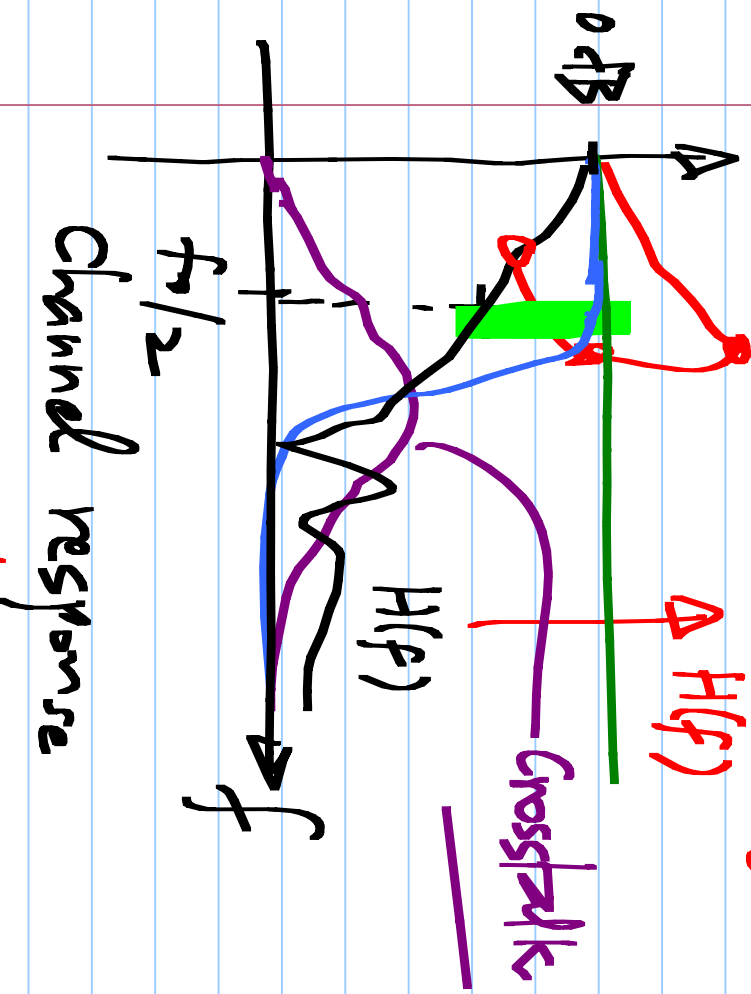


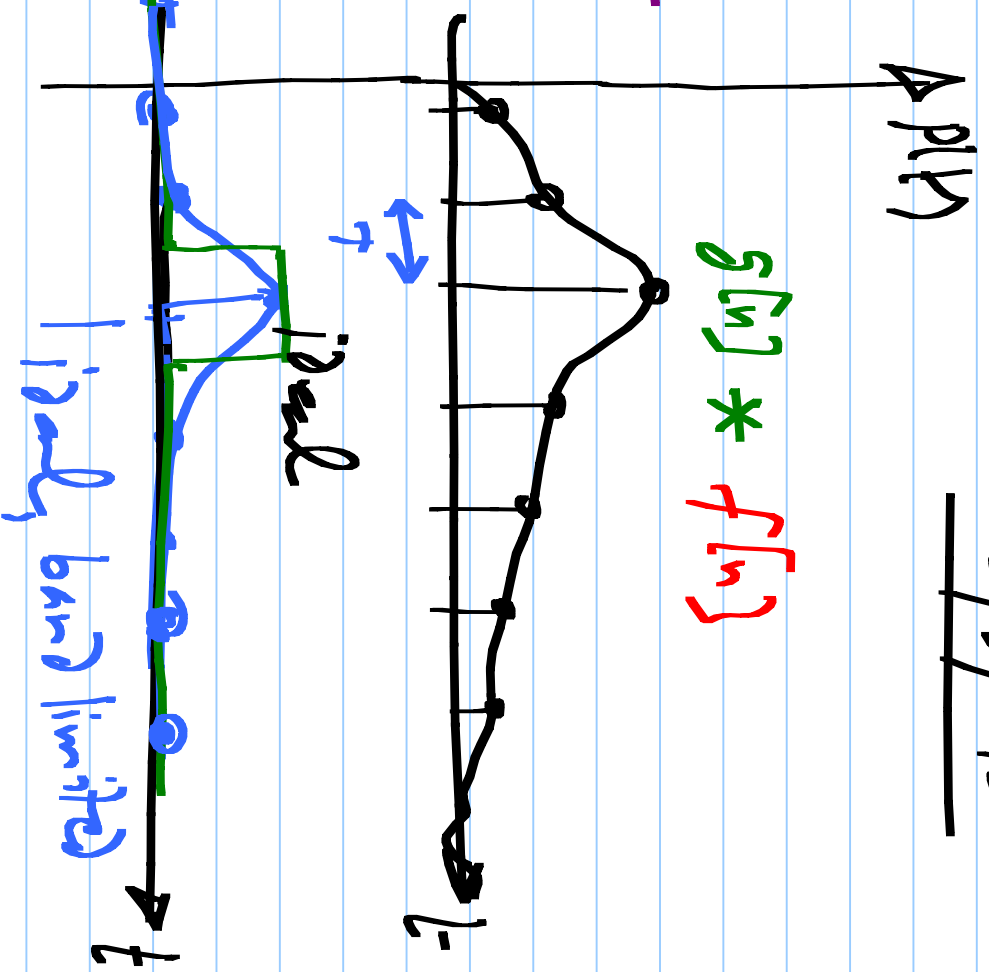
EECS222

Exact inverse (realizable) may not be

28/3/2018

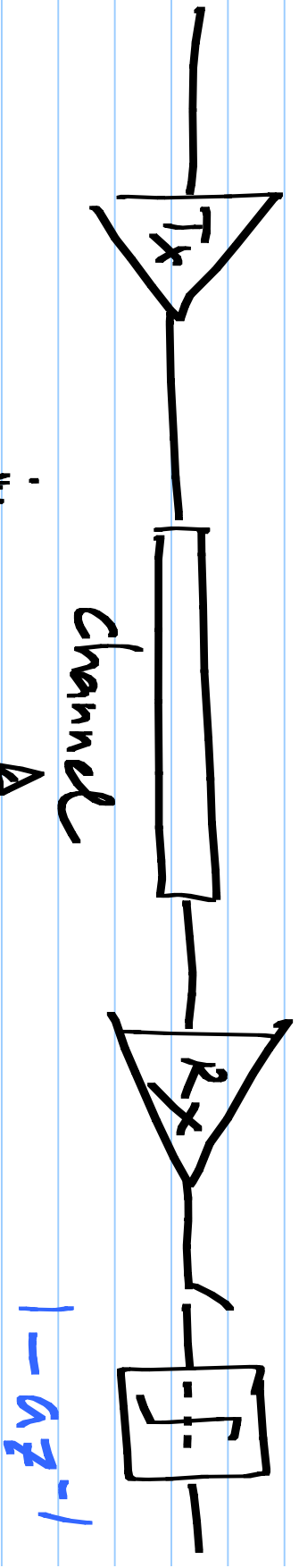


Even approximate inverse may be difficult @ high speeds

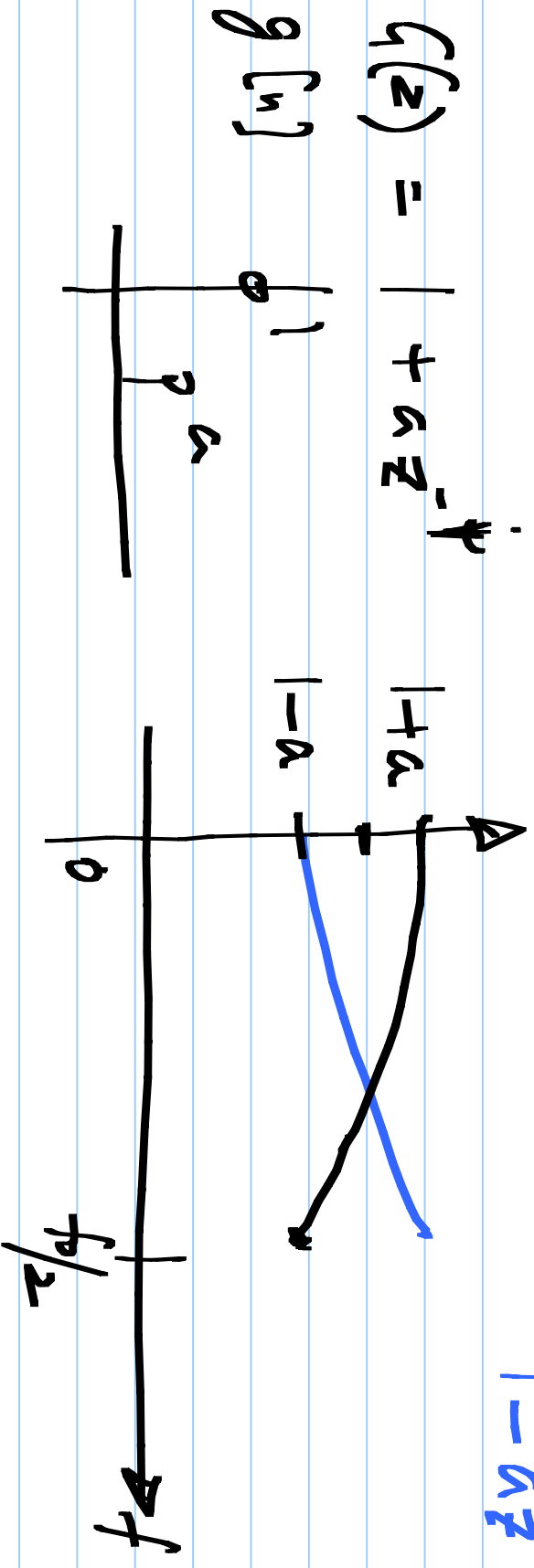


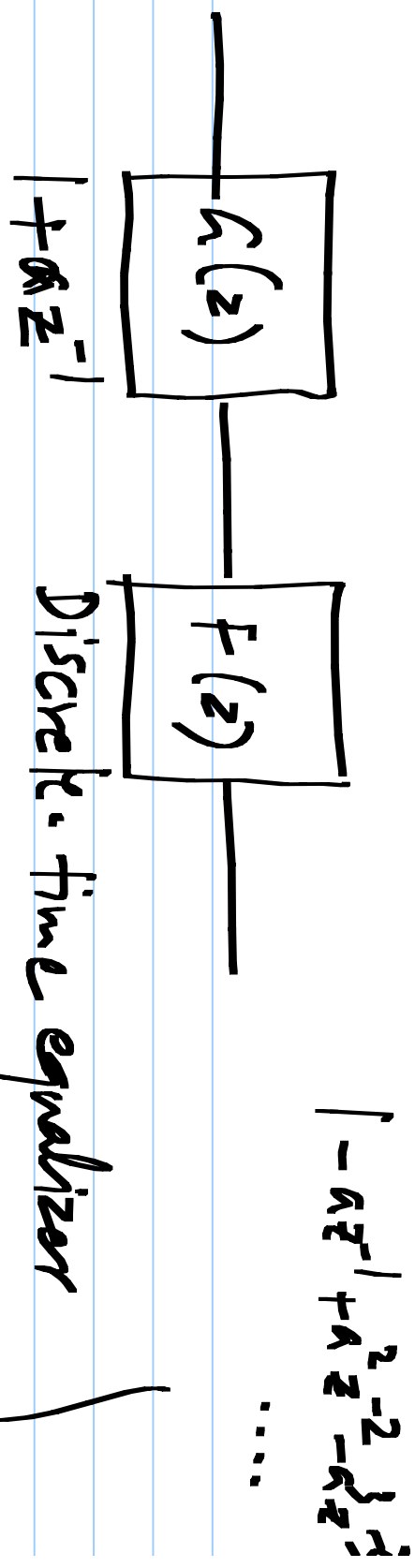
ideal, band limited

* Use a high-pass equalizer to undo the effect of low-pass channel: In the Tx or Rx

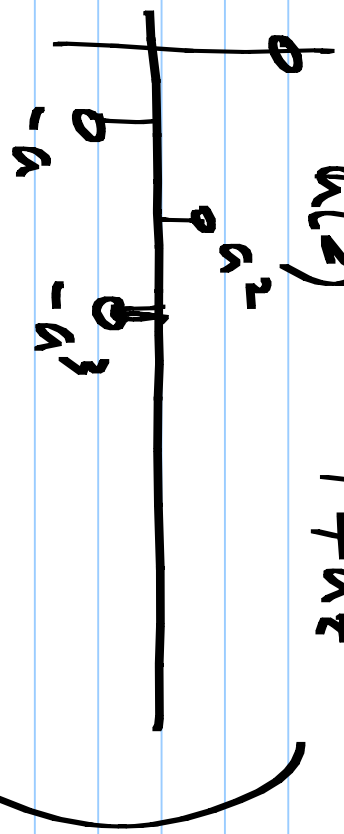
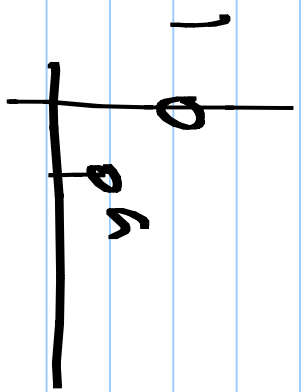


$$g(z) = 1 + az^{-1}$$





$$F(z) = \frac{1}{G(z)} = \frac{1}{1 + az^{-1}}$$



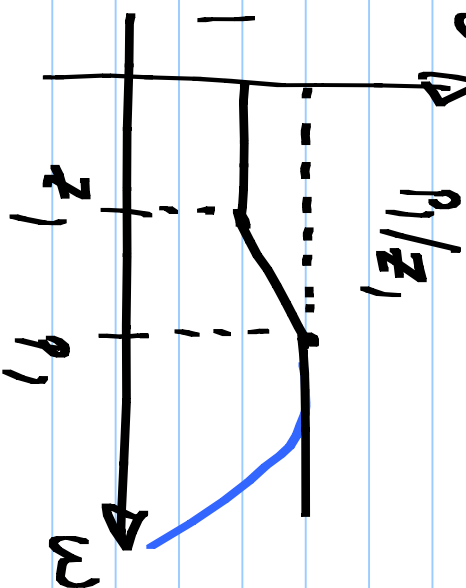
Cannot realize IR @

high speeds

* Continuous-time equalizers: Very simple

high freq. boost:

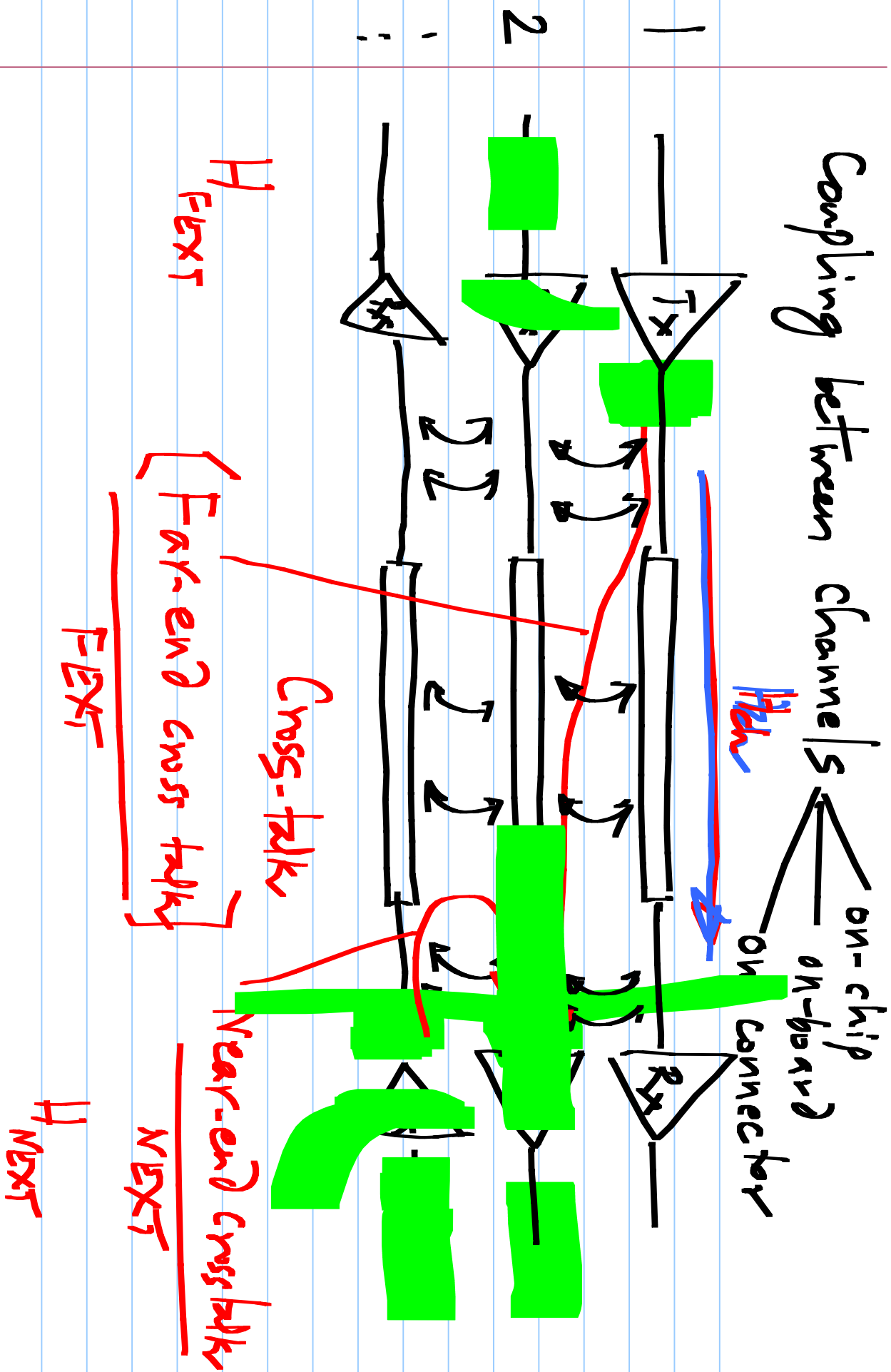
$$H_{eq} = \frac{1 + s/z_1}{(1 + s/p_1)(1 + s/p_2)}$$



$$* G(z) = \frac{1 + az^{-1}}{1 - a^2 z^{-2}} \cdot \frac{1 + a^3 z^{-3}}{1 + az^{-1}}$$

$$\text{FIR } F(z) = \frac{1 - az^{-1}}{1 - az^{-1} + az^{-2} - az^{-3} + \dots}$$

Coupling between channels



Effect of cross talk

* Magnitude @ $f_0/2$

