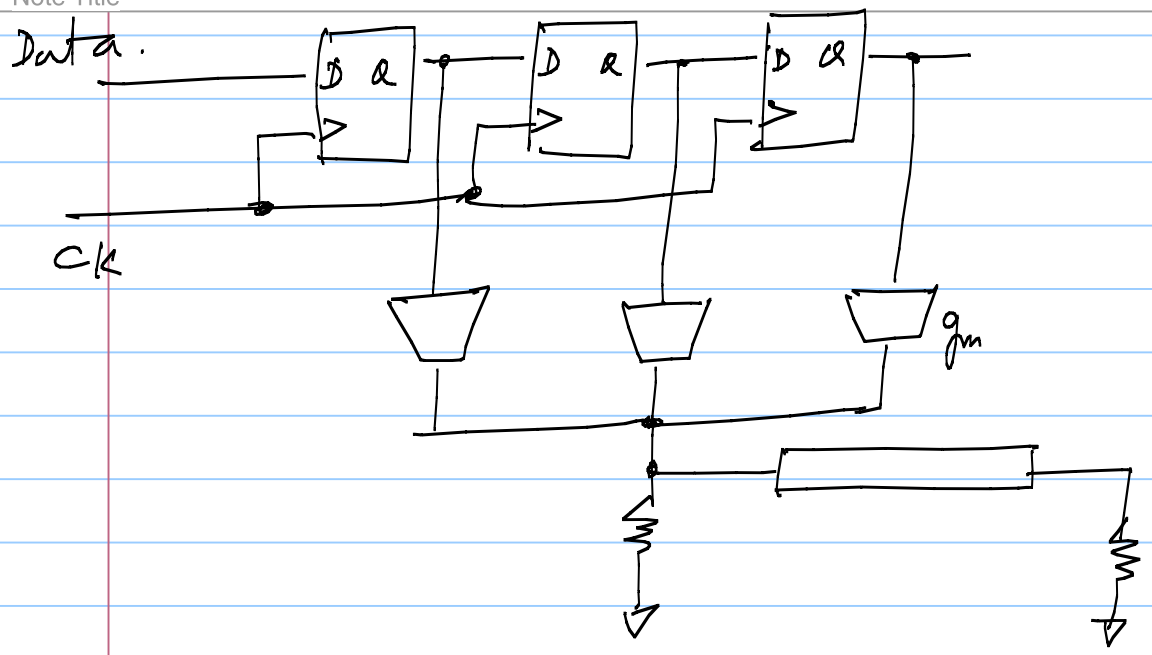
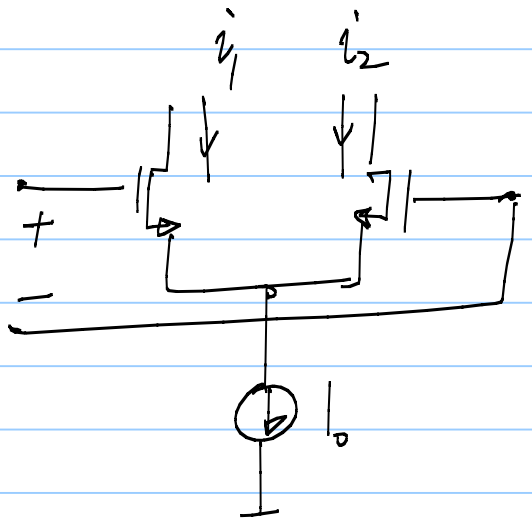
Tx equalizer:

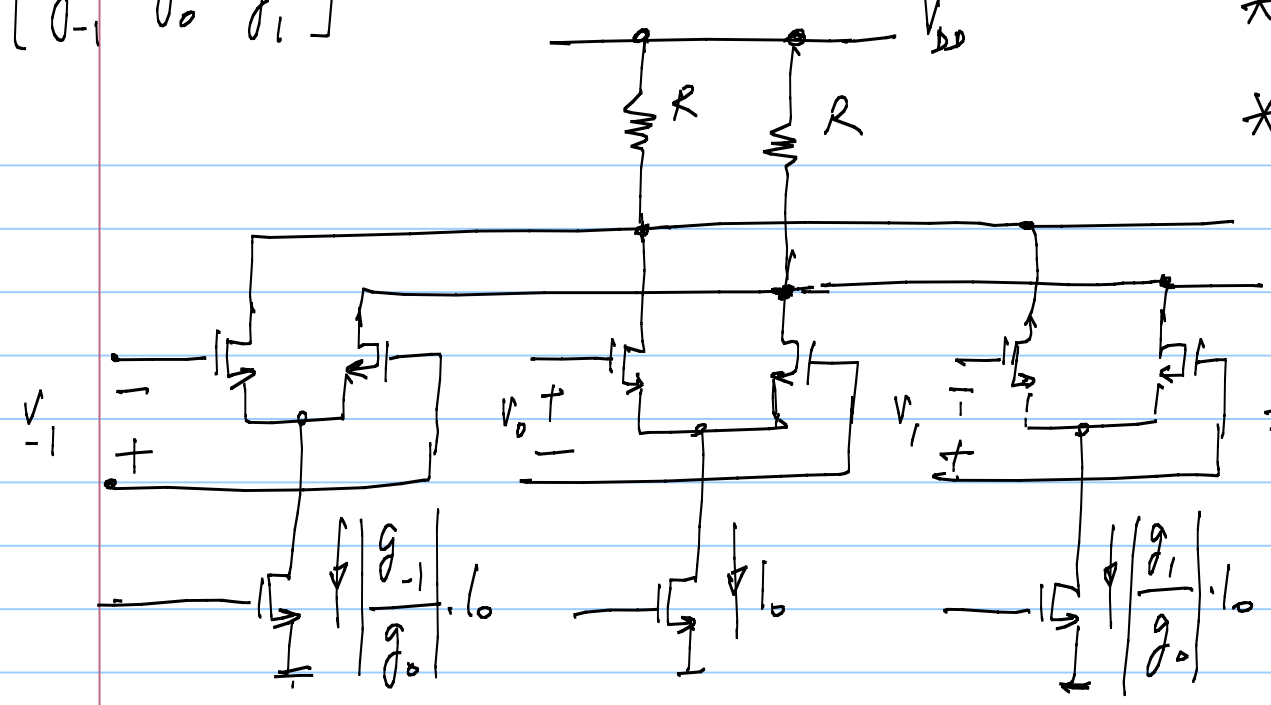
g_m : switched current source.

Note Title 05-09-2007





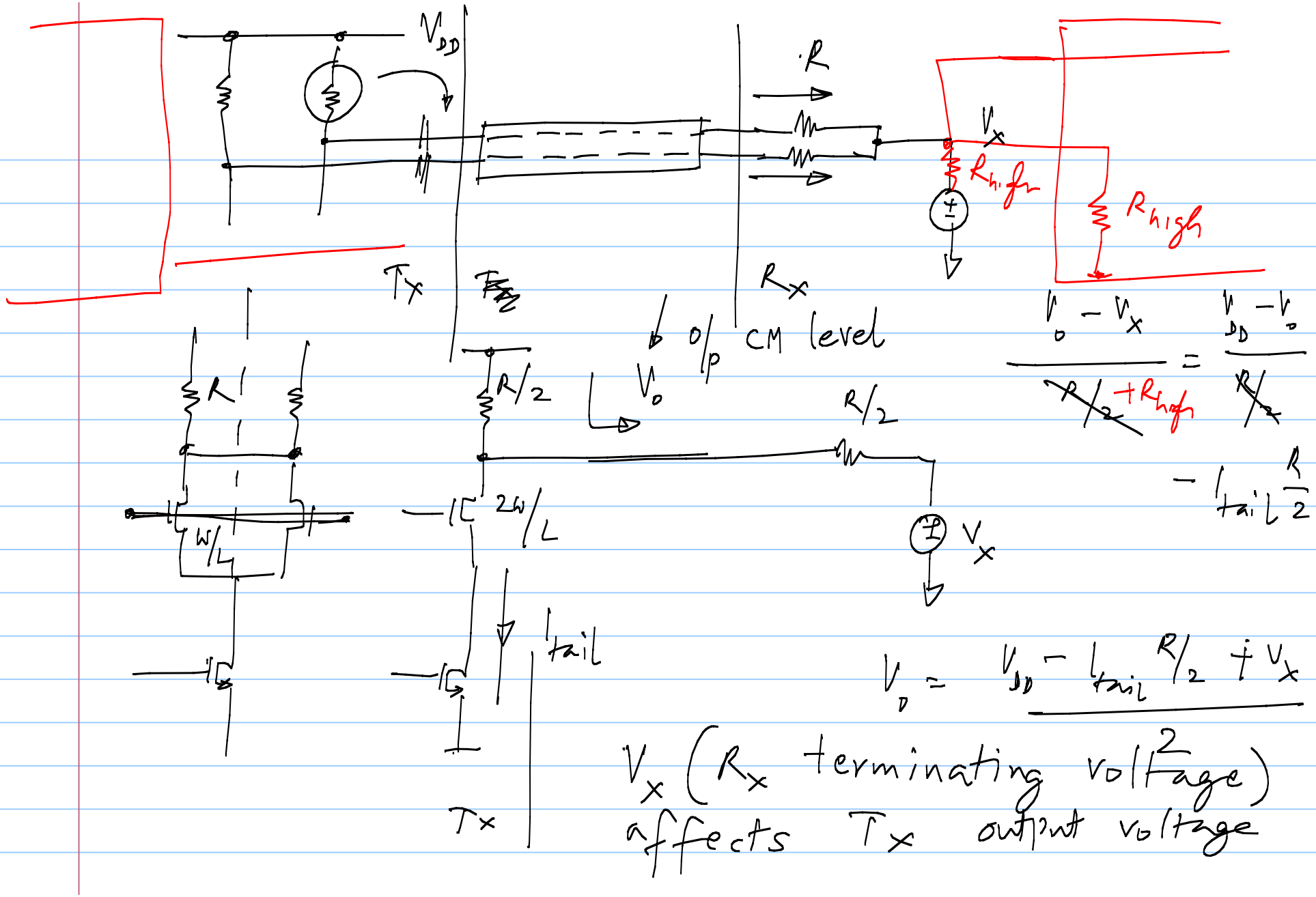
$[g_{-1} \quad g_0 \quad g_1]$



$$V_{out} = I_0 R\left[\frac{g_{-1}}{g_0} x[n+1] + x[n] + \frac{g_1}{g_0} x[n-1]\right]$$

Worse receive SNR

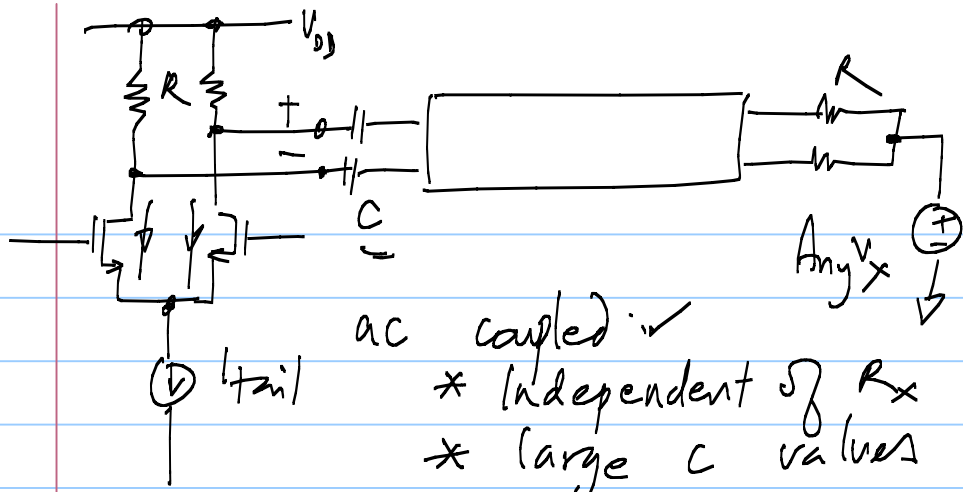
* nMOS @ high freqn
* pMOS: CM level closer to ground.
  [if constrained by R_x]
* $V_{ocm} = V_{DD} - \frac{R I_0}{2}\left(1 + \left|\frac{g_{-1}}{g_0}\right| + \left|\frac{g_1}{g_0}\right|\right)$.
* V_{ocm} can be increased (to keep transistors in saturation) by reducing $I_0 R$ ⟸ but smaller swing



$$\frac{V_o - V_x}{R/2 + R_{high}} = \frac{V_{DD} - V_o}{R/2} - I_{tail}\frac{R}{2}$$

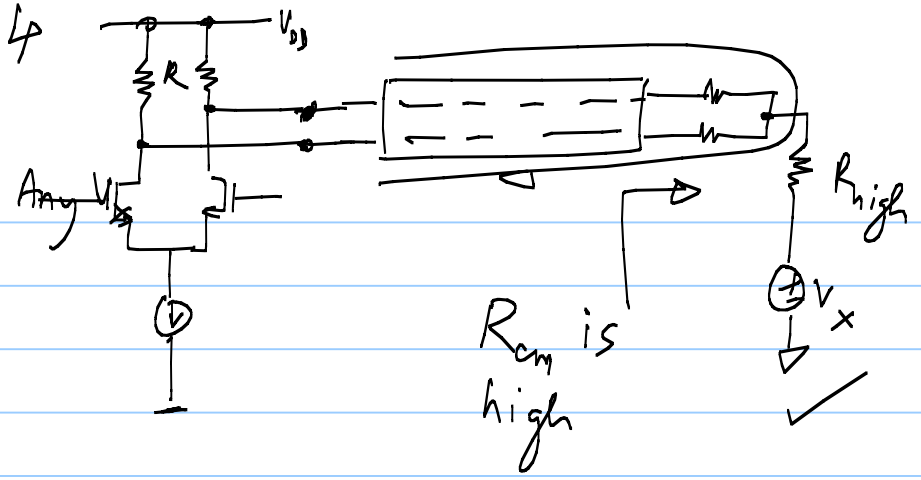
$$V_o = \frac{V_{DD} - I_{tail}\,R/2 + V_x}{2}$$

V_x (R_x terminating voltage) affects Tx output voltage

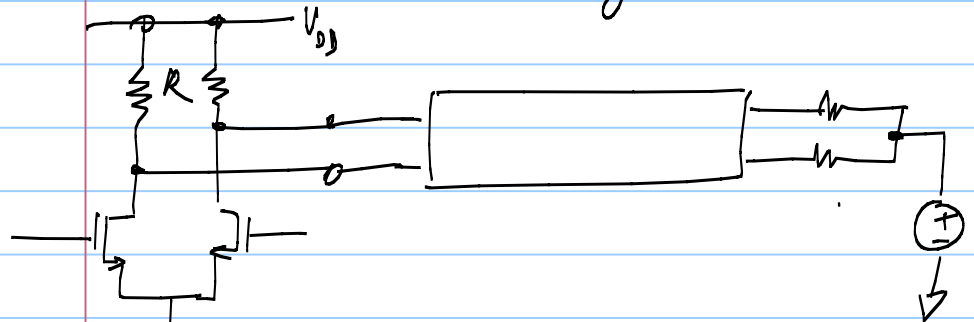


ac coupled ✓

* Independent of R_x
* large C values

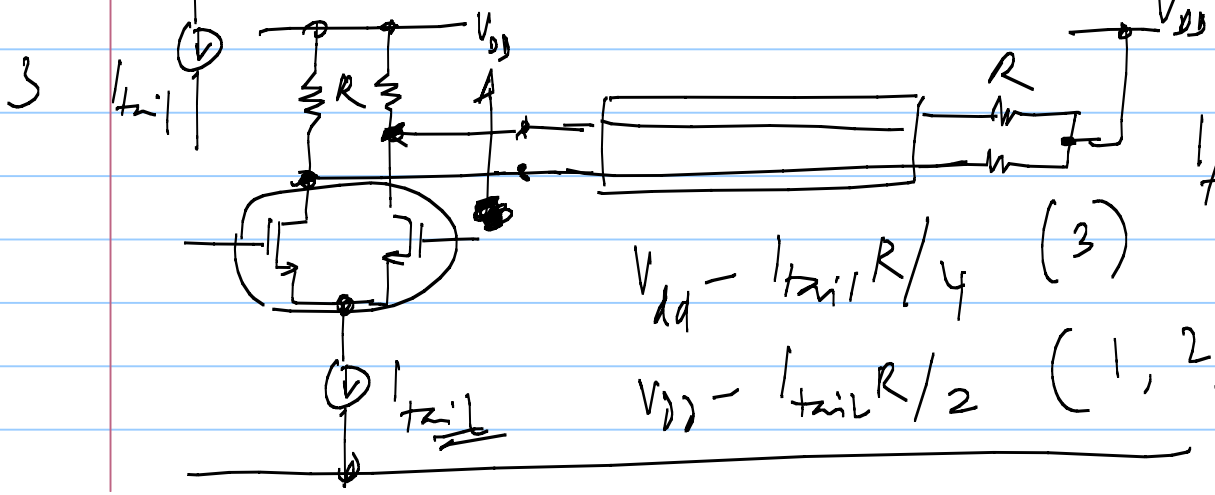


R_{cm} is high ✓



$$f_{low}$$

$$2RC \gg \frac{1}{2\pi f_{low}}$$



$V_{dd} - I_{tail}R/4$ (3)

$V_{DD} - I_{tail}R/2$ (1, 2, 4)