

Example 9-14: Parallel Connection

Suppose that the impulse response of an LTI system is

$$h(t) = u(t-1) - u(t-2) = \begin{cases} 1 & 1 \le t < 2\\ 0 & \text{otherwise} \end{cases}$$

Using properties of convolution, we can express h(t) as

 $h(t) = u(t) * [\delta(t-1) - \delta(t-2)]$

so that the system could be implemented by a cascade of an integrator followed by a parallel combination of two delay systems.

McClellan, Schafer and Yoder, Signal Processing First, ISBN 0-13-065562-7. Prentice Hall, Upper Saddle River, NJ 07458. © 2003 Pearson Education, Inc.