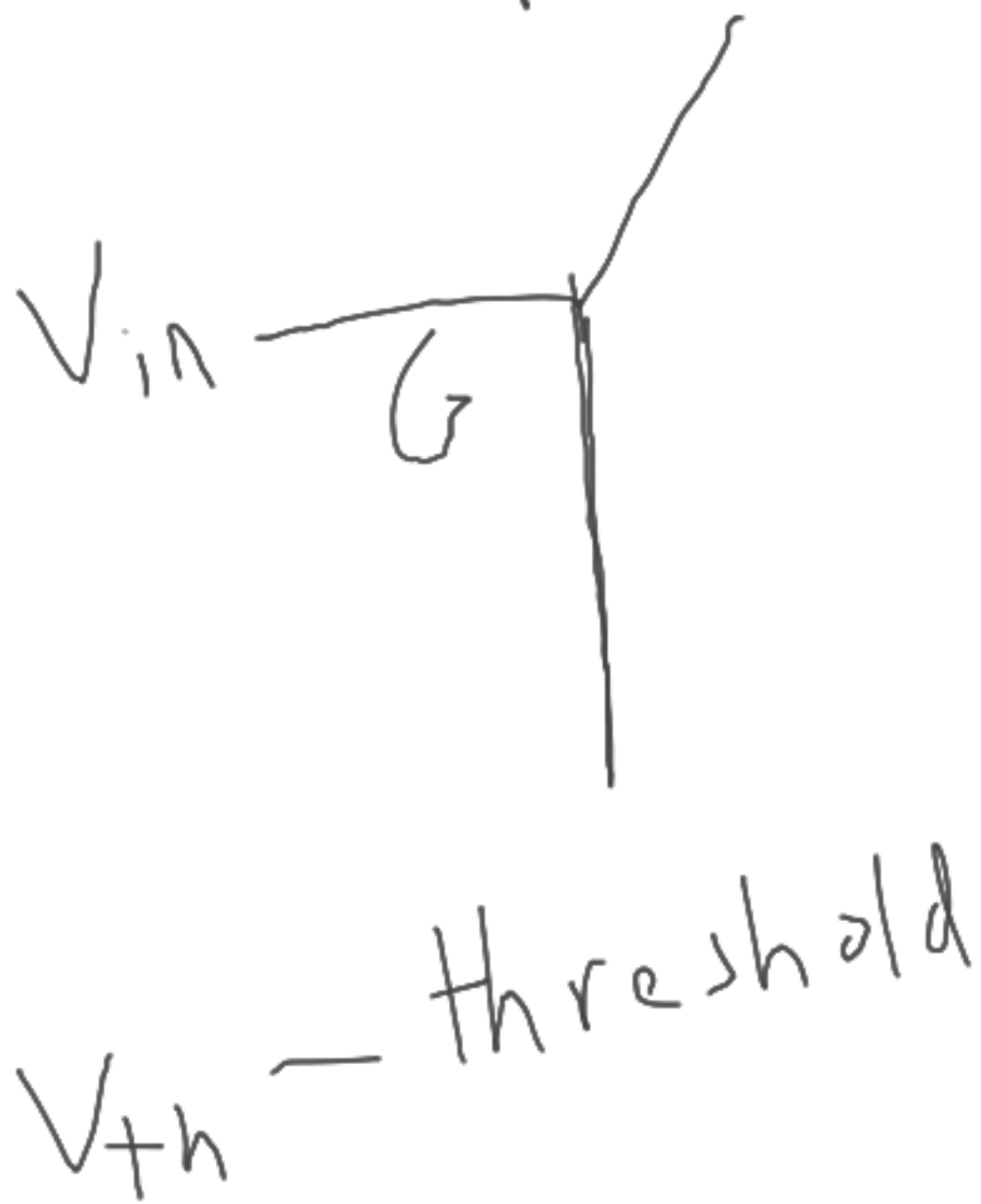


Manav Rathod

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Study Strategy OH: Tuesday 6 PM - 7 PM Cory Hall

# Transistors



$V_{in} \uparrow \rightarrow$  closed

$V_{in} \downarrow \rightarrow$  open

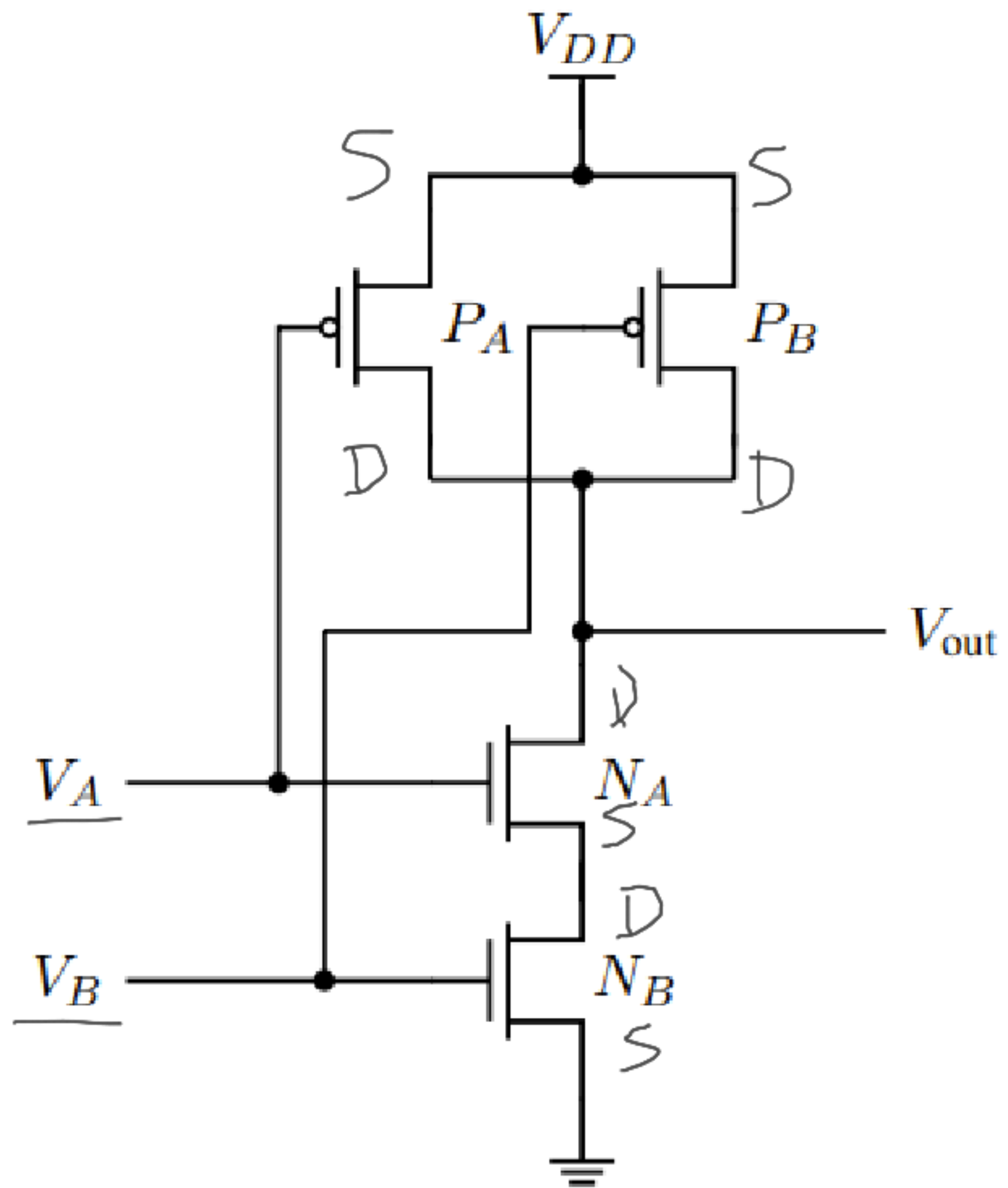
## NMOS



$V_{in} \uparrow \rightarrow$  open

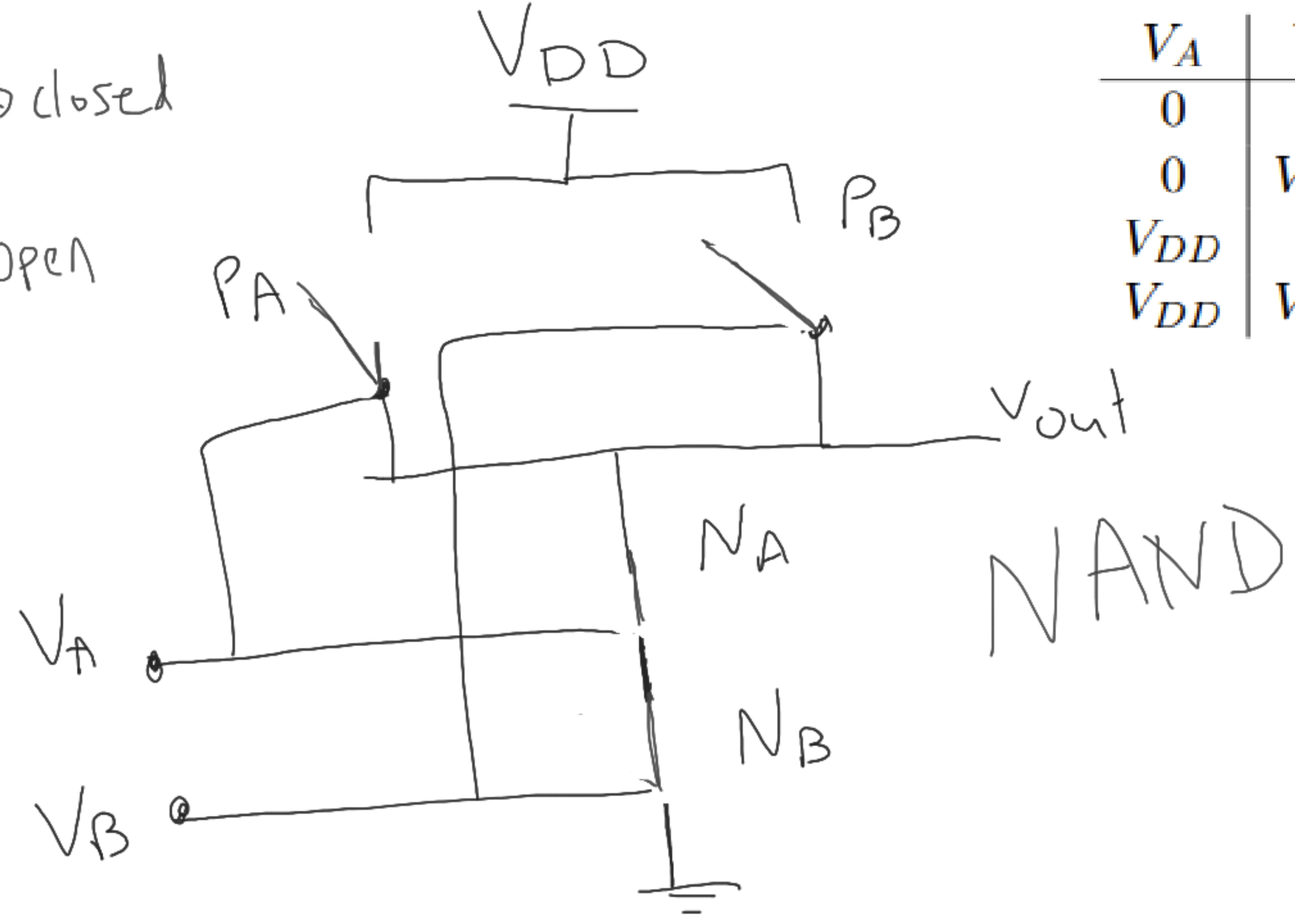
$V_{in} \downarrow \rightarrow$  closed

## PMOS



$\frac{P_A}{0 < V_{th}} \rightarrow \text{closed}$

$\frac{N_A}{0 < V_{th}} \rightarrow \text{open}$

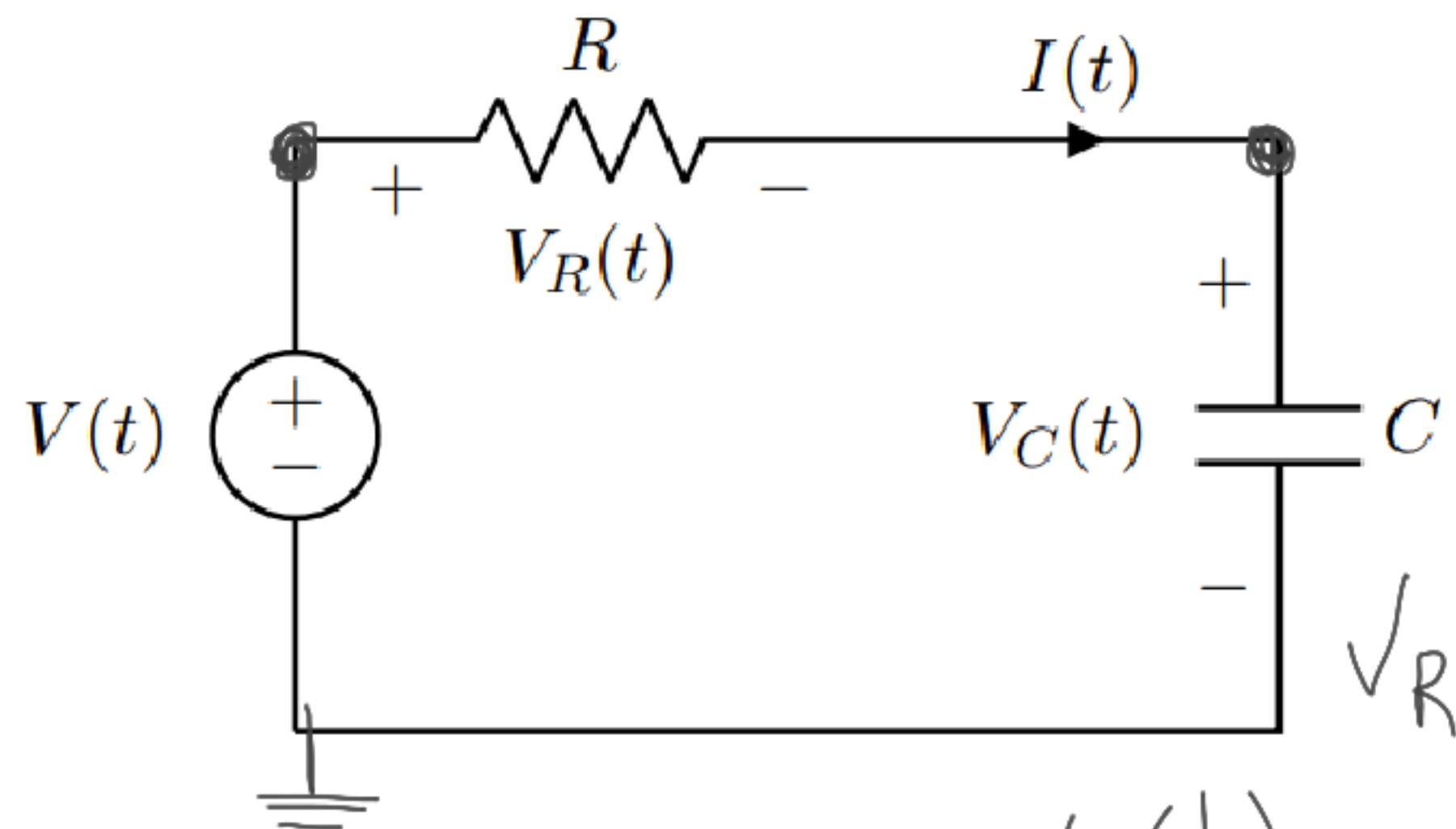


$V_A$	$V_B$	$V_{out}$
0	0	$V_{DD}$
0	$V_{DD}$	$V_{DD}$
$V_{DD}$	0	$V_{DD}$
$V_{DD}$	$V_{DD}$	0



**NO NO NO**

**NAND IN MY HOUSE**



$$Q = C \cdot V_C(t)$$

$$I(t) = \frac{dQ}{dt} = C \cdot \frac{dV_C(t)}{dt}$$

$$V_R(t) = I(t) \cdot R$$

$$V_R(t) = V(t) - V_C(t)$$

$$V(t) - V_C(t) = I(t) R$$

$$V(t) - V_C(t) = R C \frac{dV_C(t)}{dt}$$

Diff Eqns.

[tinyurl.com/manav16b](https://tinyurl.com/manav16b)