

shortly Propositional Logic

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Definition 0.1 (Field). P is either true or false, no exceptions.

True: T, 1, true

False: F, 0, false

Definition 0.2 (Implication/Condition). $P \implies Q$, it isn't needed to be meaningful in the natural language, "if 5 is even, then 6 is even" is a logically true sentence, $0 \implies 1 \equiv 1$

Only case where $P \implies Q \equiv 0$ is where $P \equiv 1$ and $Q \equiv 0$ the formula $0 \implies 1 \equiv 1$ justifies beginning of set theory with empty set \emptyset .

Definition 0.3 (Biconditional). $P \iff Q$ is true only if both P and Q is false or both P and Q is true. Again, there is no need for a natural language grounding for it to be true, "turkish coffee is great if and only if napoleon is alive." which means turkish coffee is not great, though i do not consent.

Definition 0.4 (Negation). $\neg P$ not p

Definition 0.5 (Conjunction). $P \wedge Q$ P or Q, $P \equiv 0$ and $Q \equiv 0$ implies $P \wedge Q \equiv 0$ "I am racist and istanbul is fucking sucks" is true, although it is not generally the case that "and" is a connection that requires relevance

Definition 0.6 (Disjunction). $P \vee Q$

Definition 0.7 (Exclusive Disjunction). $(P \oplus Q) = \neg(P \wedge Q) \wedge$

Definition 0.8 (True False). \top or 1 or T defined as true, \perp or 0 or F defined as false

Further investigation can be found in [tautology](#)