Definition (Power set as lattice). Given a set S, its power set $\mathscr{P}S$ (the set of all subsets) is a lattice where, given $A, B \in \mathscr{P}S$:

- Order is given by inclusion:

$$A \preceq B \doteq A \subseteq B;$$

- The join is given by the union of sets:

$$A \vee B \doteq A \cup B;$$

- The meet is given by the intersection of sets:

$$A \wedge b \doteq A \cap B;$$

- The top element is the set S itself:

$$\top = S;$$

- The bottom element is the empty set:

$$\bot = \emptyset.$$