

3-VALUED LOGIC has three truth values: 1, 0, and  $\frac{1}{2}$  (half-true). “Half-true” might apply to statements that are unknowable or too vague to be true or false.

N-VALUED LOGIC takes any real number between 0.00 and 1.00 as a truth value.

P	$\sim P$
0	1
$\frac{1}{2}$	$\frac{1}{2}$
1	0

“ $\sim P$ ” has 1 minus the value of P.

“(P · Q)” has the lesser value of the two parts.

“(P ∨ Q)” has the greater value of the two parts.

“(P ⊃ Q)” is 1 if Q is at least as true as P; otherwise, it has 1 minus the difference between the parts.

“(P ≡ Q)” is 1 if both parts are equally true; otherwise, it has 1 minus the difference between the parts.

DIALETHISM is the view that “P” and “~P” can both be true. This approach rejects Aristotle’s law of non-contradiction: “~(P · ~P).” It appeals to examples where a statement and its negation are both seemingly true, like “Sara is a child and not a child” (paradoxical speech) or “What I am telling you now is false” (the liar paradox).

PARACONSISTENT LOGIC is any alternative to classical propositional logic that rejects the explosion principle: “A, ~A ∴ B.” This approach rejects the usual truth table for “~” and allows “A” and “~A” to both be true.

$$\begin{aligned} A &= 1 \\ \sim A &= 1 \\ \therefore B &= 0 \end{aligned}$$