

Převést do DNF/CNF: a) tabulkou b) úpravami:

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

Tabulkou

$$\text{DNF: } (p \wedge q \wedge r) \vee (p \wedge q \wedge \neg r) \vee (p \wedge \neg q \wedge r)$$

$$\text{CNF: } (p \vee q \vee r) \wedge (p \vee q \vee \neg r) \wedge (p \vee \neg q \vee r) \wedge$$

$$(p \vee \neg q \vee \neg r)$$

			A	B	$A \rightarrow B$
p	q	r	$p \vee q$	$q \wedge r$	
0	0	0	1	0	0
0	0	1	1	1	1
0	1	0	1	0	0
1	0	0	0	0	1
0	1	1	1	0	0
1	0	1	0	1	1
1	1	0	1	0	0
1	1	1	1	1	0

Úpravami:

$$\text{DNF: } A \rightarrow B \sim \neg A \vee B$$

DNF

$$\neg(p \vee q) \vee (q \wedge r) \sim (\neg p \wedge \neg q) \vee (q \wedge r)$$

CNF:

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

CNF

$$((p \rightarrow q) \rightarrow r) \rightarrow p$$

			A		B	$A \rightarrow B$	$B \rightarrow p$
p	q	r	$p \rightarrow q$	$A \rightarrow B$	$B \rightarrow p$		
0	0	0	1	1		1	1
0	0	1	1	0		1	1
0	1	0	1	1		1	1
1	0	0	1	1		0	0
0	1	1	1	0		1	1
1	0	1	1	0		1	1
1	1	0	0	1		0	0
1	1	1	0	1		0	0

Tabulkou:

$$\text{DNF: } (p \wedge q \wedge r) \vee (p \wedge q \wedge \neg r) \vee (p \wedge \neg q \wedge r) \vee (p \wedge \neg q \wedge \neg r) \vee (\neg p \wedge q \wedge r)$$

$$\text{CNF: } (p \vee q \vee r) \wedge (p \vee q \vee \neg r) \wedge (p \vee \neg q \vee r) \wedge (p \vee \neg q \vee \neg r) \wedge (\neg p \vee q \vee r)$$

Úpravami:

$$A \rightarrow B \sim \neg A \vee B$$

$$((p \vee q) \rightarrow r) \rightarrow p \sim ((\neg p \wedge \neg q) \vee r) \rightarrow p$$

$$\sim ((\neg p \vee \neg q) \wedge (p \vee r)) \rightarrow p \sim (\neg p \vee \neg q) \vee (p \vee r) \rightarrow p$$

DNF

$$\sim (\neg p \wedge r) \vee (\neg q \wedge r) \vee p$$

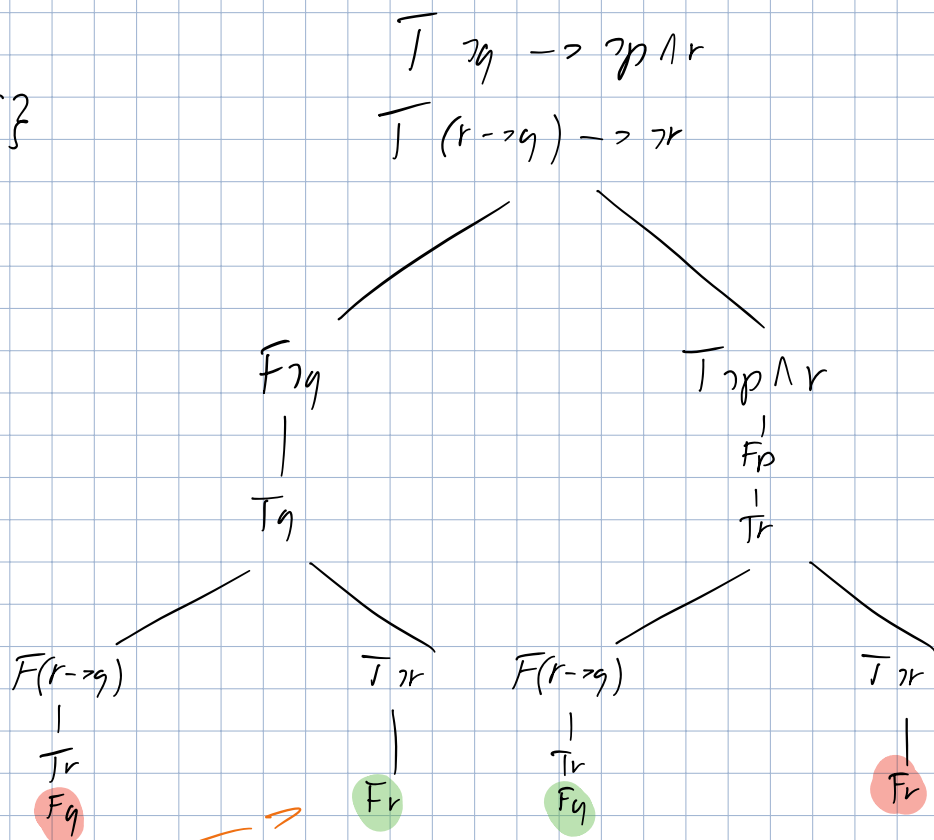
$$CNF: ((p \vee q) \wedge (p \vee r) \wedge (r \vee q) \wedge r) \vee \neg r \sim$$

$$\sim (p \vee q \vee \neg r) \wedge \underline{(p \vee r \vee \neg r)} \wedge \underline{(r \vee r \vee q)} \wedge \underline{(r \vee r)} \sim p \vee q \vee \neg r$$

vždy pravda

$$Necht\ T = \{ q \rightarrow p \wedge r, (r \rightarrow q) \rightarrow r \}$$

$$Modely\ T: \{ \}$$



$$Modely: \{ (0,0,1), (0,1,0), (1,1,0) \}$$

Axiomatizujte do CNF, DNF:

$$DNF: (p \wedge q \wedge r) \vee (p \wedge q \wedge \neg r) \vee (p \wedge q \wedge r)$$

$$CNF: (q \vee p) \wedge (q \vee r) \wedge (q \vee \neg r)$$

$$S_1 = \{ p \rightarrow q \} \quad Modely\ S_1: \{ (1,1), (0,1), (0,0) \} - \text{je } T \text{ extenzí?} \quad ANO$$

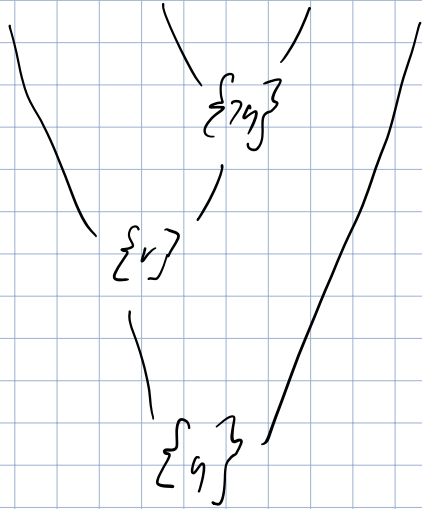
$$S_2 = \{ p \rightarrow r \} \quad Modely\ S_2: \{ (0,-,0), (1,-,1), (0,-,1) \} \text{ je } T \text{ extenzí?} \quad NE$$

v tabulce
věty se p
neobjevuje, tudíž
je nezmíněná

Rezolucií dokážte:

$$T \models q \leftrightarrow r$$

$$\{q, p\}, \{q, r\}, \{p, r\}, \{p, q\}, \{q, r\}$$



$$T = \{pq \rightarrow pr, (r \rightarrow q) \rightarrow r\}$$

$$(pq \rightarrow pr) \wedge ((r \rightarrow q) \rightarrow r)$$

$$(q \vee (pq \wedge r)) \wedge ((r \wedge \neg q) \vee r)$$

$$(q \vee pr) \wedge (q \vee r) \wedge (r \vee \neg q)$$

$$\neg(q \leftrightarrow r)$$

$$\neg((q \wedge r) \vee (\neg q \wedge r))$$

$$\neg(q \wedge r) \wedge \neg(\neg q \wedge r)$$

$$(\neg q \vee r) \wedge (q \vee \neg r)$$

Fp

Tp

Tp

Fp

Fq

Tp

Tq

Sporné tabuľa => tabuľa dokazuje