Definition (Partially ordered set). A *partially-ordered set (poset)* is a tuple $\langle \mathbf{P}, \preceq_{\mathbf{P}} \rangle$, where $\mathbf{P}$ is a set (also called the *carrier set*), together with a relation $\preceq_{\mathbf{P}}$ that is

1. *Reflexive*: For all $p \in \mathbf{P}$, $p \preceq_{\mathbf{P}} p$.
2. *Antisymmetric*: For all $p_1, p_2 \in \mathbf{P}$, if $p_1 \preceq_{\mathbf{P}} p_2$ and $p_2 \preceq_{\mathbf{P}} p_1$, then $p_1 = p_2$.
3. *Transitive*: For all $p_1, p_2, p_3 \in \mathbf{P}$, if $p_1 \preceq_{\mathbf{P}} p_2$ and $p_2 \preceq_{\mathbf{P}} p_3$, then $p_1 \preceq_{\mathbf{P}} p_3$.