COLLEGE OF ENGINEERING AND TECHNOLOGIES
ALMUSTAQBAL UNIVERSITY

Digital Signal Processing (DSP)

CTE 306

Lecture 17

- Block Diagram Representation -

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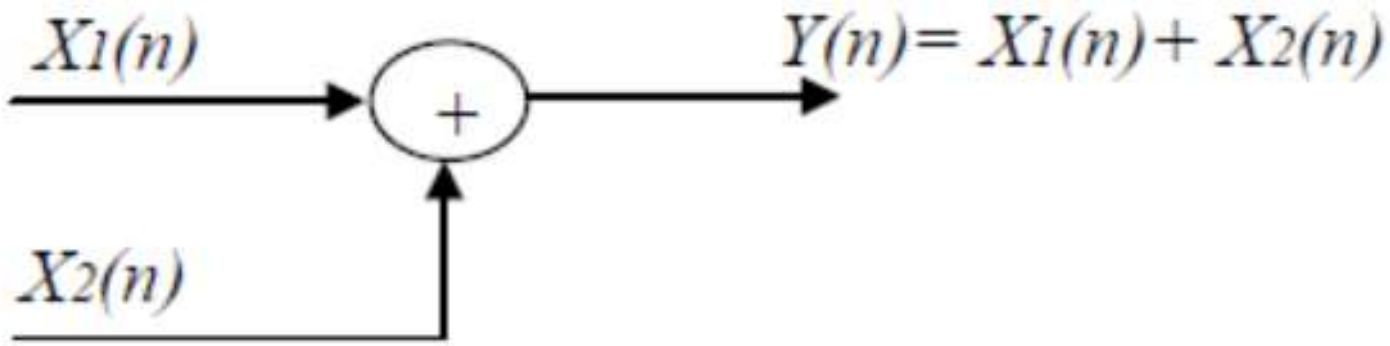
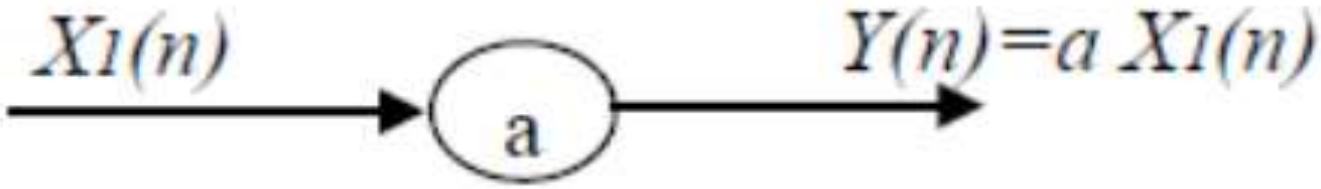
An adder



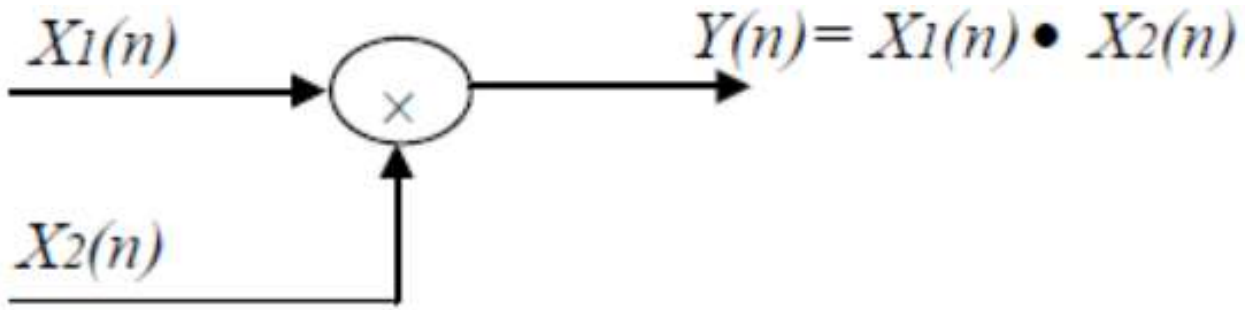
Graphical representation of an adder

Constant multiplier



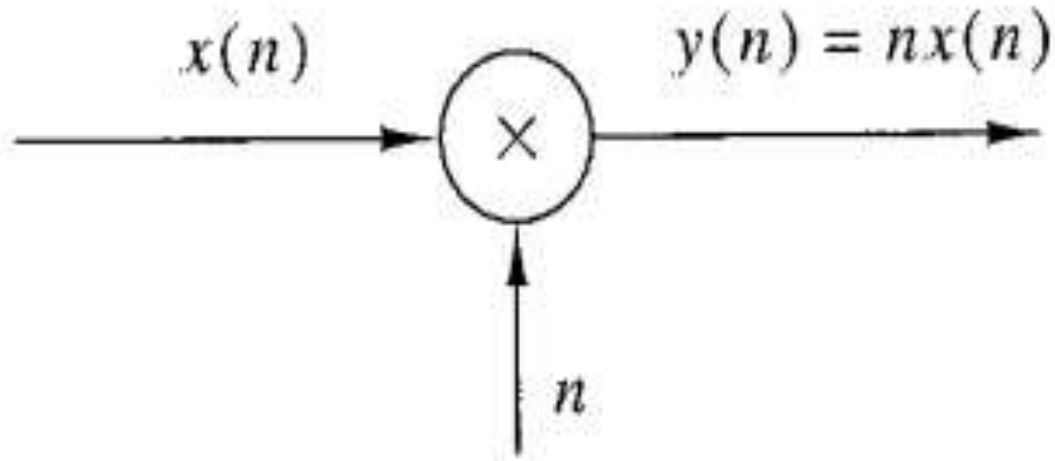
Graphical representation of a constant multiplier

Signal multiplier

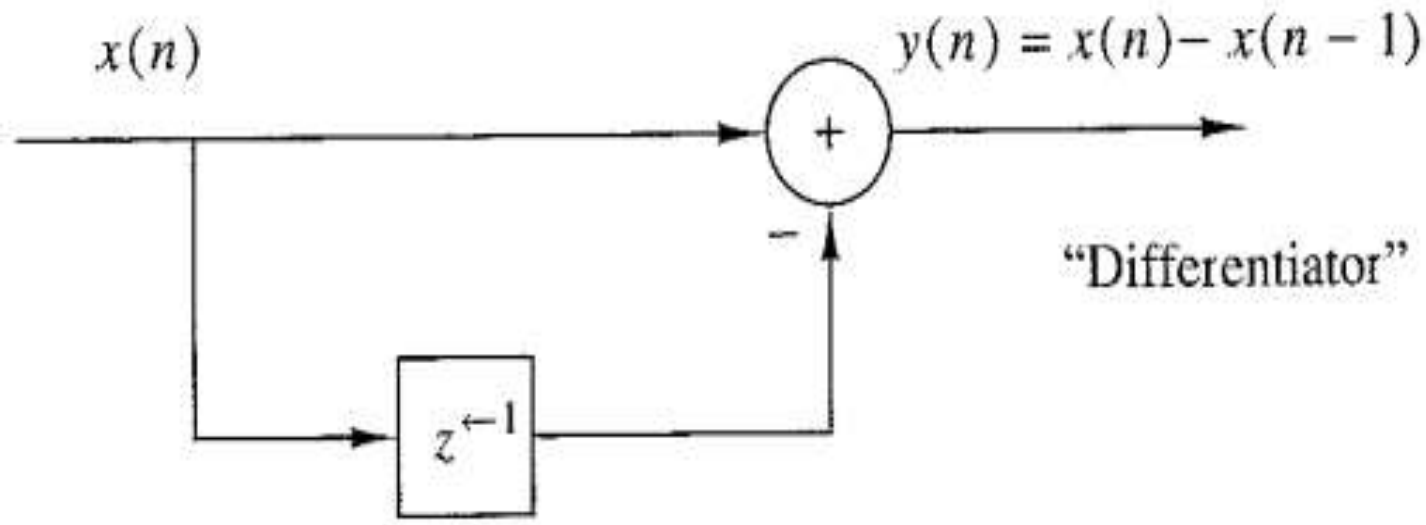


Graphical representation of a signal multiplier

Time multiplier

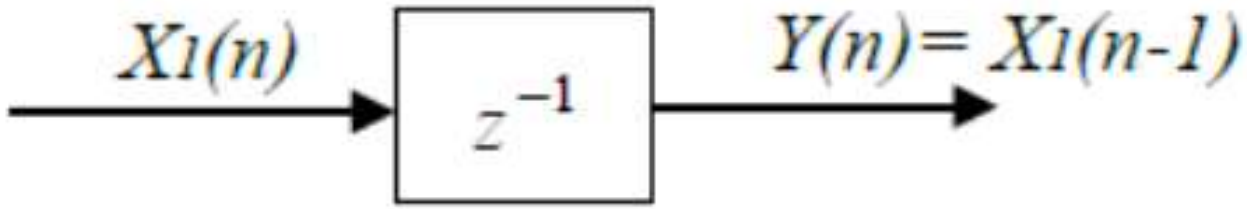


Graphical representation of a time multiplier



Graphical representation of a differentiator

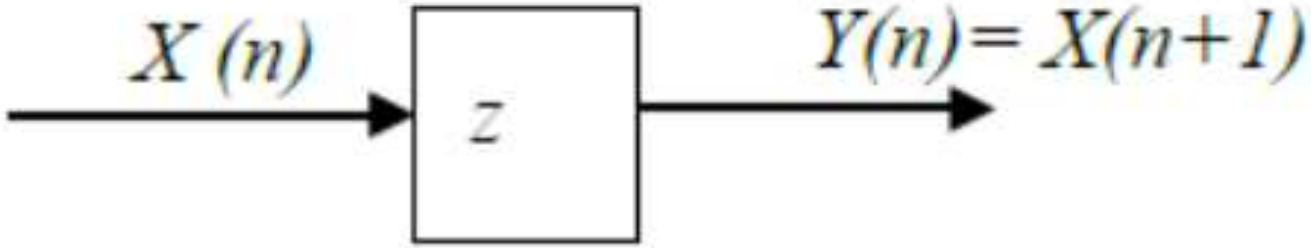
A unit delay element



A symbol z^{-1} denote the one unit delay

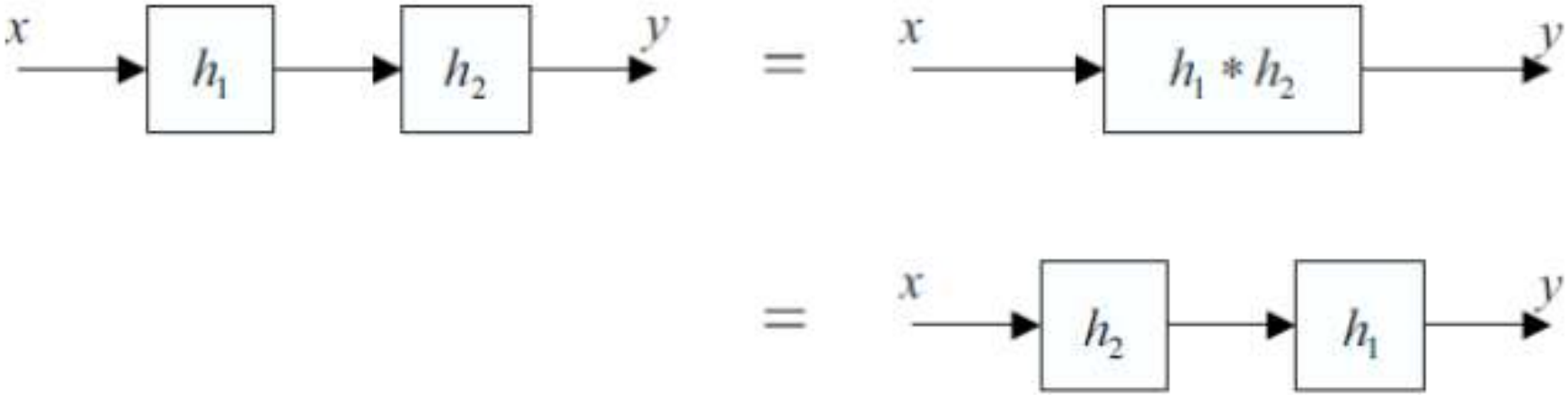
Graphical representation of the unit delay element

A unit advance element

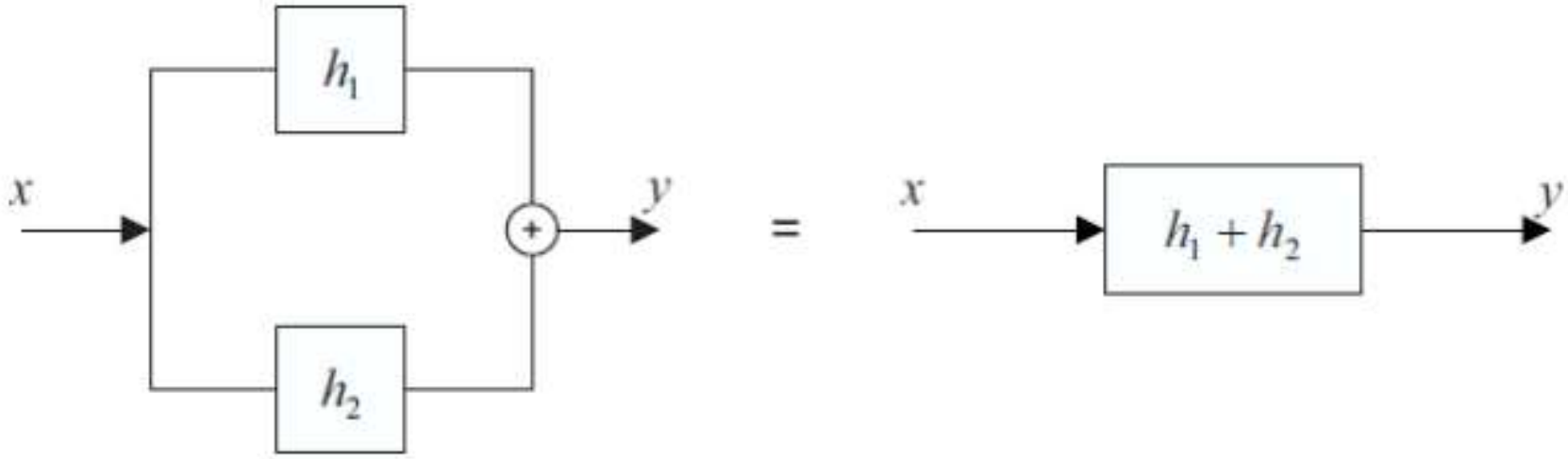


Graphical representation of the unit advance element

Cascade interconnection



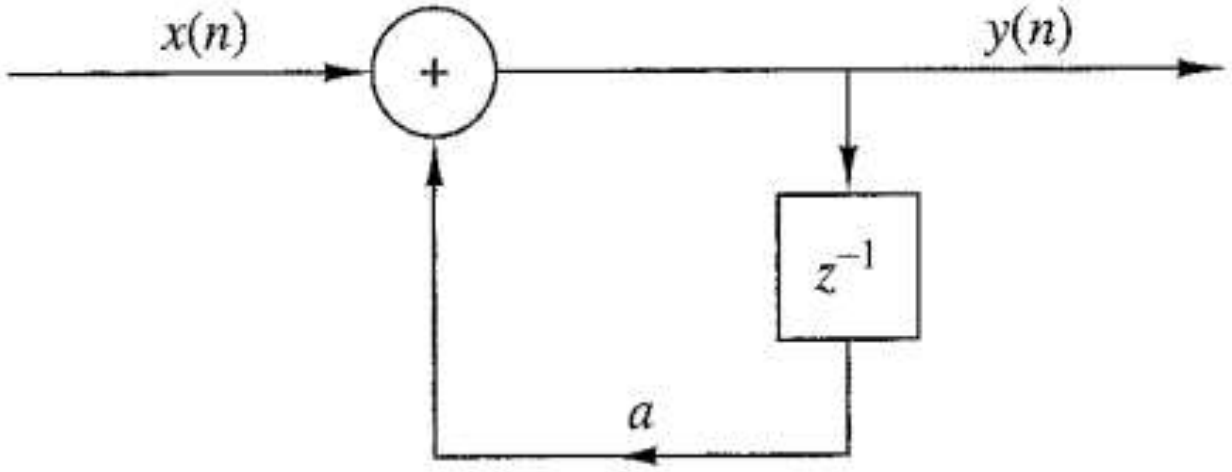
Parallel interconnection



Example

Sketch the block diagram representation of the discrete time system described by the input-output relation.

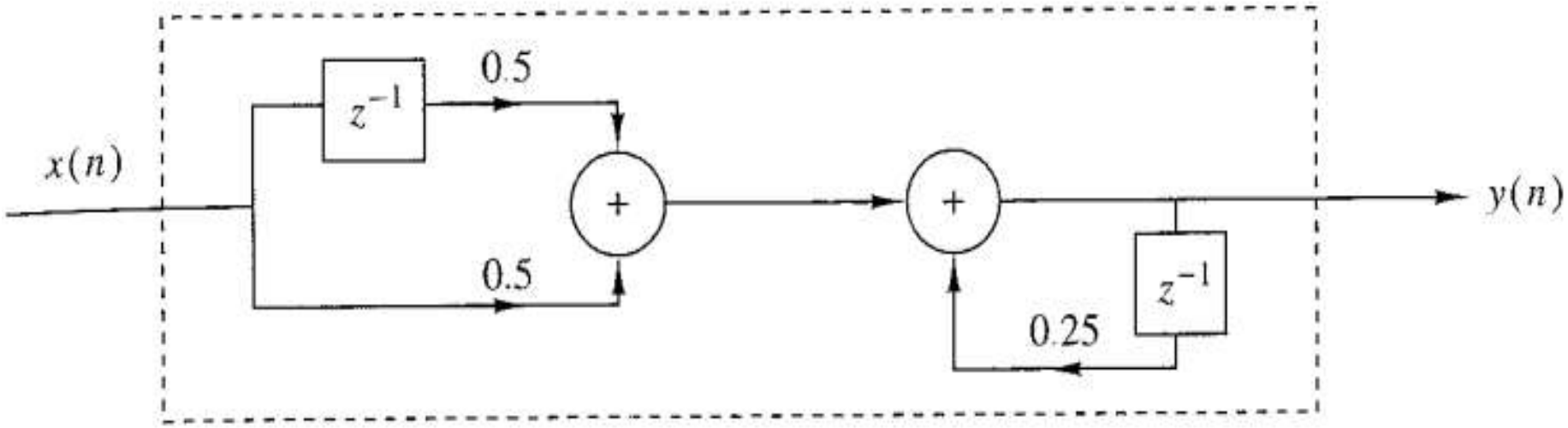
$$y(n) = ay(n-1) + x(n)$$



Example

Sketch the block diagram representation of the discrete time system described by the input-output relation.

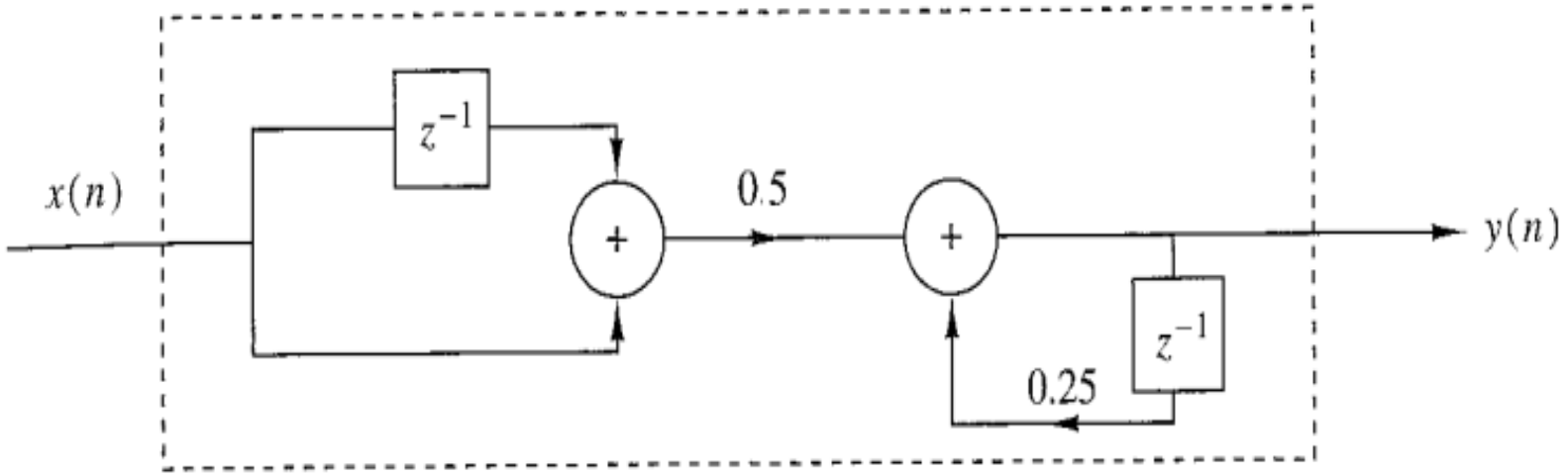
$$y(n) = \frac{1}{4}y(n-1) + \frac{1}{2}x(n) + \frac{1}{2}x(n-1)$$



Example

Sketch the block diagram representation of the discrete time system described by the input-output relation.

$$y(n) = \frac{1}{4}y(n-1) + \frac{1}{2}[x(n) + x(n-1)]$$



Impulse responses