

**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 ??.