Definition (Partially ordered set)
A pre-ordered set $\mathbf{P} = \langle \mathbf{P}, \preceq_{\mathbf{P}} \rangle$ is a *partially-ordered set (poset)* if the relation $\preceq_{\mathbf{P}}$ is *antisymmetric*. In other words, if:

$$\frac{p \preceq_{\mathbf{P}} q \quad q \preceq_{\mathbf{P}} p}{p = q}$$