

# System Basics

Digital Signal Processing

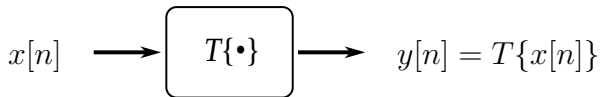
January 25, 2024



## Definition

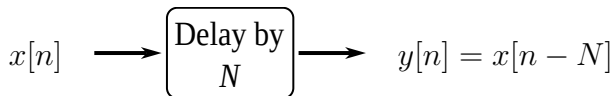
A **system** is a process that takes a signal as input and returns a signal as output.

Diagram for a system:



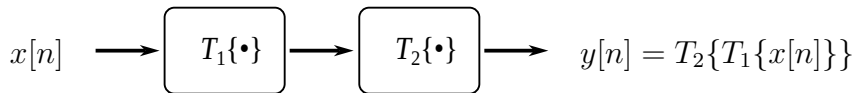
# Ideal Delay

The ideal delay system shifts the signal to the right by  $N$  samples.

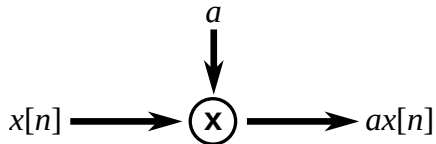


# Cascaded Systems

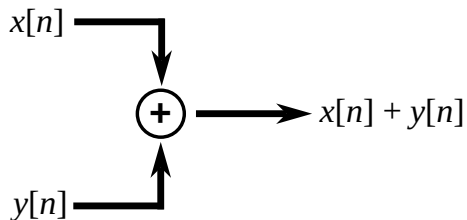
We can apply two systems in serial:



# Multiplication



# Addition



# Example: Karplus-Strong

