

LET: ~ Not; & And; \ Not And; + Or; - Not Or; = Equivalent; > Imply;  
 (r-r) zero value; (r\r) one value.

The designated proof value is T for tautology; F as contradiction. Proof tables of 16-values are row major, horizontally

$$((p=(r-r))\&(q=(r\r)))>((r\r)=q); \text{TTTT TTTT TTTT TTTT}; 1\1=1 \quad (1.1)$$

$$((p=(r-r))\&(q=(r\r)))>((q\r)p)=\sim(p+q)); \text{TTTT TTTT TTTT TTTT}; 1\0=\sim(0+1); \text{undefined} \quad (1.2)$$

$$((p=(r-r))\&(q=(r\r)))>((p\rq)=\sim(p+q)); \text{TTTT TTTT TTTT TTTT}; 0\1=\sim(0+1); \text{undefined} \quad (1.3)$$

$$((p=(r-r))\&(q=(r\r)))>((p\rp)=\sim(p+q)); \text{TTTT TTTT TTTT TTTT}; 0\0=\sim(0+1); \text{undefined} \quad (1.4)$$

The test of  $0\0 = 1$  is:

$$((p=(r-r))\&(q=(r\r)))>((p\rp)=q); \text{TTTF FTTF TTTF FTTF}; 0\0=\sim(1); \text{not tautologous} \quad (1.4.1)$$

A recent advance is that Meth8/VL4 finds  $0\1$  to be undefined, instead of 0.

What follows is that zero is *not* a natural number as commonly used.