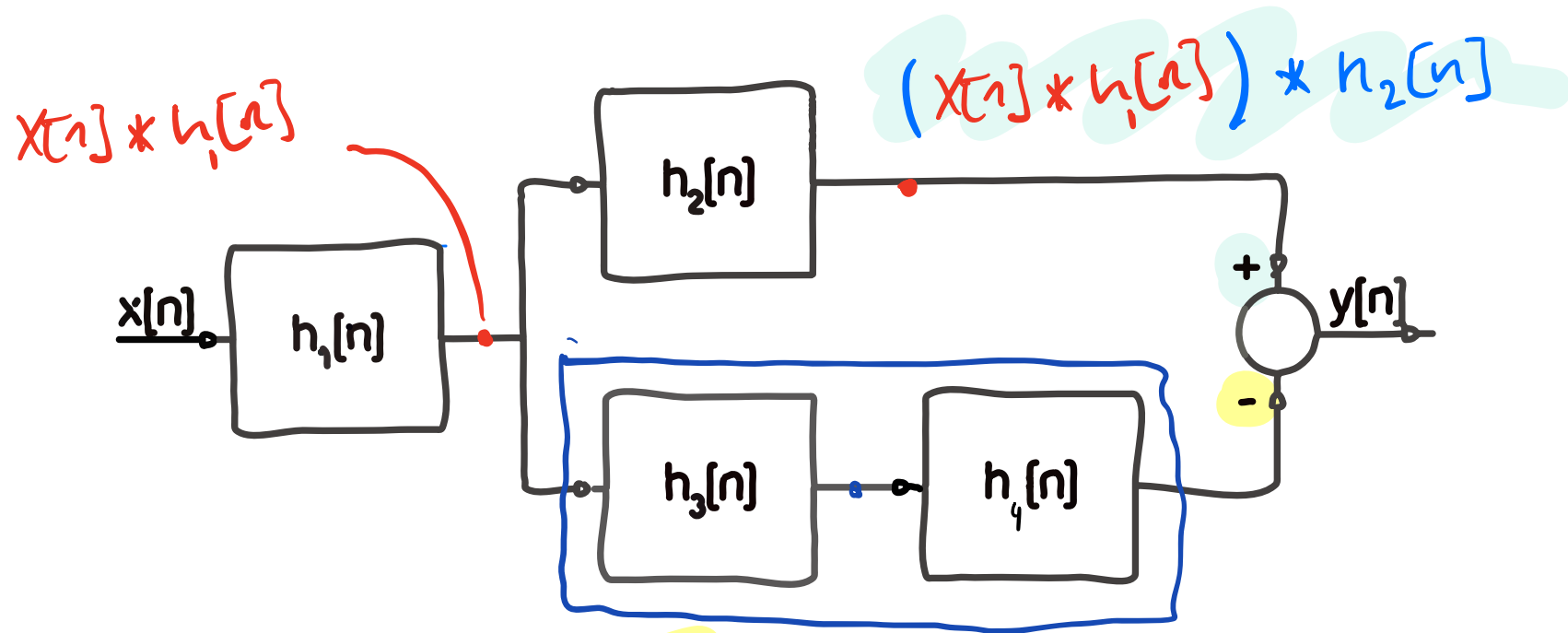


$$y[n] = h[n] * x[n]$$



$$(x[n] * h_1[n]) * h_3[n] * h_4[n]$$

$$y[n] = (x[n] * h_1[n]) * h_2[n] - (x[n] * h_1[n]) * h_3[n] * h_4[n]$$

$$Y[n] = (x[n] * h_1[n]) * h_2[n] - (x[n] * h_1[n]) * h_3[n] * h_4[n]$$

$$x[n] = \delta[n]$$

$$\delta[n] \rightarrow \boxed{h[n]} \xrightarrow{y[n]=h[n]}$$

$$h[n] = (h_1[n]) * h_2[n] - (h_1[n]) * h_3[n] * h_4[n]$$

$$= h_1[n] * (h_2[n] - h_3[n] * h_4[n])$$

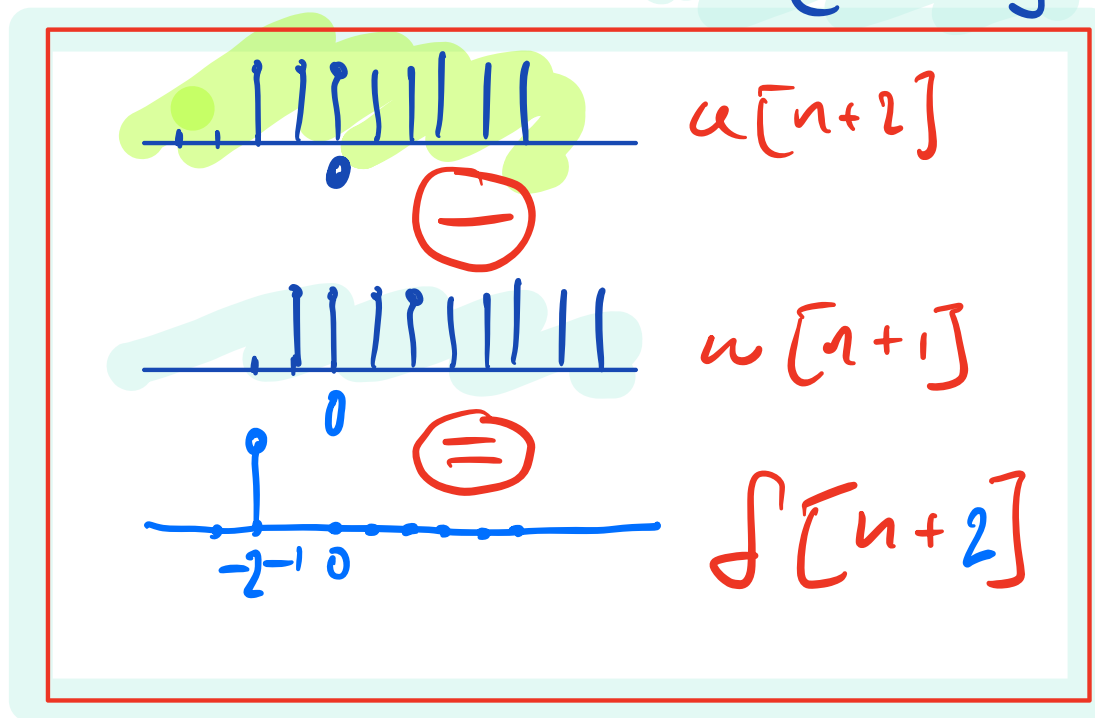
$$h_T = h_1[n] * (h_2[n] - h_3[n] * h_4[n])$$

$$h_2[n] = h_3[n] = a[n+2]$$

$$d[n-1] \rightarrow \boxed{h[n]} \xrightarrow{y[n] = h[n-1]}$$

$$h_4[n] = d[n-1]$$

$$h_T = h_1[n] * (a[n+2] - \underbrace{a[n+2] * d[n-1]}_{a[n+1]})$$

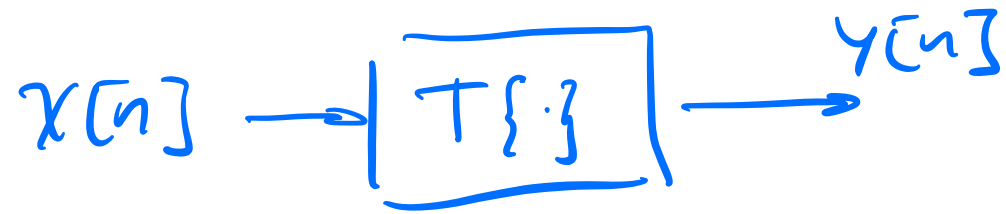


$$h_T = h_1[n] * (\delta[n+2]) = h_1[n+2]$$

$$h_1[n] = 3(-1)^n \left(\frac{1}{4}\right)^n u[n-2]$$

$$h_T = \left(3(-1)^n \left(\frac{1}{4}\right)^n u[n-2] \right) * \delta[n+2]$$

$$h_T = 3(-1)^{n+2} \left(\frac{1}{4}\right)^{n+2} u[n]$$



$$G[e^{j\omega}] = H[e^{j\omega}] \cdot F[e^{j\omega}]$$

$$Y[e^{j\omega}] = H[e^{j\omega}] \cdot X[e^{j\omega}]$$

$$G[e^{j\omega}] = H[e^{j\omega}] \cdot F[e^{j\omega}]$$

$$Y[e^{j\omega}] = H[e^{j\omega}] \cdot X[e^{j\omega}]$$

$$H(e^{j\omega}) = \frac{G[e^{j\omega}]}{F[e^{j\omega}]}$$

$$f[e^{j\omega}] = \frac{1}{1 - \frac{1}{3}e^{-j\omega}}$$

$$f(e^{j\omega}) = \frac{3e^{j\omega}}{3e^{j\omega} - 1}$$

$$H(e^{j\omega}) = \frac{G[e^{j\omega}] \cdot (3e^{j\omega} - 1)}{3e^{j\omega}}$$

$$H(e^{j\omega}) = G[e^{j\omega}] - \frac{G[e^{j\omega}]}{3e^{j\omega}}$$

$$H(e^{j\omega}) = G[e^{j\omega}] - \underbrace{\frac{1}{3} G[e^{j\omega}] \cdot e^{-j\omega}}_{\text{Propriety of DTFT}}$$

Propriety of DTFT

$$\mathcal{F}^{-1}\{e^{j\omega n} F(e^{j\omega})\} = f(n-n)$$

$$h[n] = g[n] - \frac{1}{3} \cdot g[n+1]$$

$$y[n] = x[n] * \left(g[n] - \frac{1}{3} g[n+1] \right)$$

$$y[n] = x[n] * g[n] - \frac{1}{3} g[n+1] * x[n]$$

Resumo

Examen

$$X(z) = \sum_{n=0}^{\infty} x[n] \cdot z^{-n}$$

Que Tipo de Sinal pode representar
 z^{-n}

$$z = r e^{j\omega}$$

$$z^{-n} = r^{-n} e^{-j\omega n}$$

$$z^{-n} = r^{-n} (\cos(\omega n) - j \sin(\omega n))$$

