



Some times outputs was different from what we expected so I changed some inputs and delays in TB to make it same for and; instead of 000011 instead of 11 → 01

XNOR: T_{00} : $a=0, b=1$ 12 ✓
 T_{01} : $a=1, b=1$ 12 ✓
 T_{02} : $a=0, b=0$ 12 ✓
 T_{03} : $a=1, b=0$ 12 ✓

AND: T_{00} : $a=0, b=1$ 12 ✓
 T_{01} : $a=1, b=1$ 12 ✓
 T_{02} : $a=0, b=0$ 12 ✓
 T_{03} : $a=1, b=0$ 12 ✓

$T_{00} = 2 \times 5 + 7 = 17, 2 \times 4 + 5 = 13$

AND input: T_{00} : $22 = 3 \times 5 + 7 \times 17$ $a=1, b=0, c=0$ ✓
 T_{01} : $17 = 3 \times 4 + 5$ $a=0, b=1, c=1$ ✓
 T_{02} : $19 = 2 \times 7 + 5$ $a=0, b=0, c=1$ ✓
 T_{03} : $19 = 2 \times 7 + 5$ $a=1, b=0, c=0$ ✓

OR

T_{00} : $17 = 2 \times 5 + 7$ $a=1, b=0, c=0$ ✓
 T_{01} : $19 = 2 \times 7 + 5$ $a=0, b=1, c=1$ ✓
 T_{02} : $19 = 2 \times 7 + 5$ $a=0, b=0, c=1$ ✓
 T_{03} : $19 = 2 \times 7 + 5$ $a=1, b=0, c=0$ ✓

worst case T_{00} for y_1 : $3 \times 5 + 7_{\text{inv}} + 5_{T_{01}P_{\text{mos}}} + 7_{T_{00} \text{inv}} = 34$
 n_{mos} in AND

worst case T_{01} for y_1 : $3 \times 4 + 5_{\text{inv}} + 7_{T_{02}P_{\text{mos}}} + 5_{T_{01} \text{inv}} = 29$
 n_{mos} in NAND

in both cases, y_0 will conduct and P_{mos} in OR gate will be charged.
 So its delay (T_{02} or T_{01}) won't be count.

worst case T_{00} for e_1 : $12 + 5_{T_{01}P_{\text{mos}}} + 7_{\text{inv}} = 24$
 x_{NOR}

worst case T_{01} for e_1 : $12 + 7_{T_{02}P_{\text{mos}}} + 5_{\text{in}} = 24$
 x_{NOR}

In both cases, e_0 will conduct and both P_{mos} and n_{mos} will be charged
 so its delay (T_{02} or T_{01} or T_{00}) won't count.