

ICE503 DSP-Homework#12

- Figure 1 shows the impulse response for several different LTI systems. Determine the group delay associated with each systems.

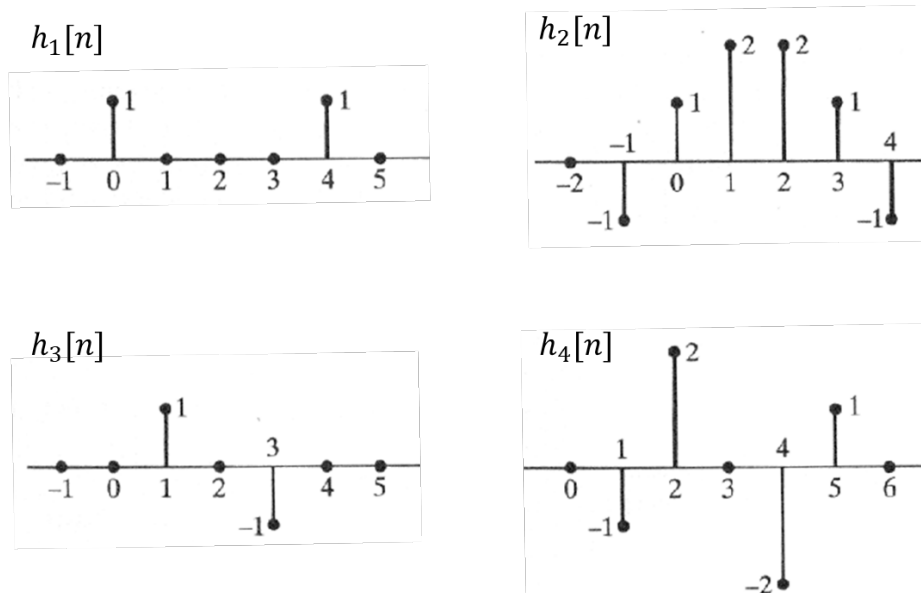


Figure 1: Impulse response for several different LTI systems

- Figure 2 shows two different interconnections of three systems. The impulse responses $h_1[n]$, $h_2[n]$, and $h_3[n]$ are as shown in Figure 3. Determine whether system A and/or system B is a generalized linear-phase system.

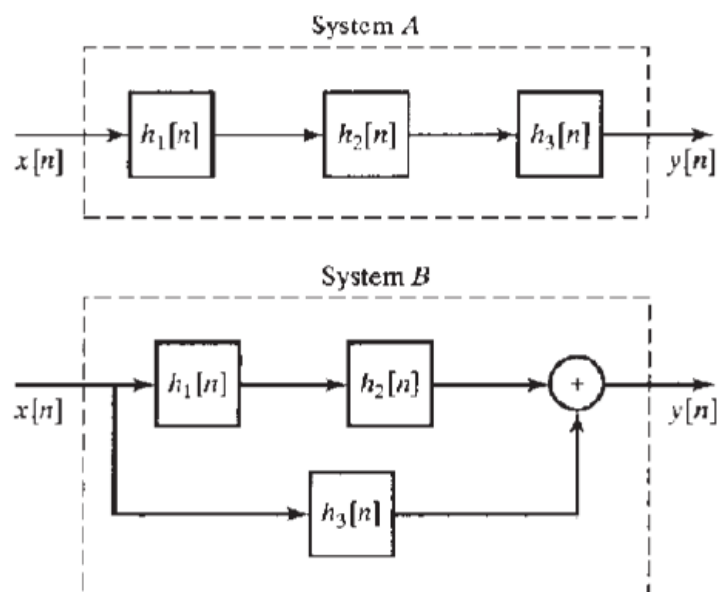


Figure 2: Two different interconnections of three systems

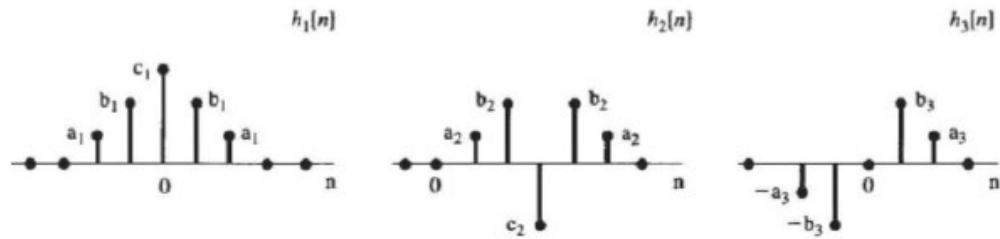


Figure 3 Impulse responses of the three systems

3. MATLAB simulation:

Using `iirnotch` function to design a second order IIR notch filter with the notch located at $\omega_c = 0.1\pi$ and with the 3 dB bandwidth of 0.001π and use `fvtool` function sketch the magnitude of the filter in dB and the group delay.