
Grey Math

Andrew Bolster, *University of Liverpool*

Intro

Grey System Theory is primarily concerned with the reduction of uncertainty in volatile or variable systems
[?] “Basic Building Blocks of Grey Systems”

0.1 Buffer Operators

(Note that <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=5346828> is a potential origin source for this.)

Buffer Operators are sequence operators (i.e. time series) acting on increasing, decreasing, or fluctuating Grey numbers

To make life really great, these are defined in 1-index notation.

- Weakening: Buffered output is 'slower' than the input (Dampened?)
- Strengthened: Is the opposite

For a given operator $D(X)$ upon a sequence $X = [x_0, x_1, \dots, x_N]$

$$D(X_{k+1}) = \frac{\sum_{i=0}^k x_i}{2k} \quad (1)$$