

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

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

Tabulkou

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

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

$$(r \vee r \vee r) \wedge (r \vee r \vee r)$$

			A		B	A → B
p	q	r	r ∨ q	r ∧ q		
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:

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

DNF

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

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

CNF

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

			A	B		
p	q	r	p → q	A → r	B → p	
0	0	0	1	1	1	
0	0	1	1	0	1	
0	1	0	1	1	1	
1	0	0	1	1	0	
0	1	1	1	0	1	
1	0	1	1	0	1	
1	1	0	0	1	0	
1	1	1	0	1	0	

Tabulkou:

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

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

Úpravami:

$$A \rightarrow B \sim r \vee A \wedge B$$

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

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

DNF

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

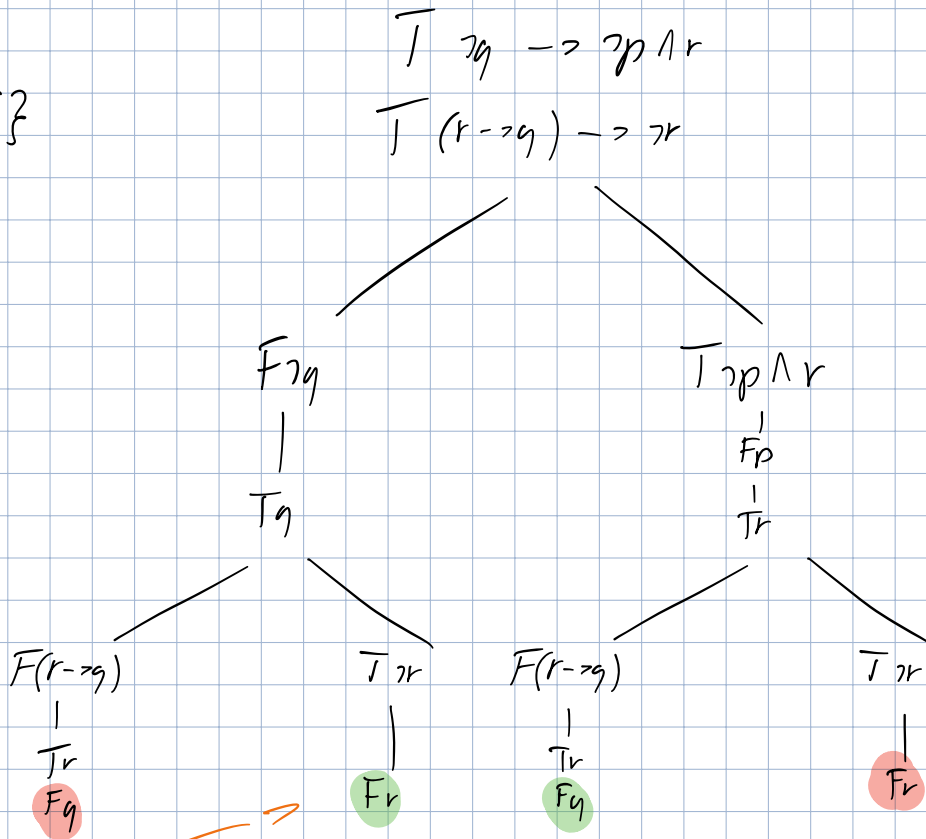
$$CNF: ((p \vee q) \wedge (p \vee r) \wedge (r \vee q) \wedge r) \vee \neg r \quad \sim$$

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

vždy pravda

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

Modely T: { }



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

Axiomatizujte do CNF, DNF:

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

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

v tabulce
větvky se p
neobjevují, tudíž
je nezměnitelná

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

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

Rezoluci' dokaz'e:

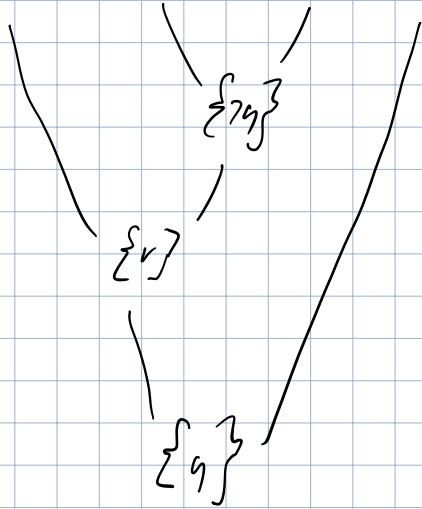
$$T1 = q \leftrightarrow r$$

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

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

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

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



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

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

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

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

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

Fp

Tq

Tp ∨ q

Fp

Fq

Tp

Tq

Spremi tablicu => tablica dokazuje