

**Definition.** The *opposite* of a poset  $\mathbf{P} = \langle \mathbf{P}, \leq_{\mathbf{P}} \rangle$  is the poset denoted  $\mathbf{P}^{\text{op}} = \langle \mathbf{P}, \leq_{\mathbf{P}^{\text{op}}} \rangle$ . It has the same elements as  $\mathbf{P}$ , but is equipped with the reverse ordering (??). For a given  $p \in \mathbf{P}$ , we will sometimes write  $p^*$  to denote its corresponding copy in  $\mathbf{P}^{\text{op}}$ , in order to emphasize that  $p$  and  $p^*$  belong to distinct posets. However, often we will not be so pedantic with our notation. Reversing the order means that, for all  $p, q \in \mathbf{P}$ ,

$$\frac{p \leq_{\mathbf{P}} q}{q^* \leq_{\mathbf{P}^{\text{op}}} p^*}$$