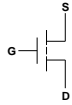


## CMOS Summary

Prepared by Robert Dick



- NMOS transistors

- No current flows between gate and source or gate and drain
- If  $V_{GS} > V_T$ , they're on (closed)
  - \* Current may flow between drain and source
- If  $V_{GS} < V_T$ , they're off (open)
  - \* No current flows between drain and source
- They're good at transmitting 0s
- They're bad at transmitting 1s
- Relatively high-mobility charge carriers (electrons)

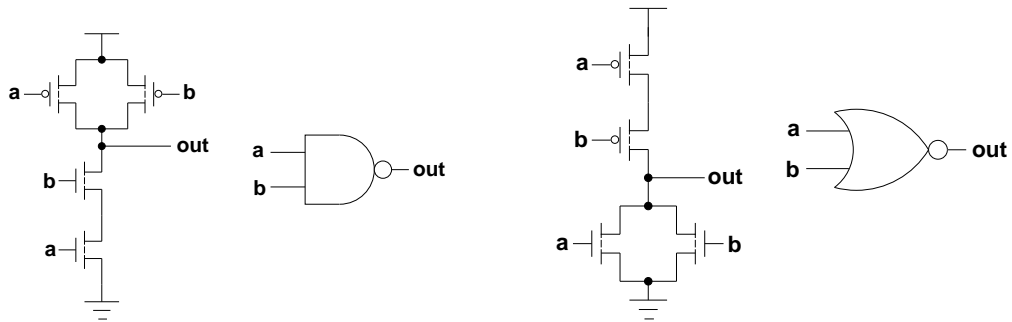


- PMOS transistors

- No current flows between gate and source or gate and drain
- If  $V_{GS} < -V_T$ , they're on (closed)
  - \* Current may flow between drain and source
- If  $V_{GS} > -V_T$ , they're off (open)
  - \* No current flows between drain and source
- They're good at transmitting 1s
- They're bad at transmitting 0s
- Relatively low-mobility charge carriers (holes)

- Draw PMOS transistors on top and NMOS transistors on bottom

- You can use them together to build logic gates, e.g., NANDs and NORs



- You can use them together to build transmission gates

