Mapping of Classical Sets

The characteristic function A is defined by:

If an element x is contained in X and corresponds to an element y contained in Y , it is generally represented as:

$$f : X \to Y$$

Then The characteristic function A is the membership in set a for the elements x in the universe set:

$$\chi_A(x) = \begin{cases} 1 & x \in A, \\ 0 & x \notin A, \end{cases}$$

the mapping of classical (characteristic function)

Let us define two sets A and B on the Universe X.

Union

$$A \cup B \rightarrow \chi_{A\cup B}(x) = \chi_A(x) V \chi_B(x) = \max(\chi_A(x), \chi_B(x)).$$

Intersectio

$$A \cap B \rightarrow \chi_{A\cap B}(x) = \chi_A(x) \Lambda \chi_B(x) = \min(\chi_A(x), \chi_B(x)).$$

Complement

$$\overline{A} \rightarrow \chi_{\bar{A}}(x) = 1 - \chi_A(x).$$

Containment

$$A \subseteq B \rightarrow \chi_A(x) \leq \chi_B(x).$$