

**Definition** (Monotone map). A *monotone map* between two posets  $\mathbf{P} = \langle \mathbf{P}, \leq_{\mathbf{P}} \rangle$  and  $\mathbf{Q} = \langle \mathbf{Q}, \leq_{\mathbf{Q}} \rangle$  is a map  $f$  that preserves the ordering, in the sense that

$$\frac{p_1 \leq_{\mathbf{P}} p_2}{f(p_1) \leq_{\mathbf{Q}} f(p_2)}$$