

$$\mathbb{A}\mathbb{C}^0 \not\subseteq \mathbb{N}\mathbb{C}^1$$

□

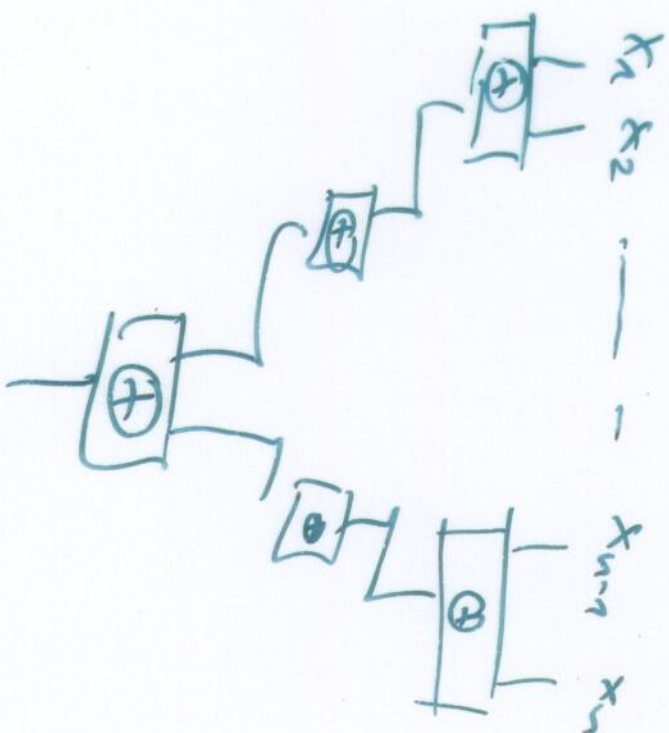
$$\oplus : \{0, 1\}^n \rightarrow \{0, 1\}$$

$$\oplus(x_1, \dots, x_n) = \sum_{i=1}^n x_i \pmod{2}$$

1) $\oplus \in \mathbb{N}\mathbb{C}^1$

2) $\oplus \notin \mathbb{A}\mathbb{C}^0$

1)



Random Restrictions

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$$f: \{0,1\}^n \rightarrow \{0,1\}$$



$$f: \{0,1\}^{n-t} \rightarrow \{0,1\}$$

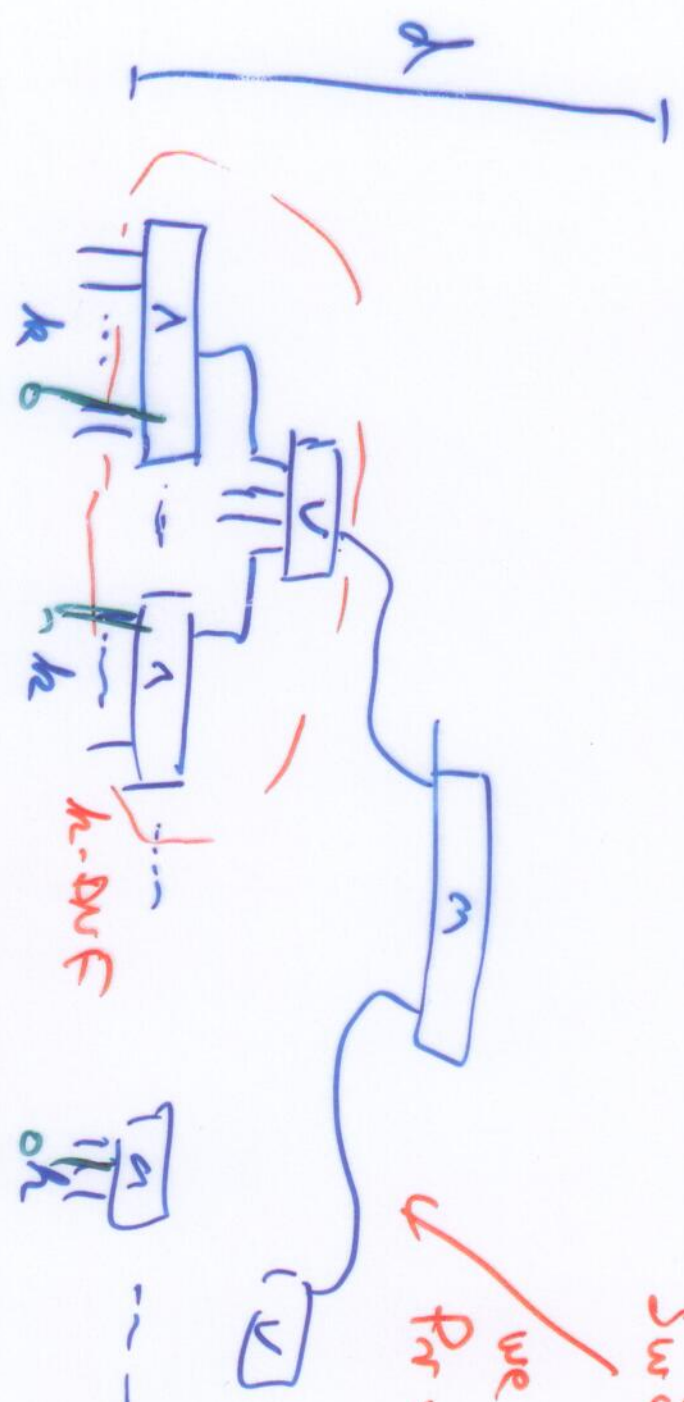
$\forall t < n$ \forall restr. f . $\oplus |f$ is not constant

\forall AC⁰ circuit f restr. f . $\exists |f$ is constant

Switching Transformer

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AC circuit

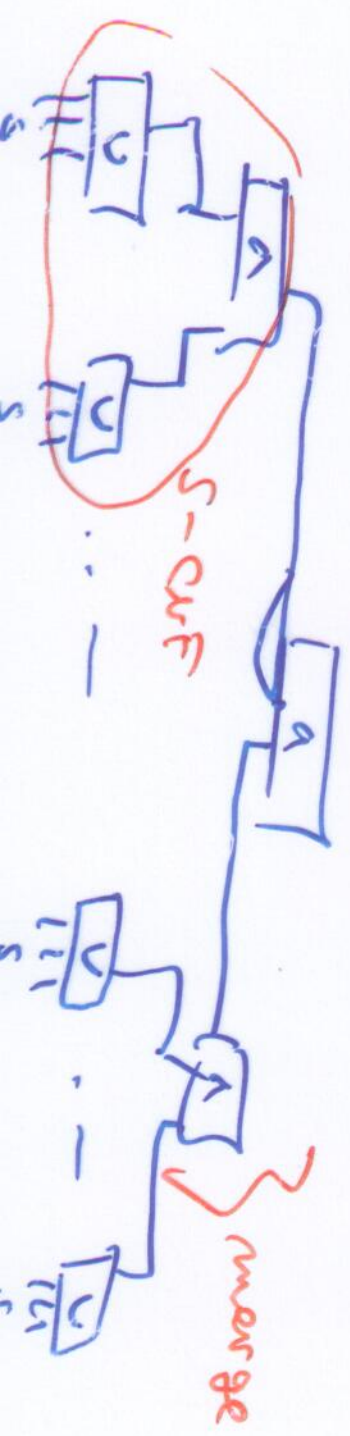


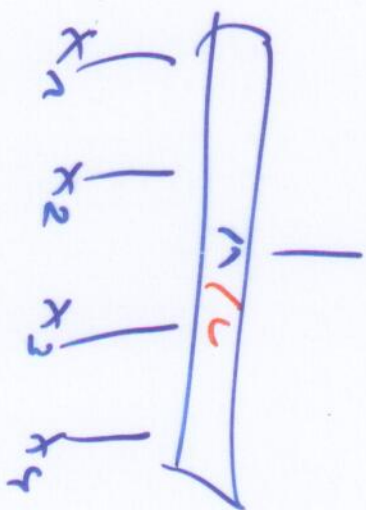
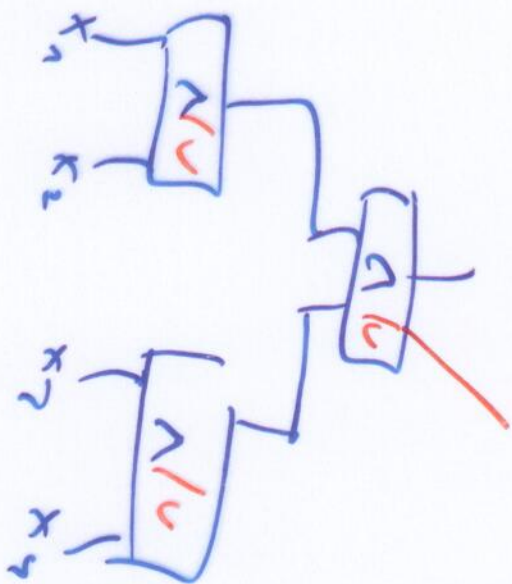
Switching losses

we can do this

$$Pr. 1 - \left(\frac{v - \mathcal{E}}{n} k_{10} \right)^{5/2}$$

switches





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Circuit size: n^b

n_i : # unresharded inputs

step $i+n$: fix $n_i - \sqrt{n_i}$

$$n_0 = n$$

$$n_{i+n} = \sqrt{n_i} = \underbrace{2^{i/n} \sqrt{n}}$$

$$h_i = 1062^i$$