

**Definition** (Category **Pos**). The category **Pos** is defined by:

1. *Objects*: The objects of this category are all posets.
2. *Morphisms*: The morphisms from a poset  $X$  to a poset  $Y$  are the monotone maps from  $X$  to  $Y$ .
3. *Identity morphism*: The identity morphism for the poset  $X$  is the identity map  $\text{Id}_X$ .
4. *Composition operation*: The composition operation is composition of maps.