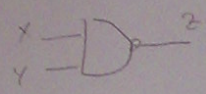
AUDITORNE

1. Odvedi ito parametre za NAND sklop



$NAND(x,y) = ITE(x, \bar{y}, 1)$

x	y	z	
0	0	1	} $x=0 \Rightarrow z=1$
0	1	1	
1	0	1	} $x=1 \Rightarrow z=\bar{y}$
1	1	0	

2. Ekspanzija po Shannonu po varijabli x dokazi:

$$f(x+y) + f(x \cdot y) = f(x) + f(y)$$

$$x \cdot f(1+y) + \bar{x} \cdot f(0+y) + x f(1 \cdot y) + \bar{x} \cdot f(0 \cdot y)$$

$$= x f(1) + \bar{x} f(y) + x f(y) + \bar{x} f(0)$$

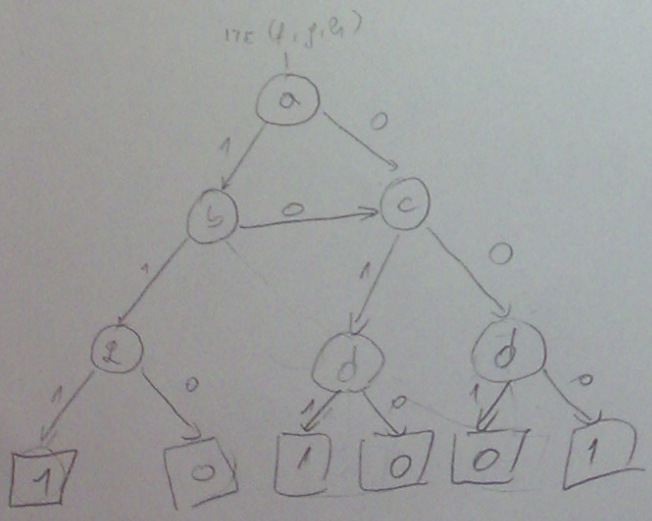
$$x f(1) + f(y)(\bar{x} + x) + \bar{x} f(0)$$

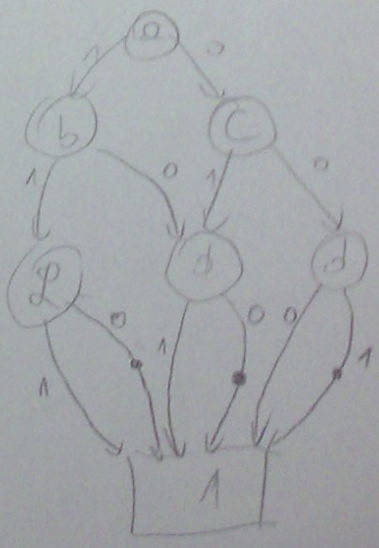
$$= \underbrace{x f(1) + \bar{x} f(0)}_{\text{ekspanzija po } x} + f(y)$$

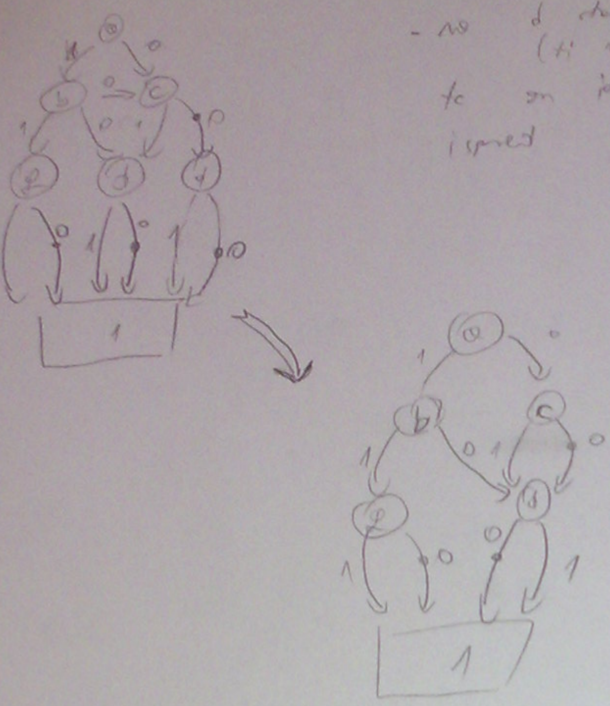
$$= f(x) + f(y) \quad //$$

3. Navedi BDD: pojednostavi s komplementnim bridovima dijagrama funkcije.

$ITE(f,g,h) = ITE(a, ITE(b,g,ITE(c,d,\bar{d})), ITE(c,d,\bar{d}))$







- na d staviti se mogu staviti komplement!
(ti na 1) 0 i dodati komplement
te on ide na
ispred.

4 Neka je zadano $F = a + b$

$G = a \cdot c$

$H = b + d$

a) BDD za svaku od funkcija

ite (a, 1, b) → za F

ite (a, c, 0) → za G

ite (b, 1, d) → za H

b) Izračunati ITE (F, G, H)

a < b < c < d → uređenje

ITE (F, G, H) = (a, ITE (F_a, G_a, H_a), ITE ($F_{a'}, G_{a'}, H_{a'}$))

= (a, ITE (1, c, H), ITE (b, 0, H))

= (a, c, ITE (b, 0, H'))

= (a, c, (b, ITE ($b_b, 0_b, H_b$), ITE ($b_{b'}, 0_{b'}, H_{b'}$))

= (a, c, (b, ITE (1, 0, 1), ITE (0, 0, d)))

= (a, c, (b, 0, d))

ITE (F, G, H)