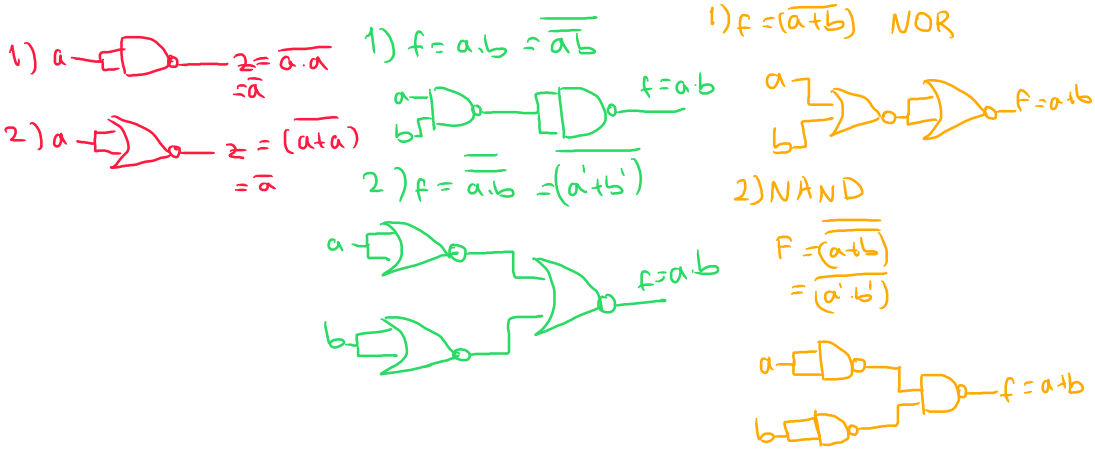
A-) Türetilmiş kapılarla Temel Lojik kapıların -.

Tümleyen (NOT) Ve (And) Veya (OR)



B) İndirgenmiş ifadelerin aynı tür kapılarla gerçekleştirilmesi

i) Çarpımlar Toplamı - NAND (Tümleyen ve) Tasarımı

$f(x_1,x_2,x_3) = xyz + xy'+xz$

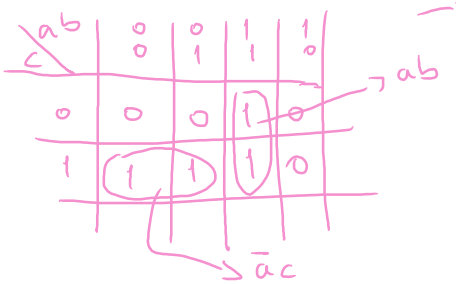
$(x_1)(x_2)(x_3)$

$f = \Sigma \Pi x_i$

$\bar{f} = \overline{\Sigma \Pi x_i} = \bar{f} = \Pi \overline{\Pi x_i}$ → $(\overline{ab+cd}) = \bar{a}\bar{b}\bar{c}\bar{d}$

$\bar{\bar{f}} = \overline{\Pi \overline{\Pi x_i}} = f$

$f(a,b,c) = \bar{a}\bar{b}c + \bar{a}bc + ab\bar{c} + abc$



→ $ab + \bar{a}c$

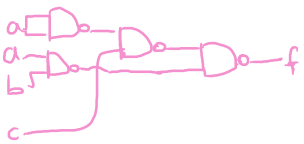
Amaç uçuz olması

$\bar{f}(a,b,c) = a'c + ab$

$\bar{f}(a,b,c) = \bar{a}c \cdot \bar{ab}$

$\bar{\bar{f}}(a,b,c) = \overline{\bar{a}c \cdot \bar{ab}}$

$f(a,b,c) = \overline{\bar{a}c \cdot \bar{ab}}$



ii) Çarpımlar toplamı NOR Tasarımı (Tümleyen veya)

$f = \Sigma \Pi x_i$

$\overline{\Pi x_i} = \overline{\Sigma \bar{x}_i}$

$f = \Sigma \overline{\Sigma \bar{x}_i}$

$\bar{f} = \Sigma \overline{\Sigma \bar{x}_i}$

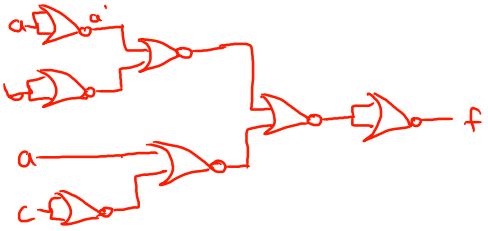
→ $\bar{f}$ — f

$f(a,b,c) = ab + \bar{a}c$

$= \overline{\overline{ab + \bar{a}c}}$

$= \overline{(a'+b')+(a+c')}$

$\bar{f} = (a'+b')+(a+c')$



iii) Toplamlar çarpımı NOR tasarımı

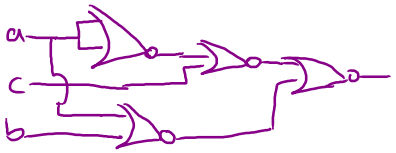
T veya

$F = (x+y+z).(x'+y').(z'+y)$

$f = \Pi \Sigma x_i$ $\quad f(a,b,c) = (a+b)(\bar{a}+c)$

$\bar{F} = \overline{\Pi \Sigma x_i}$ $\quad \overline{f(a,b,c)} = \overline{(a+b)} + \overline{(\bar{a}+c)}$

$\bar{f} = \overline{\Sigma \overline{\Sigma x_i}}$ $\quad \overline{f(a,b,c)} = \overline{(a+b)} + \overline{(\bar{a}+c)}$



IV) Toplamlar çarpımı NAND Tasarımı

T VE

$f = \Pi \Sigma x_i \quad \Sigma x_i = \overline{\Pi \bar{x}_i}$ $\quad f(a,b,c) = (a+b)(\bar{a}+c)$

$f = \Pi \overline{\Pi \bar{x}_i} \rightarrow \bar{f} = \overline{\Pi \overline{\Pi \bar{x}_i}}$ $\quad = \overline{(a+b)}.\overline{(\bar{a}+c)} = \overline{\overline{a'b}.\overline{ac'}}$