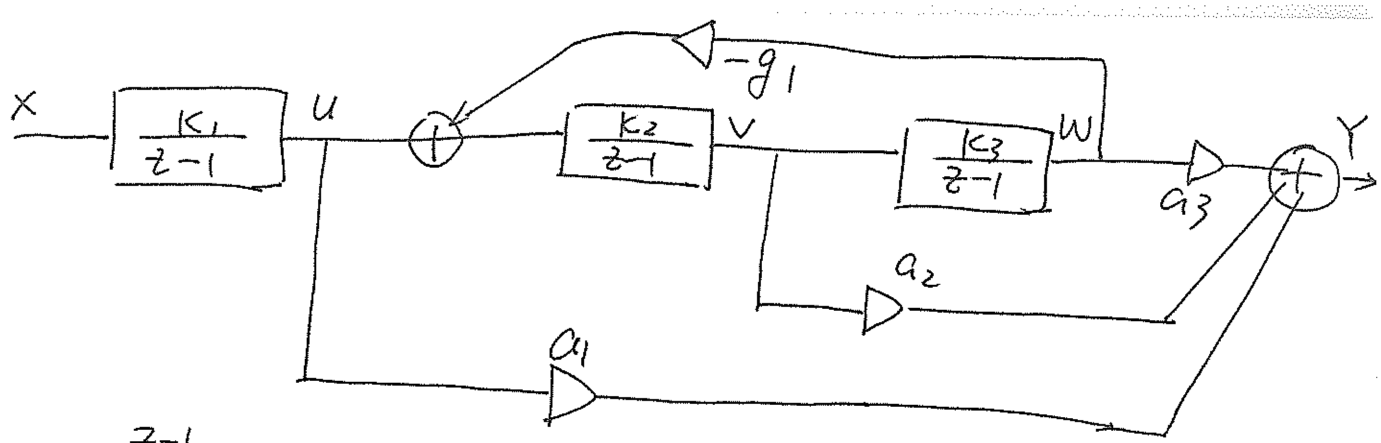


$$V = \frac{z-1}{K_3} W = (u - g_1 W)\frac{K_2}{z-1}$$

$$(z^2 - 2z + 1 + K_2K_3 g_1) W = K_2 K_3 u$$

$$H_{u\to w} = \frac{K_2 K_3}{z^2 - 2z + 1 + K_2 K_3 g_1}.$$

Assume $K_1 = K_2 = K_3 = 1$.

$$H_{u\to w} = \frac{1}{z^2 - 2z + 1 + g_1}.$$

$$Y = a_1 u + a_2 \cdot v + a_3 \cdot w$$

$$= a_1 u + \left(\frac{(z-1)a_2}{K_3} + a_3\right) w \underset{K_3=1}{=} a_1 u + ((z-1)a_2 + a_3)\cdot H_{u\to w}\cdot u,$$

$$= \left[a_1 + (z-1)\cdot\frac{a_2}{[(z-1)^2+g_1]} + \frac{a_3}{[(z-1)^2+g_1]}\right]\cdot\frac{K_1}{(z-1)}\cdot x$$

$$H_{X\to Y} \underset{K_i=1}{=} \left[a_1 + \frac{a_2(z-1)+a_3}{[(z-1)^2+g_1]}\right]\frac{1}{(z-1)}$$

$$= \frac{a_1[(z-1)^2+g_1] + a_2(z-1) + a_3}{(z-1)[(z-1)^2+g_1]} = \frac{N(z)}{D(z)}.$$

$$NTF = \frac{1}{1+H} = \frac{1}{1+\frac{N(z)}{D(z)}} = \frac{D(z)}{D(z)+N(z)} = \frac{(z-1)[(z-1)^2+g_1]}{\cdots}$$

where are zeros?