

**Definition** (Min).  $\text{Min} : \mathcal{P}\mathbf{P} \rightarrow \mathcal{A}\mathbf{P}$  is the map that sends a subset  $S$  of a poset to the minimal elements of that subset, **i.e.**, those elements  $a \in S$  such that  $a \leq_{\mathbf{P}} b$  for all  $b \in S$ . In formulas:

$$\text{Min} : \mathcal{P}\mathbf{P} \rightarrow \mathcal{A}\mathbf{P}$$

$$S \mapsto \{x \in S : (y \in S) \wedge (y \leq_{\mathbf{P}} x) \Rightarrow (x = y)\}.$$

Note that  $\text{Min}(S)$  could be empty.