $f : A \rightarrowtail B$ and $g : B \rightarrowtail C$, their composition $f \circ g : A \rightarrowtail C$ is given by ??.