

Five Valued Truth Tables of Extended Propositional Logic (EPL)

Five truth values are considered in the non-bivalent case of extended propositional modelling, giving logic EPL.

Otherwise, FALSE may cover not being TRUE. In this case EPL collapses to PL.

The five values are: TRUE, FALSE, NONE, UNKNOWN, CONTRADICTIONARY.

UNKNOWN is an epistemic quality, NONE means: semantic indeterminate/nonsensical.

In the presence of NONE, EPL has no *logical truths* (theorems). Taking TRUE as the only *designated* truth value the valid *inferences* of EPL coincide with those of PL.

NEGATION	
TRUE	FALSE
FALSE	TRUE
NONE	NONE
UNKNOWN	UNKNOWN
CONTRADICTIONARY	CONTRADICTIONARY

CONJUNCTION	T	F	N	U	C
T	T	F	N	U	C
F	F	F	F	F	F
N	N	F	N	N	N
U	U	F	N	U	U
C	C	F	N	U	C

DISJUNCTION	T	F	N	U	C
T	T	T	T	T	T
F	T	F	N	U	C
N	T	N	N	U	C
U	T	U	U	U	C
C	T	C	C	C	C

CONDITIONAL	T	F	N	U	C
T	T	F	N	U	C
F	T	T	T	T	T
N	T	N	N	U	C
U	T	U	N	U	C
C	T	C	C	U	C

As CONTRADICTIONARY sentences are *true* and false, one may take CONTRADICTIONARY as a *designated* truth value. Then, not all valid PL inferences are EPL valid. Even *Modus Ponens* is not. EPL, therefore, calls for an *adaptive* version (like the Minimal Inconsistent Logic of Paradox) or for an extension with another (intensional) conditional.