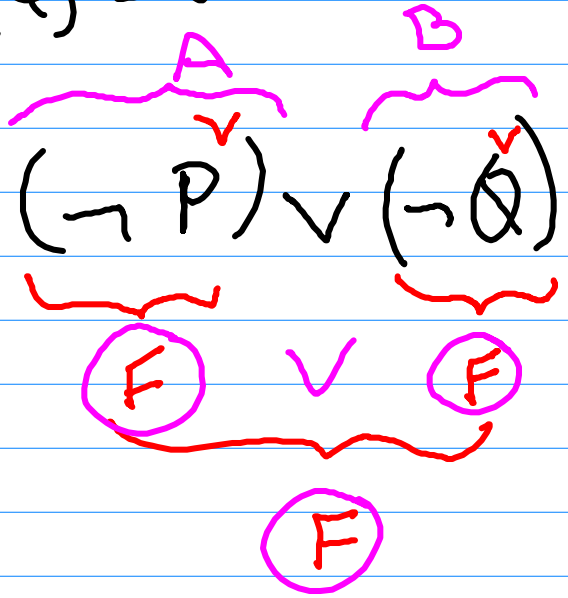
$VL(P) = V$

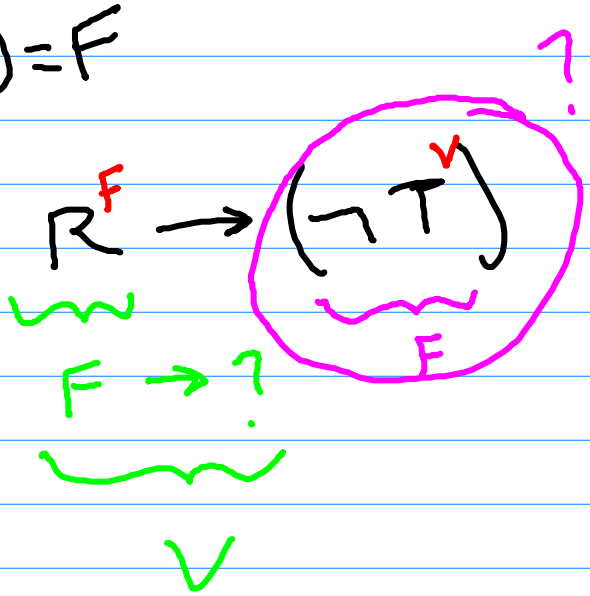
$VL(Q) = V$



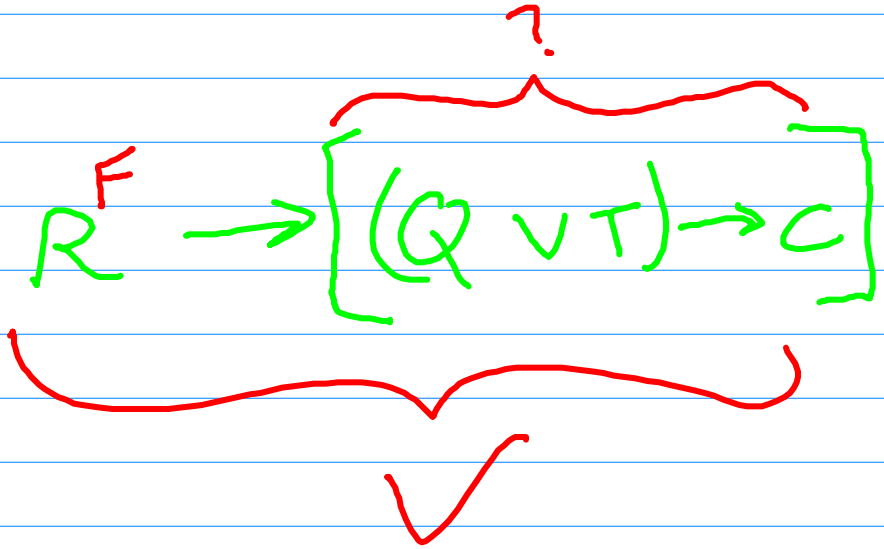

| A | B | A V B |
|---|---|---|
| V | V | V |
| V | F | V |
| F | V | V |
| F | F | F |

$VL(T) = V$

$VL(R) = F$




| P | Q | P → Q |
|---|---|---|
| V | V | V |
| V | F | F |
| F | V | V |
| F | F | V |



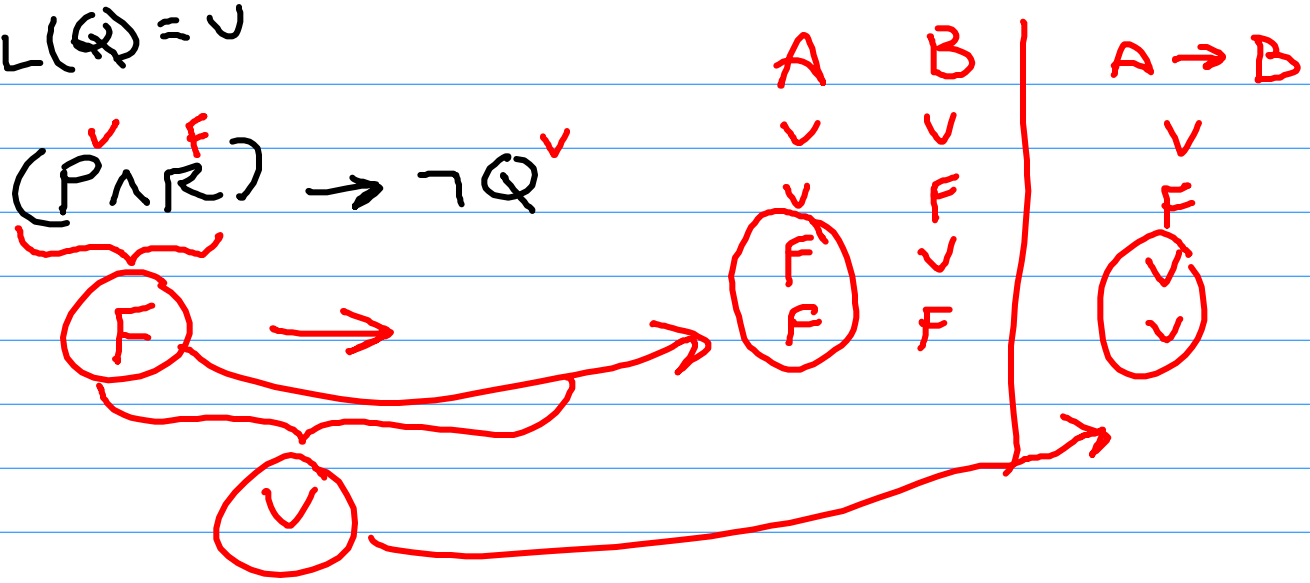
$(P \wedge Q) \vee R$

| $P$ | $Q$ | $R$ | $P \wedge Q$ | $(P \wedge Q) \vee R$ |
|---|---|---|---|---|
| V | V | V | V | V |
| V | V | F | V | V |
| V | F | V | F | V |
| V | F | F | F | F |
| F | V | V | F | V |
| F | V | F | F | F |
| F | F | V | F | V |
| F | F | F | F | F |

VL(P) = V

VL(Q) = V

VL(R) = F



$VL(A) = V$ $VL(C) = V$

$VL(B) = F$

$[A^{V} \wedge (B^{F} \rightarrow C^{V})] \leftrightarrow [\neg A^{V} \wedge (B^{F} \vee C^{V})]$

V F V F

V F

F

| A | B | A ↔ B |
|---|---|---|
| V | V | V |
| V | F | F |
| F | V | F |
| F | F | V |

$VL(p) = V$ $VL(r) = F$

$VL(q) = F$

| A | B | A → B |
|---|---|---|
| V | V | V |

$P(p,q,r) = (q^{F} \leftrightarrow (r^{F} \rightarrow \neg p^{V})) \vee ((\neg q^{F} \rightarrow p^{V}) \leftrightarrow r^{F})$

$F \leftrightarrow V$

$F$

$V$

$(V \leftrightarrow F)$

$F$

$F$

$$\underbrace{\neg(p \vee q)}_{a} \vee \underbrace{\neg(q \leftrightarrow p)}_{b}$$

| $p$ | $q$ | $p \vee q$ | $\neg(p \vee q)$ (a) | $q \leftrightarrow p$ | $\neg(q \leftrightarrow p)$ (b) | $a \vee b$ |
|---|---|---|---|---|---|---|
| V | V | V | F | V | F | F |
| V | F | V | F | F | V | V |
| F | V | V | F | F | V | V |
| F | F | F | V | V | F | V |