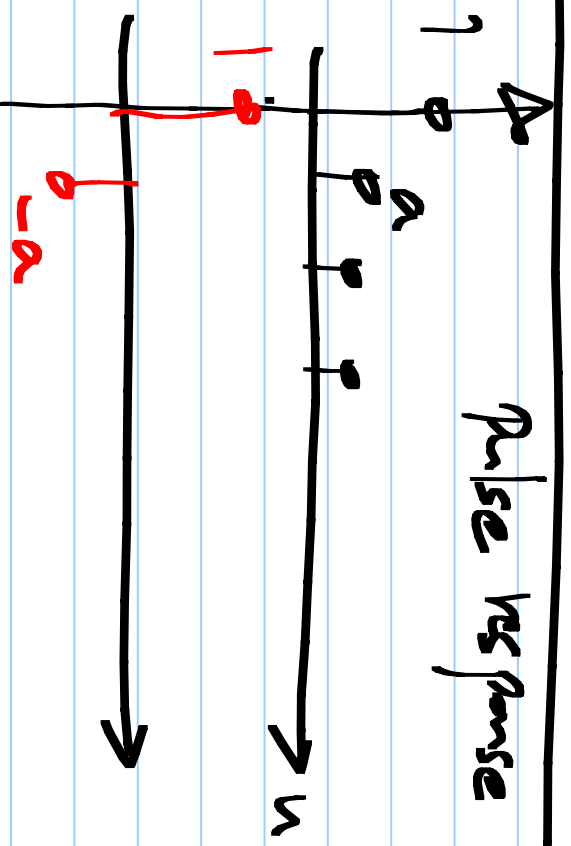
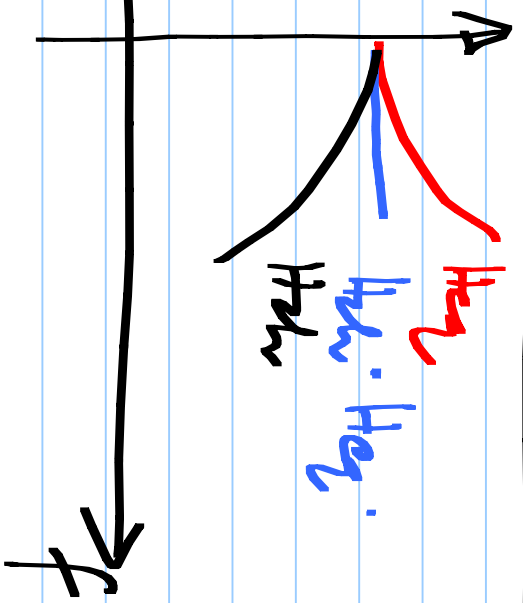
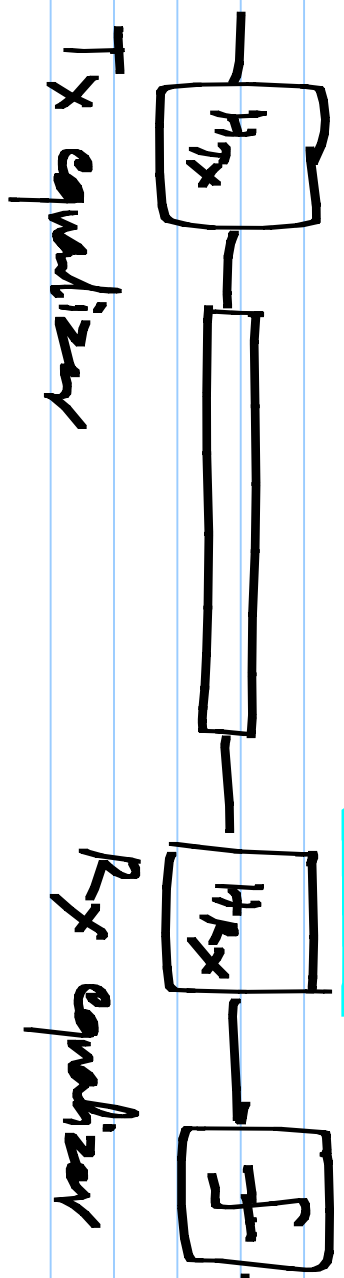


EE6322

Equalization

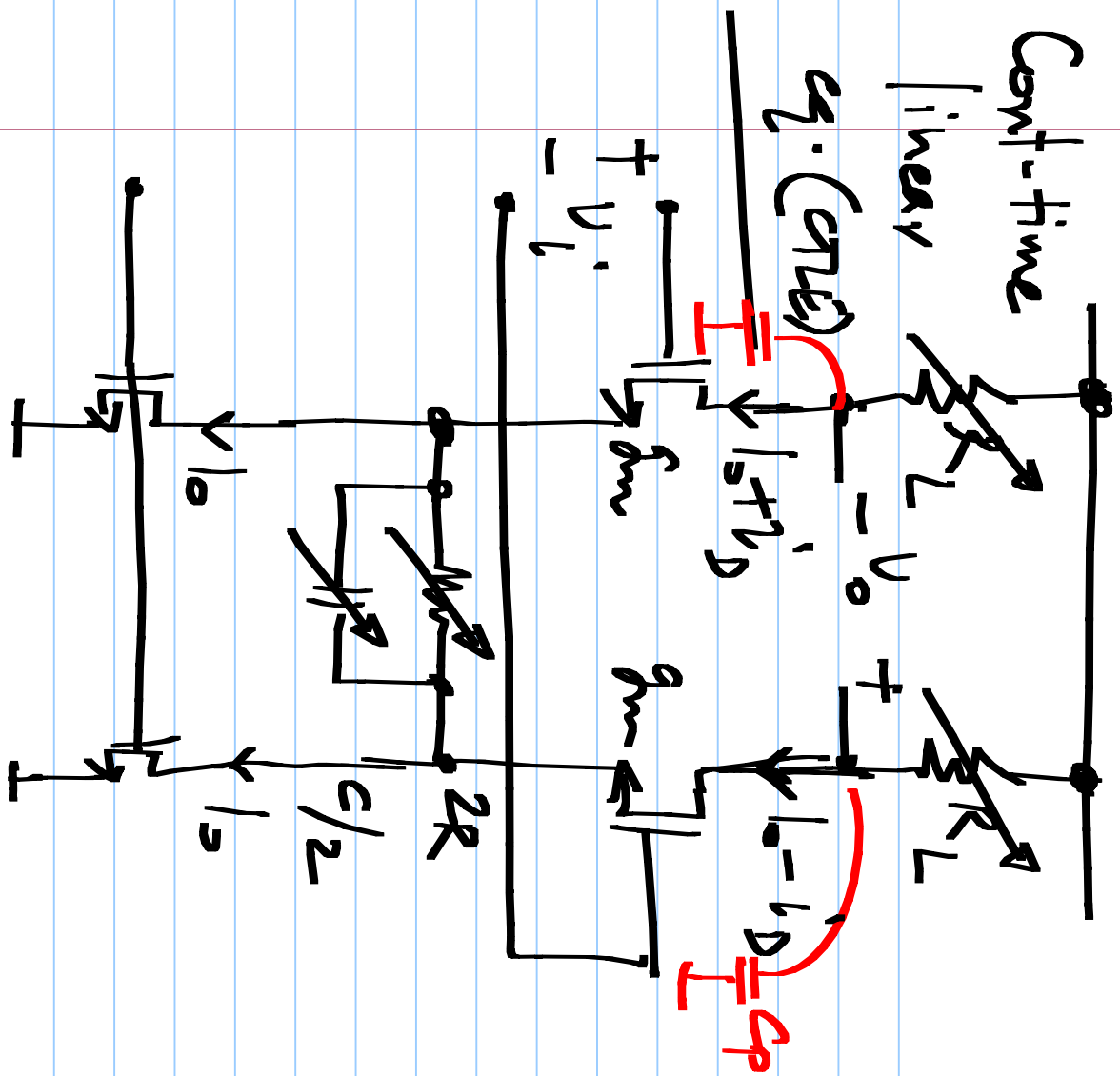
2/4/2018

Ex



Cont-time

linear



$$i_D' = \frac{1}{2} \cdot \frac{g_m}{1 + g_m Z} v_L$$

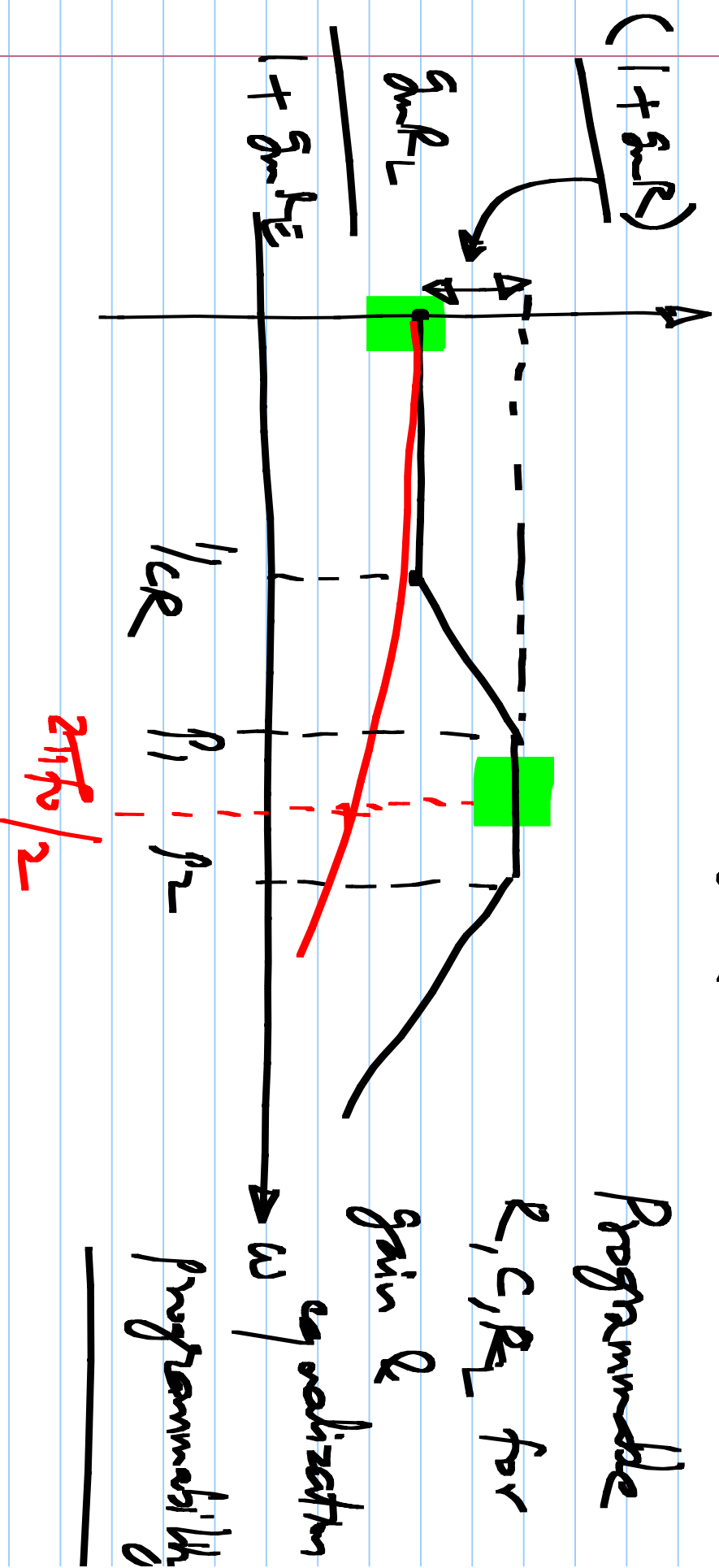
$$Z = \frac{R}{1 + sCR}$$

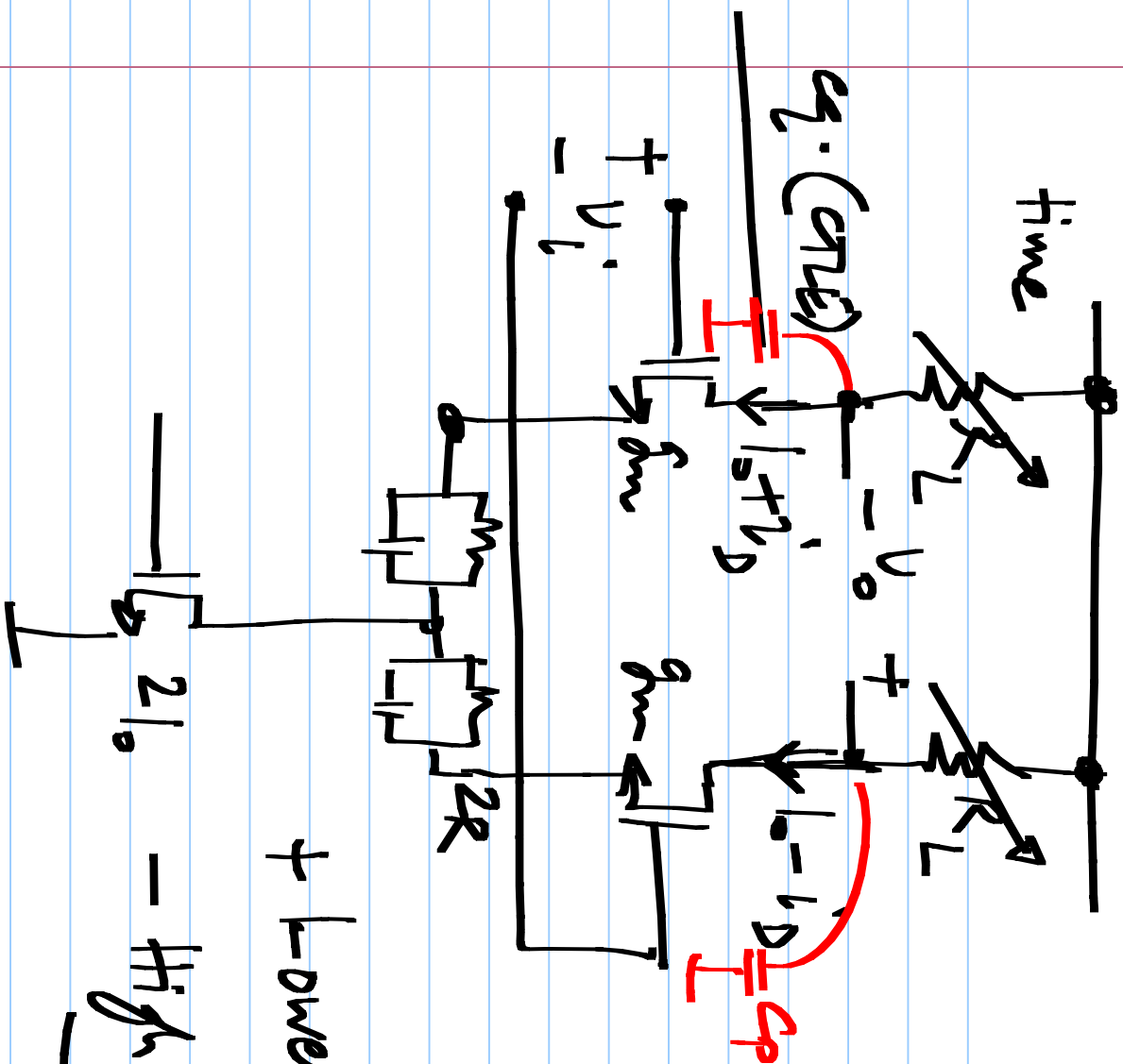
$$v_O = \frac{g_m R_L}{1 + g_m Z} v_L$$

$$v_L = \frac{1 + g_m Z}{g_m R_L} v_O$$

$$v_O = \frac{g_m R_L \cdot \frac{1 + sCR}{1 + g_m R + sCR}}{1 + g_m R + sCR} v_L$$

$$V_0 = \frac{g_m R_L}{1 + g_m R_E} \cdot \frac{1 + s C_R}{1 + s C_R} \cdot \frac{1}{1 + s R_L C_p}$$



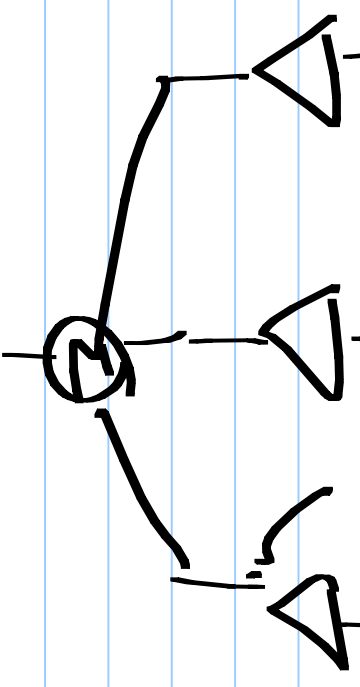
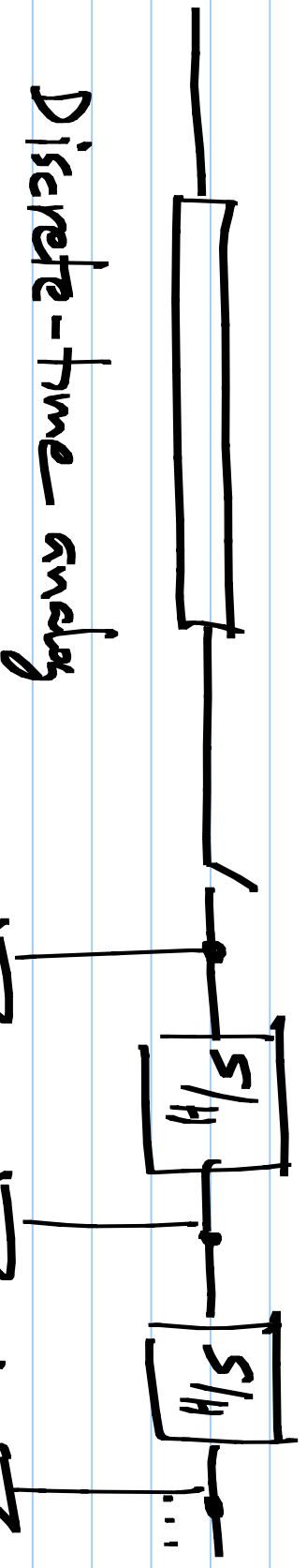
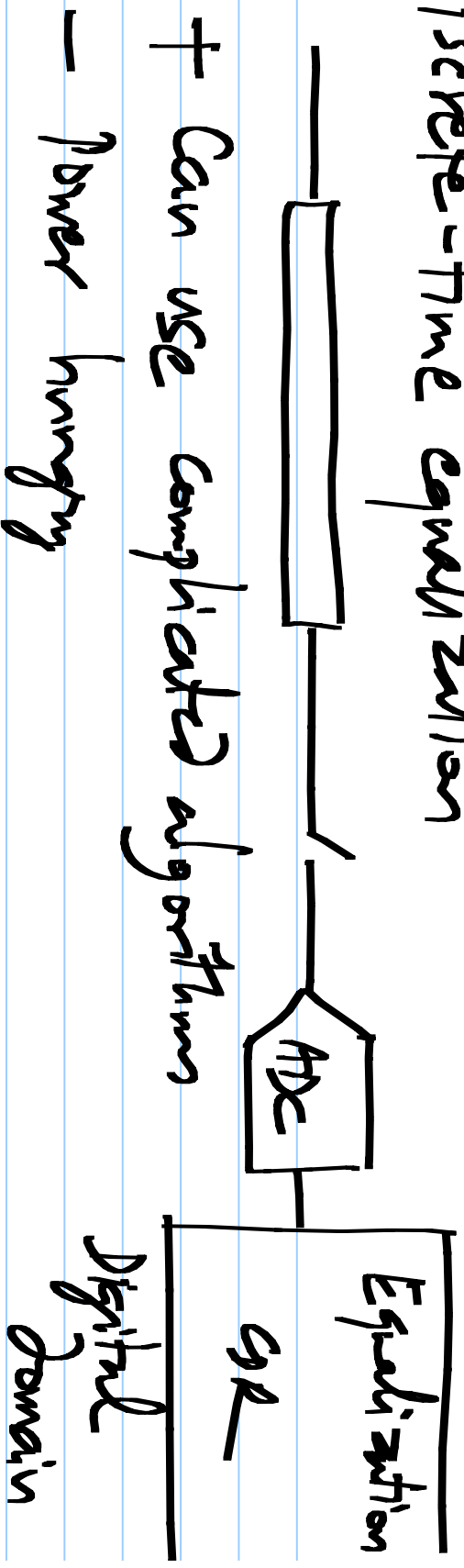


eg. (GTE)

+ lower noise

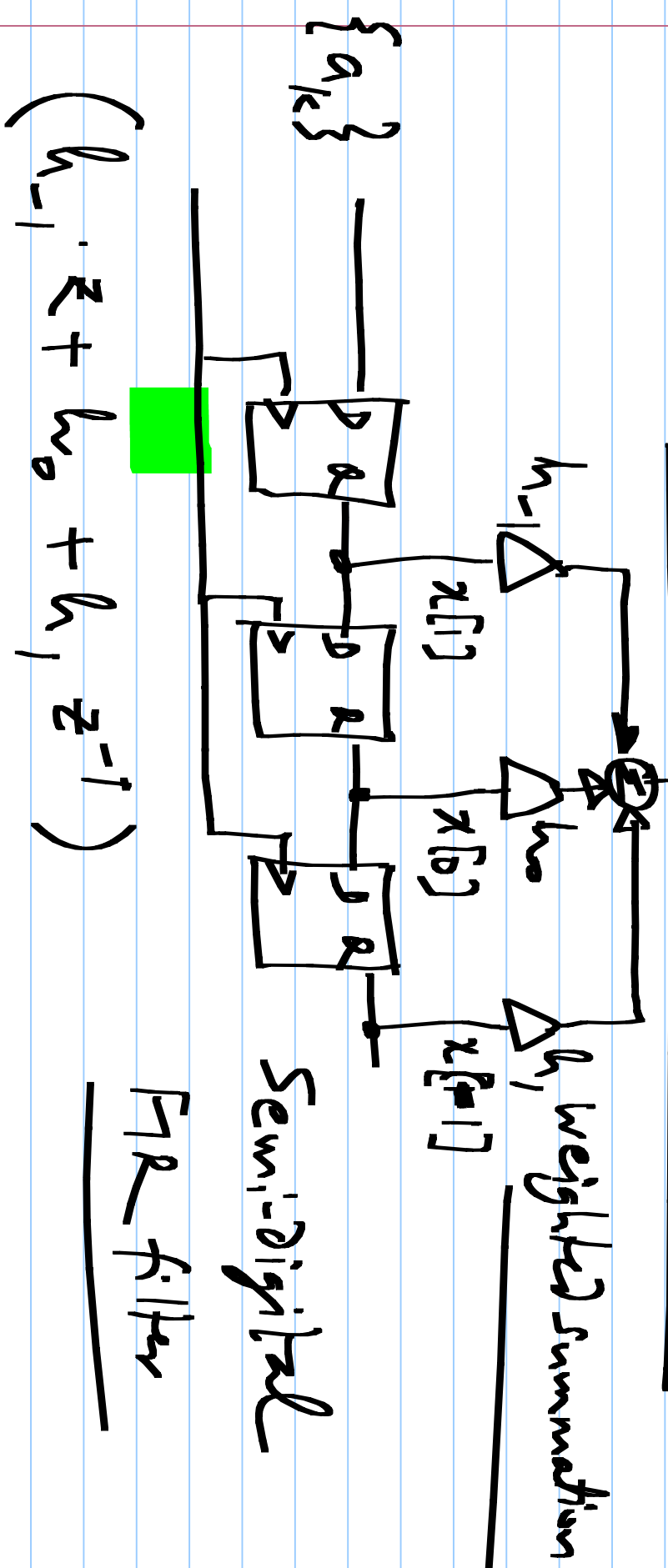
Higher supply required

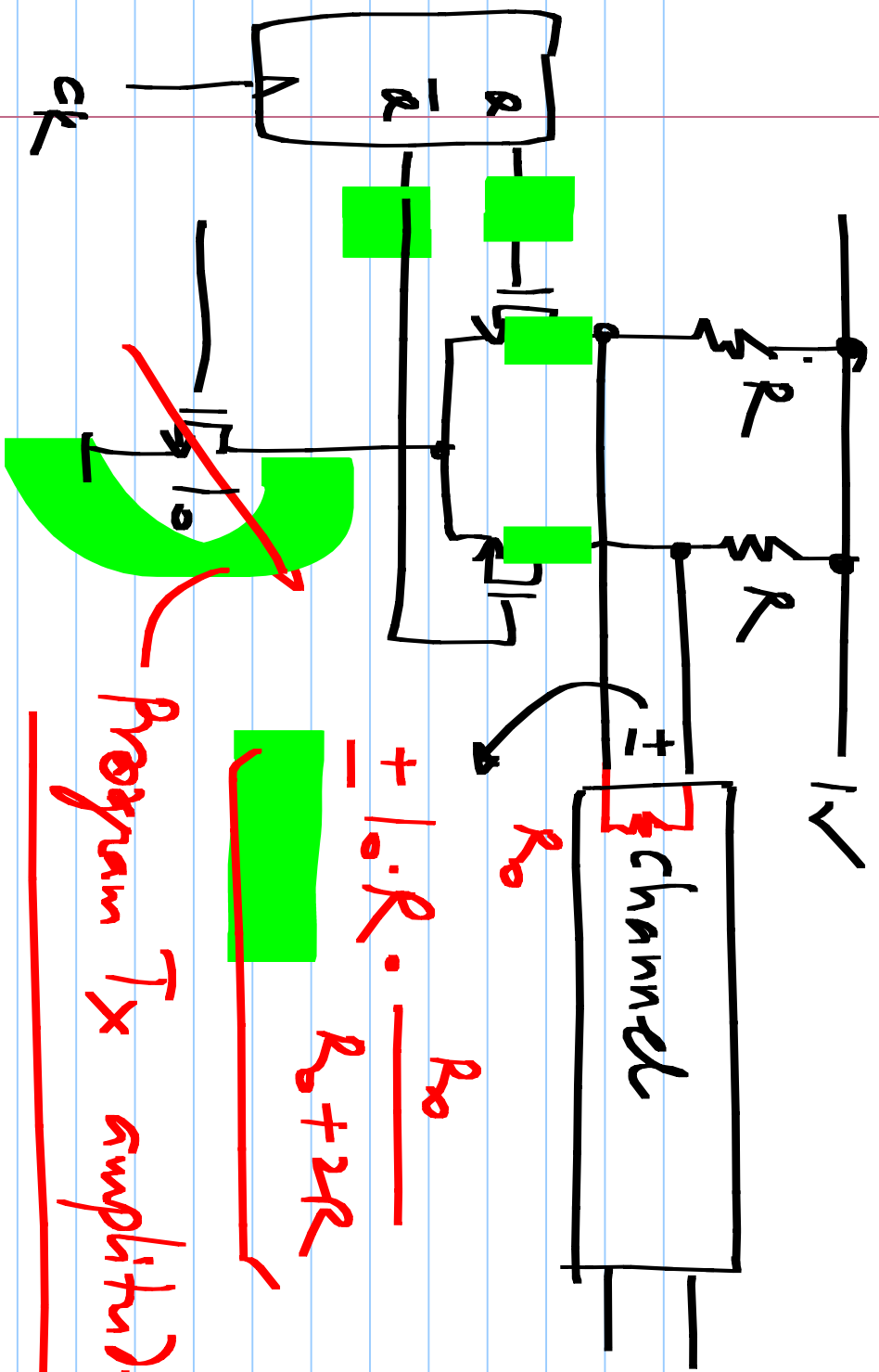
Rx: Discrete-time equalization



T_x : Discrete-time equalization

digital bits in the T_x can be delayed using using FFS





Current driver

Program Tx amplitude

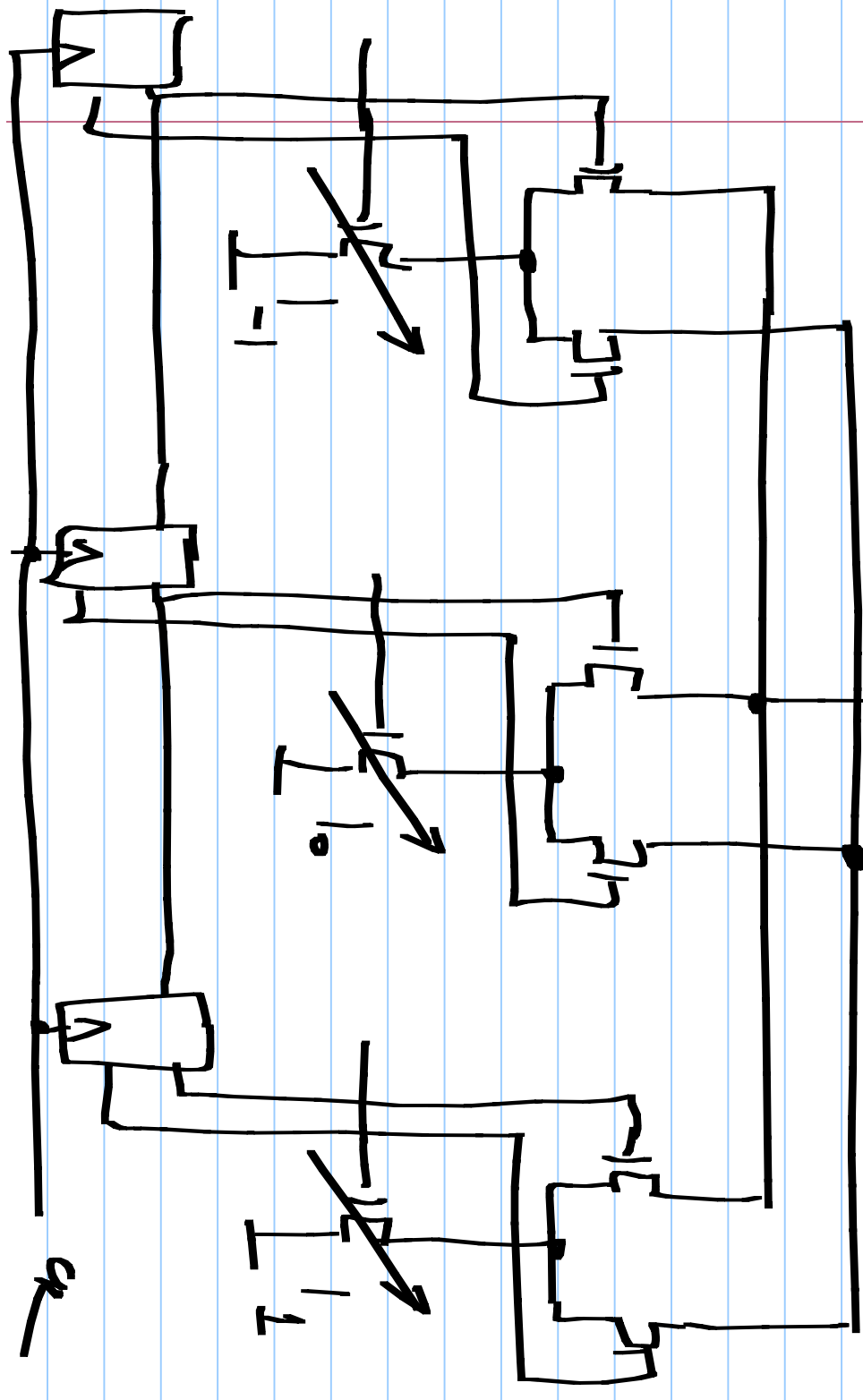
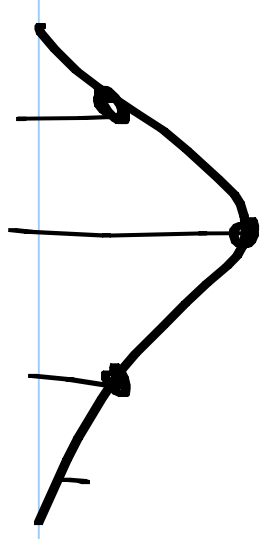
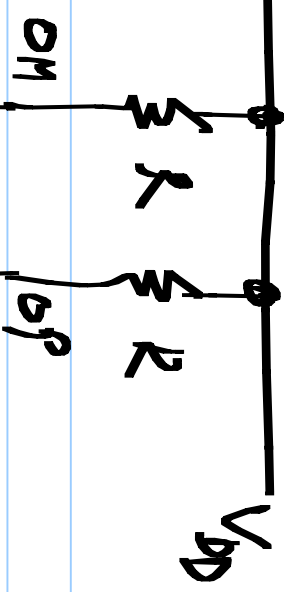
$$+ I_0 \cdot R \cdot \frac{R_0}{R_0 + 2R}$$

$I_0 R = 4 \text{ mV}$

$h_n[0]$

$$h[\sigma] + |h[\sigma]| + |h[\sigma]|$$

$= 4 \text{ form } V$



Equalizer
by

weights

changed by

changing

I_0, I_1, I_{-1}

$$channel = 1 + 0.5z^{-1}$$

V_s

$$1 - 0.5z^{-1}$$

\downarrow

\downarrow

