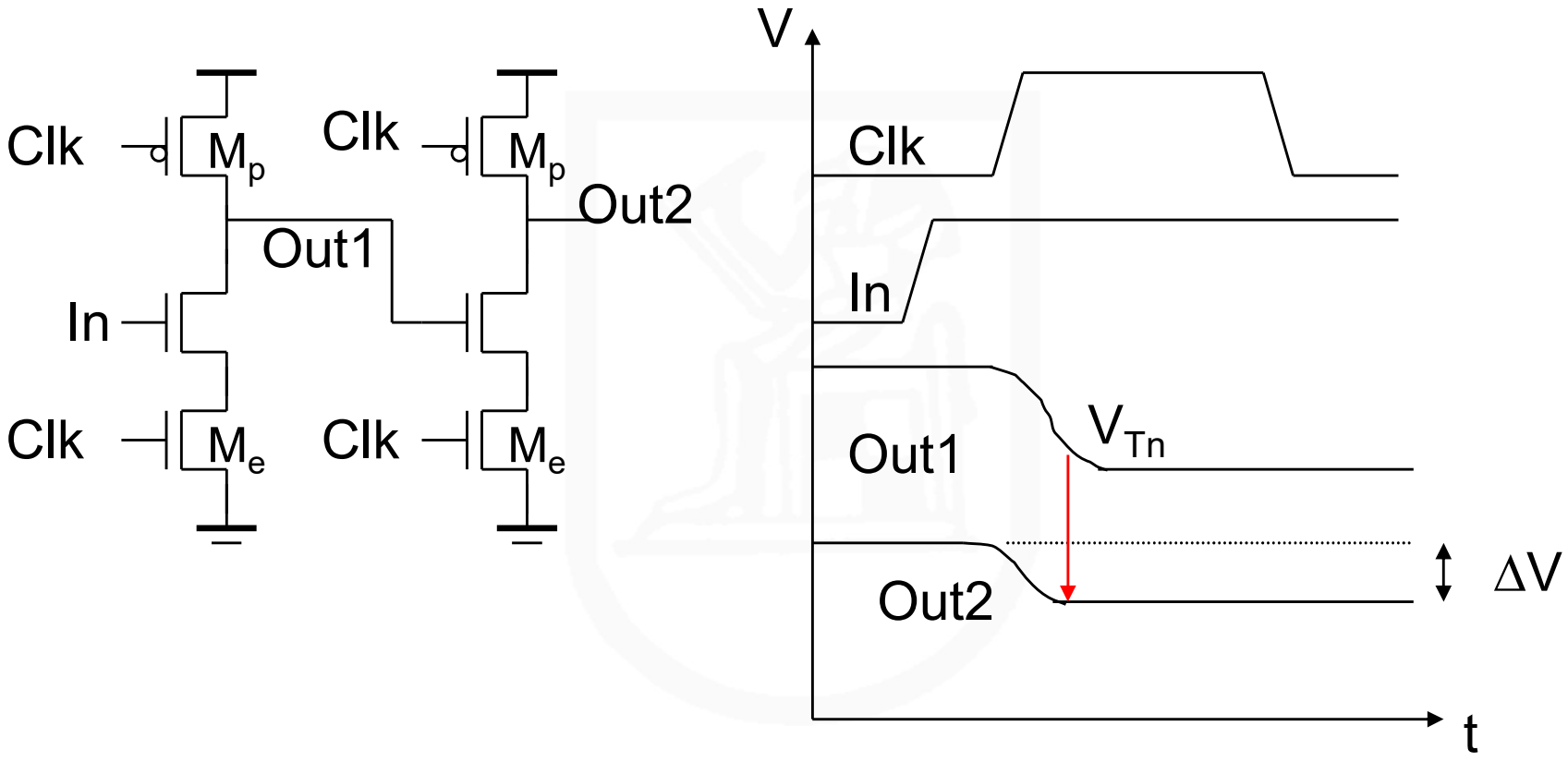
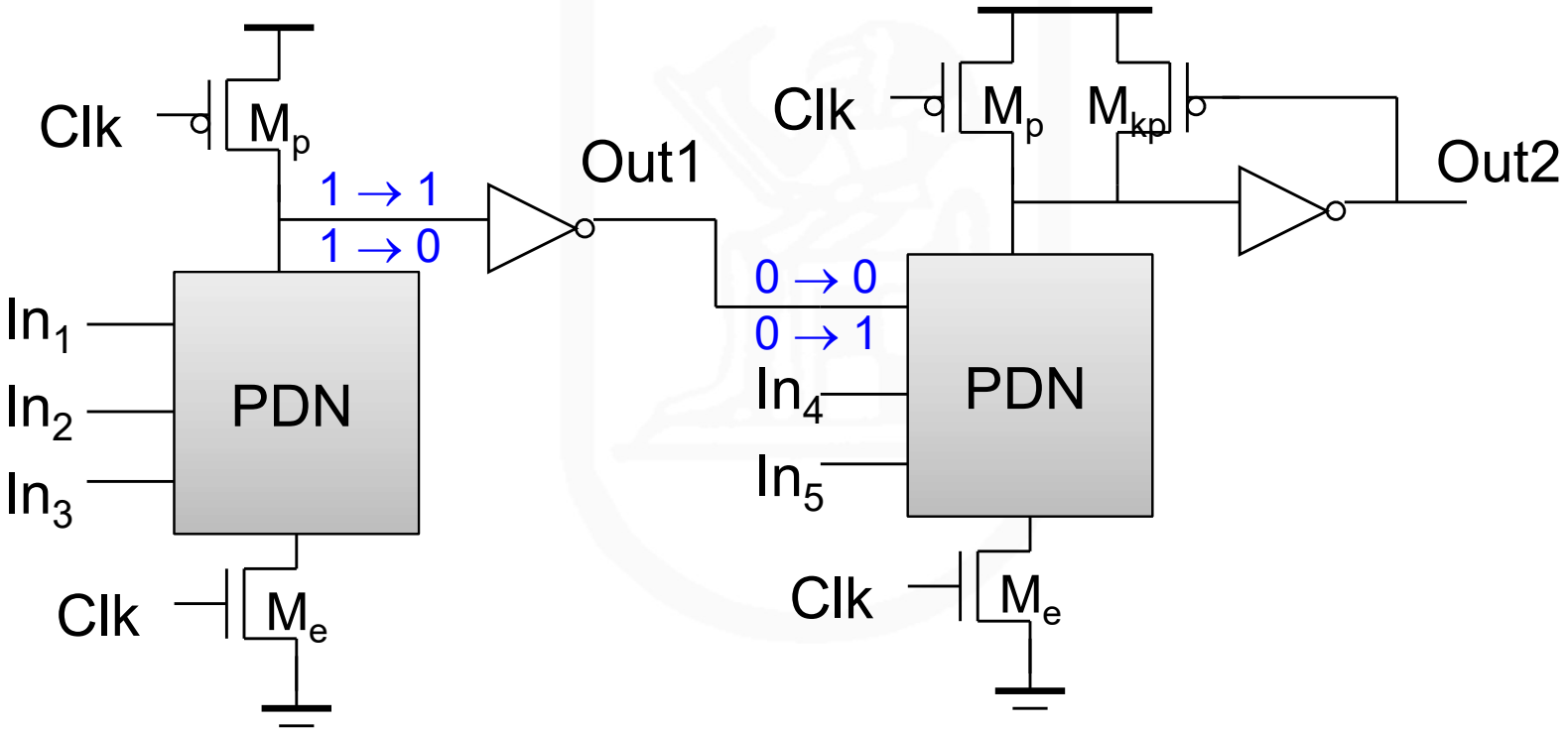
Cascading Dynamic Gates

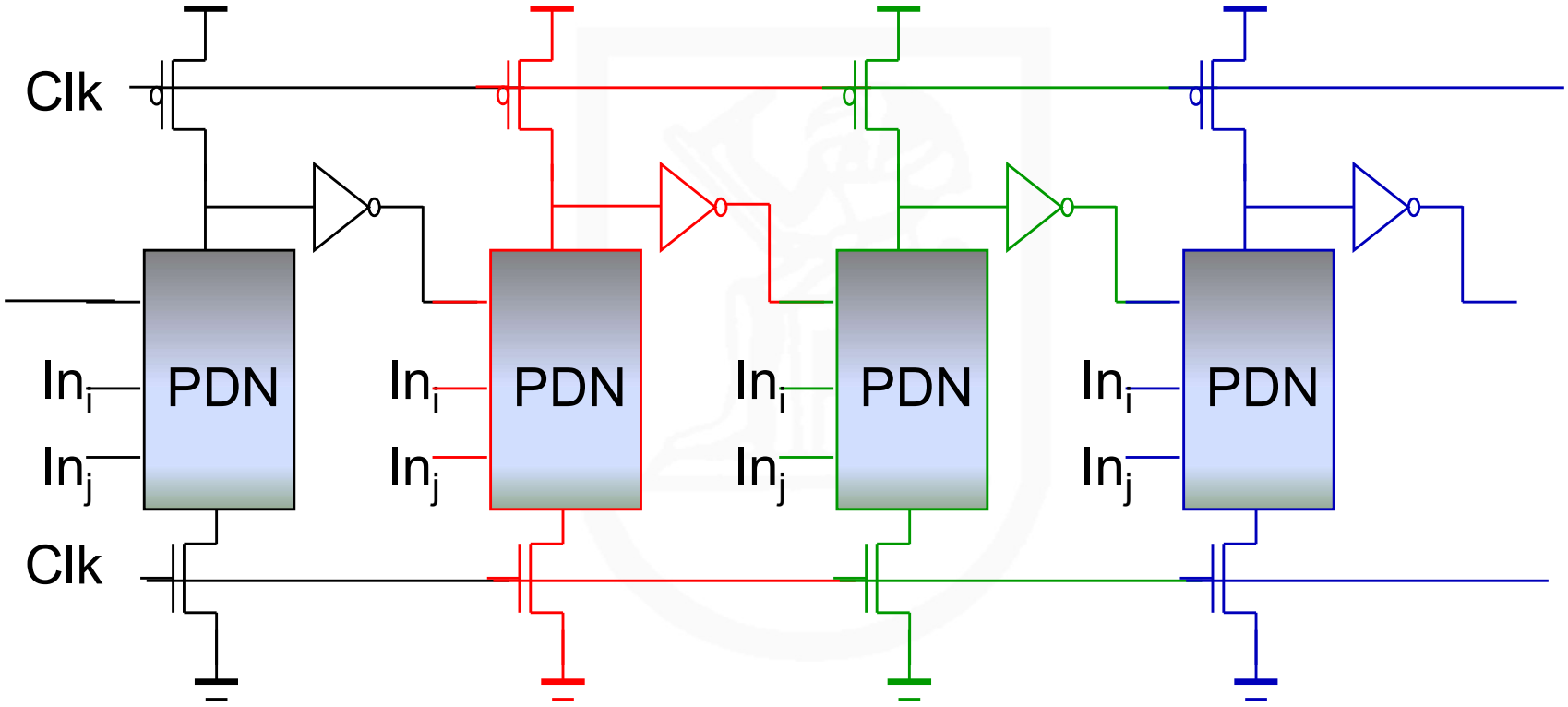


Only 0 → 1 transitions allowed at inputs

Domino Logic



Why Domino?

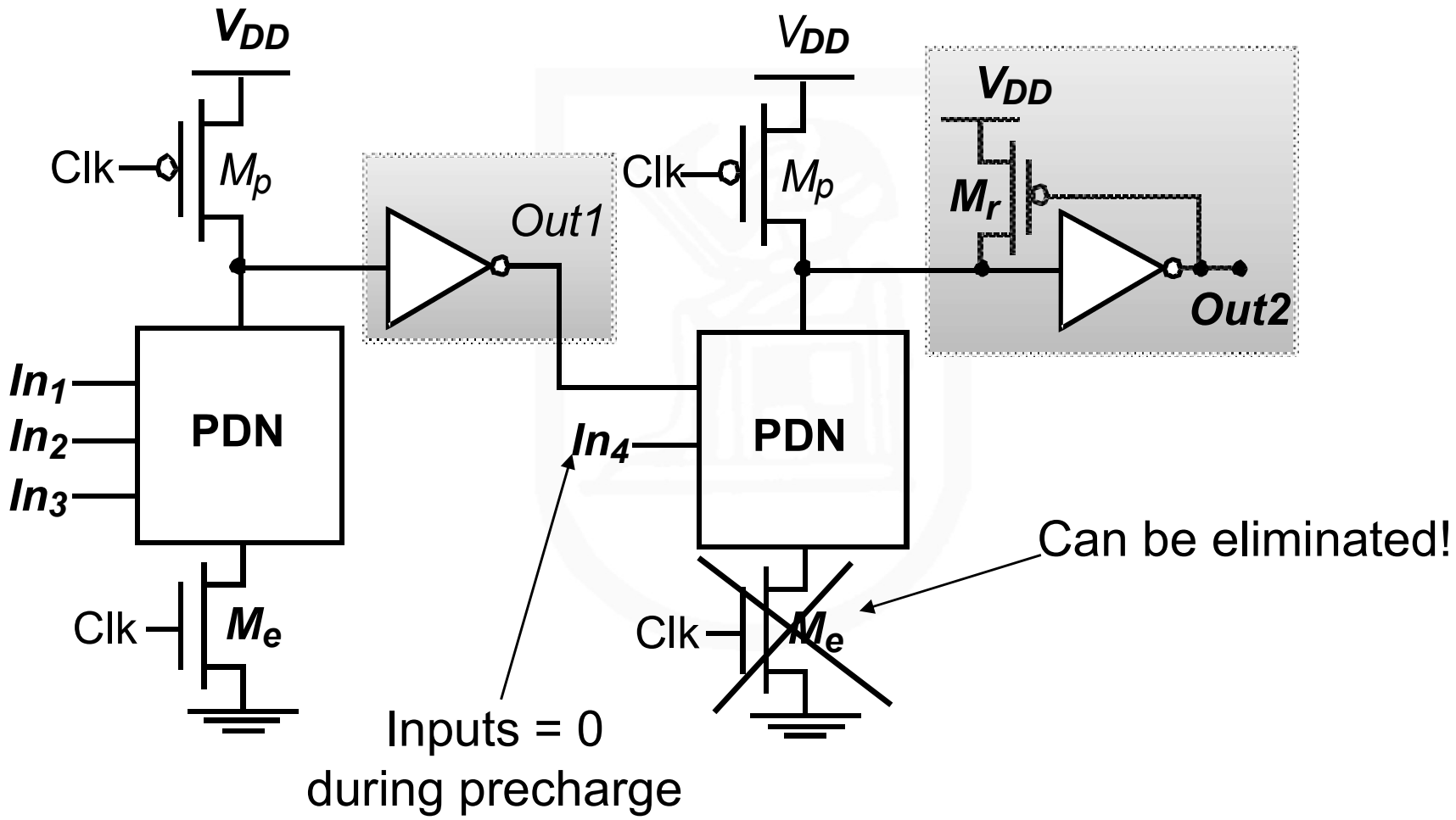


Like falling dominos!

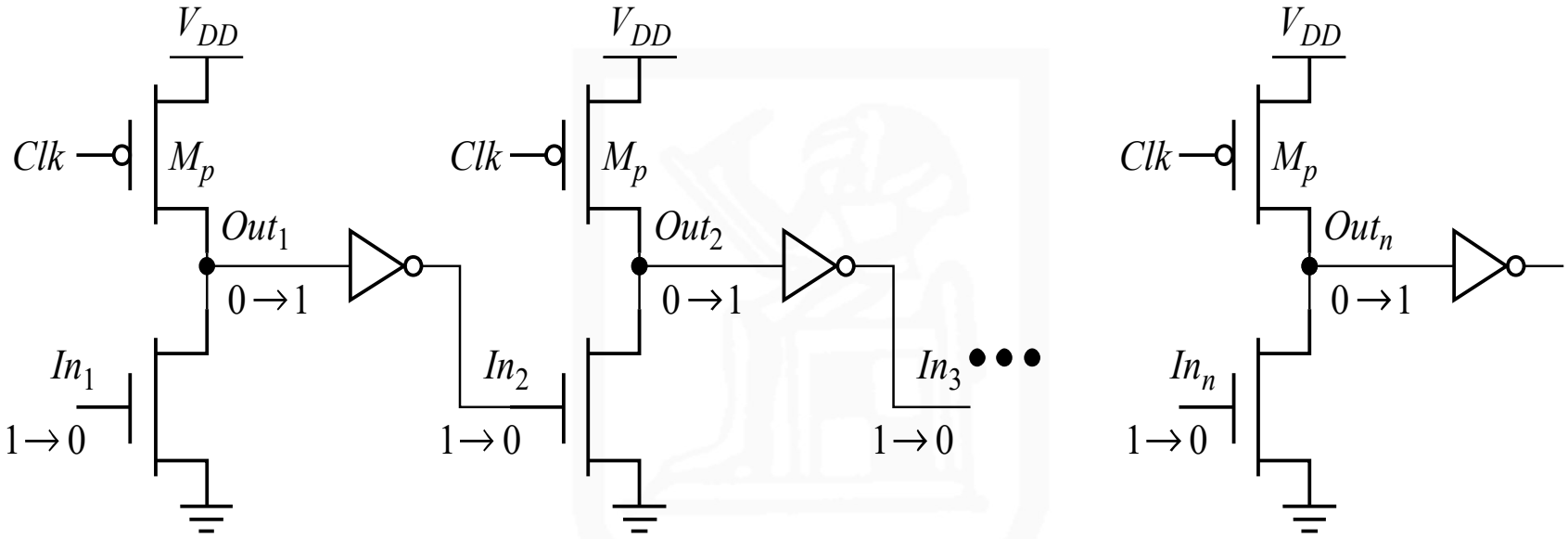
Properties of Domino Logic

- **Only non-inverting logic can be implemented**
- **Very high speed**
  - static inverter can be skewed, only L-H transition
  - Input capacitance reduced – smaller logical effort

Designing with Domino Logic

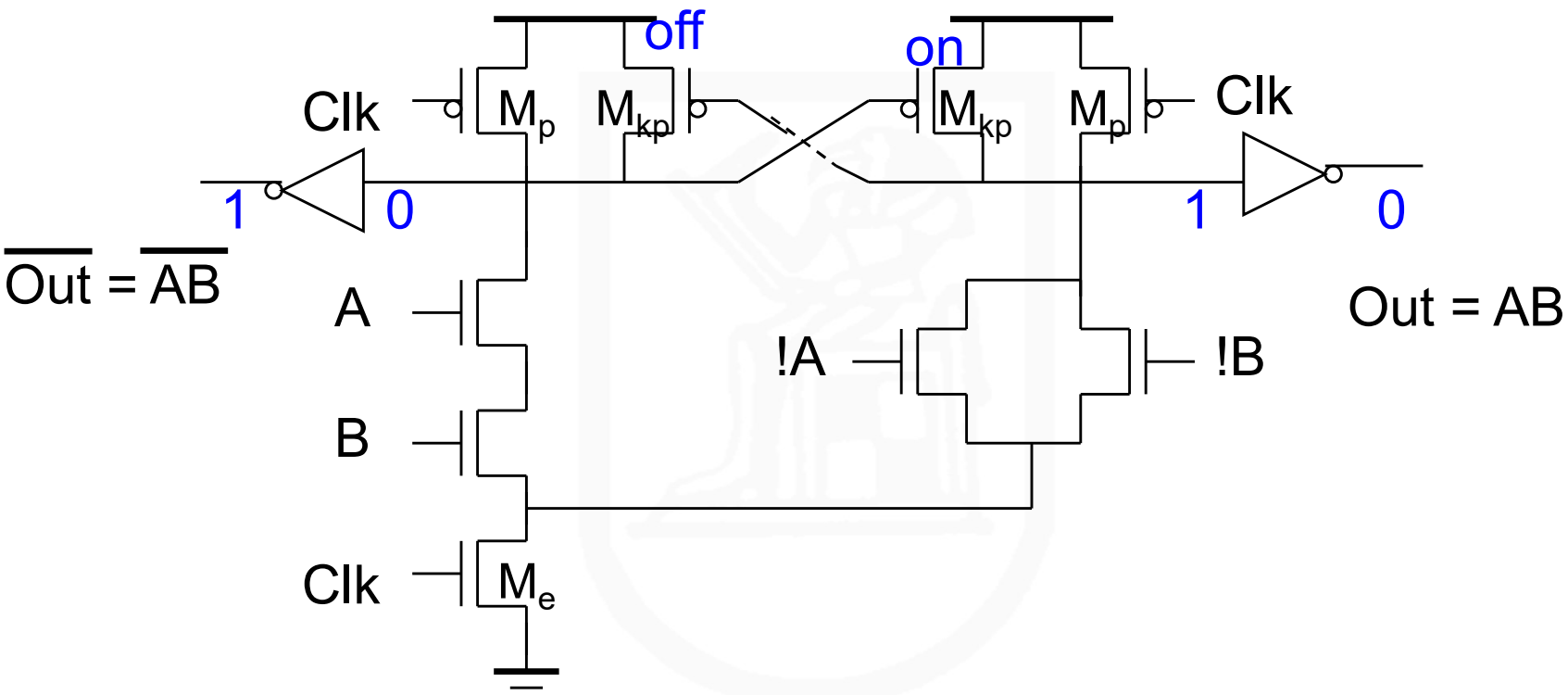


Footless Domino



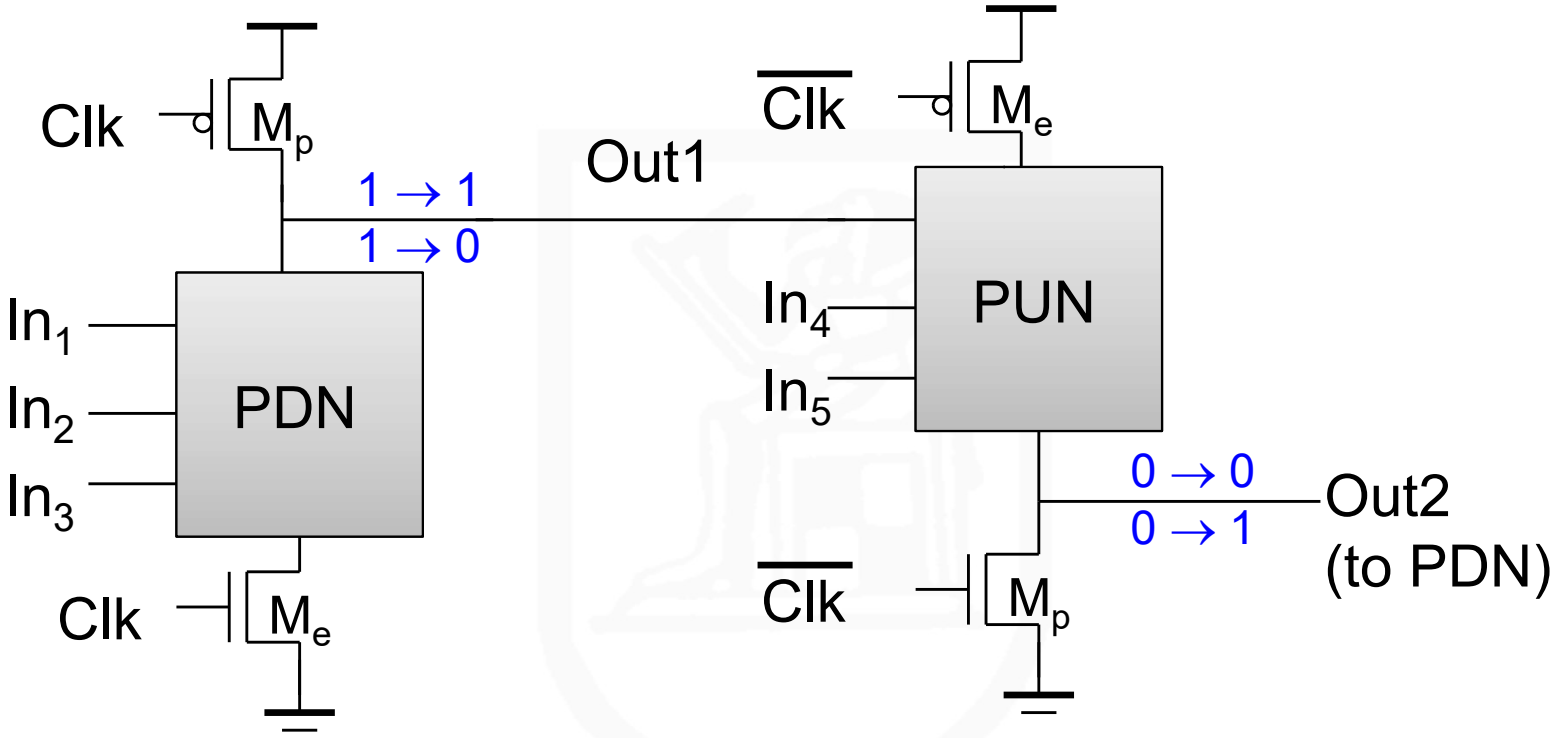
The first gate in the chain needs a foot switch
Precharge is rippling – short-circuit current
A solution is to delay the clock for each stage

Differential (Dual Rail) Domino



Solves the problem of non-inverting logic

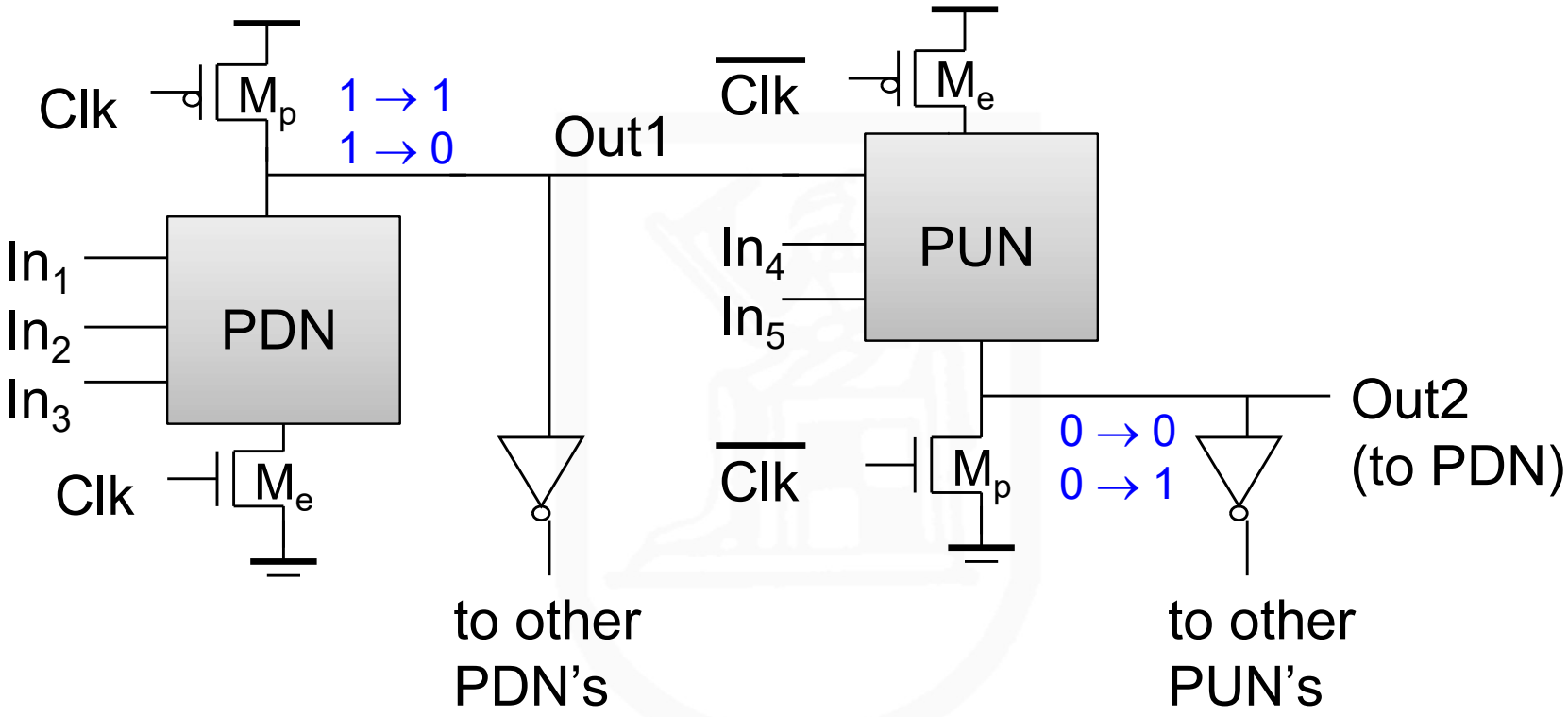
np-CMOS



Only 0 → 1 transitions allowed at inputs of PDN

Only 1 → 0 transitions allowed at inputs of PUN

NORA Logic



WARNING: Very sensitive to noise!