

$$3) F = \begin{pmatrix} \uparrow & p & \uparrow & q \end{pmatrix} \vee \begin{pmatrix} \uparrow & r & \uparrow & s & \uparrow & a^T & t \end{pmatrix}$$

$$\uparrow F = ?$$

$$F = A \vee B$$

$$\uparrow F = \uparrow A \wedge \uparrow B = \begin{pmatrix} p & v & q \end{pmatrix} \wedge \begin{pmatrix} r & v & s & v & t \end{pmatrix}$$

$$\uparrow A = \uparrow \begin{pmatrix} \uparrow & p & \uparrow & q \end{pmatrix} = \uparrow a \vee \uparrow b = p \vee q$$

$a \wedge b$

Ex 4 Thu 4 Oct 2018
 $f(p, q, r, s) = (q \vee r \vee s) \wedge (p \vee r \vee s) \wedge (p \vee q \vee s)$

Disjunction of conjunctions

Conjunctions of disjunctions

$$(p \wedge q) \vee (p \wedge r) \vee (p \wedge s) \vee (q \wedge r) \vee (q \wedge s) \vee (r \wedge s)$$

$$(q \vee r) \wedge p = (p \wedge q) \vee (p \wedge r)$$

$$(x \neq 0) \ \&\& \ (y > 0 \ \text{OR} \ y/x \% 2 == 0)$$

$$(x \neq 0 \ \&\& \ y > 0) \ \vee \ (x \neq 0 \ \&\& \ y/x \% 2 == 0)$$

P2

$$P \rightarrow Q$$

P



$$P \rightarrow (P \wedge Q)$$

$$\neg P \vee (P \wedge Q)$$

$$(\neg P \vee P) \wedge (\neg P \vee Q)$$

$$T \wedge (\neg P \vee Q)$$

$$(1) P \rightarrow Q$$

$$(2) P \quad |$$



$$(3) Q \quad \text{(Modus Ponens)}$$

$$(4) P \wedge Q \quad (2 \Delta 3)$$