

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

$$p_1 \leq_{\mathbf{P}} p_2 \quad \Rightarrow \quad f(p_1) \leq_{\mathbf{Q}} f(p_2).$$