Relating Different Descriptions of Discrete LTI Systems

$$y[n] = x[n] + 0.5y[n-1]$$

$$H(z) = \frac{z}{z - 0.5}$$

$$H(e^{j\Omega}) = \frac{e^{j\Omega}}{e^{j\Omega} - 0.5}$$

$$h[n] = u[n](0.5)^n$$

x[n]

y[n]

+

D

0.5

x[n]

y[n]

+

z^{-1}

0.5