



POWERS AND UNIONS

Why

How does the power set relate to a union?

§Notation Preliminaries

Let E denote a set. Let \mathcal{A} denote a set of subsets of the set denoted by E . We define $\bigcup_{A \in \mathcal{A}} A$ to mean $\bigcap \mathcal{A}$.

Basic Properties

Proposition 1. $E^* \cup F^* \subset (E \cup F)^*$

Proposition 2. $\bigcup_{X \in \mathcal{C}} X^* \subset (\bigcup_{X \in \mathcal{C}} X)^*$

Proposition 3. $E = \bigcup E^*$

Proposition 4. $(\bigcup E)^* \supset E$ *Observe that typically $E \neq (\bigcup E)^*$.*

