Foundations of Logic

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1 Connections

Definition 1.1 (Implication/Condition). $P \implies Q$ is false when P is true and Q is false but true otherwise.

Definition 1.2 (Biconditional). $P \iff Q$ is true only if both P and Q is false or both P and Q is true.

Definition 1.3 (Negation). $\neg P$

Definition 1.4 (Conjunction). $P \wedge Q$

Definition 1.5 (Disjunction). $P \vee Q$

Definition 1.6 (Exclusive Disjunction). $(P \oplus Q) = \neg(P \wedge Q) \wedge$

Definition 1.7 (True False). $\top$ or 1 or T defined as true, $\bot$ or 0 or F defined as false

Definition 1.8 (Quantifiers). $\forall$ and $\exists$