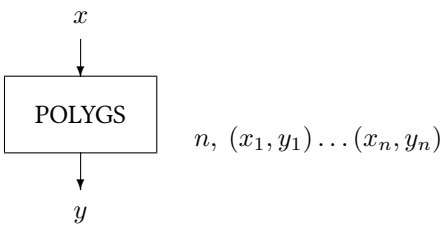
Block POLYGS

The POLYGS block simulates a step function defined through the parameters.





Name	POLYGS
Function	fb0019
Inputs	1
Outputs	1
Parameters	3 . . . [7001]
Strings	0
Group	S

Inputs

1	Any signal x

Outputs

1	Interpolated value $y(x)$

Parameters

1	Number of given points, $2 \leq n \leq 3500$
2	x-coordinate of 1^{st} point, x_1
3	y-coordinate of 1^{st} point, y_1
4	x-coordinate of 2^{nd} point, x_2
5	y-coordinate of 2^{nd} point, y_2
. . .	
$2n$	x-coordinate of n^{th} point, x_n
$2n+1$	y-coordinate of n^{th} point, y_n

Strings

None

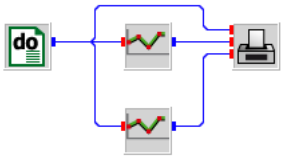
Description

The x-coordinates $x_1 \ldots x_n$ must either be stricty increasing, i. e., $x_1 < x_2 \ldots < x_n$ or strictly decreasing, $x_1 > x_2 \ldots > x_n$. The output signal y is calculated from the input x according to

$$y = \begin{cases} y_1 & \text{if } x < x_1 \\ y_i + (x - x_i)(y_{i+1} - y_i)/(x_{i+1} - x_i) & \text{if } x_i \le x < x_{i+1} \\ y_n & \text{if } x_n < x \end{cases}$$

for the case of increasing x values and correspondingy for decreasing x values.

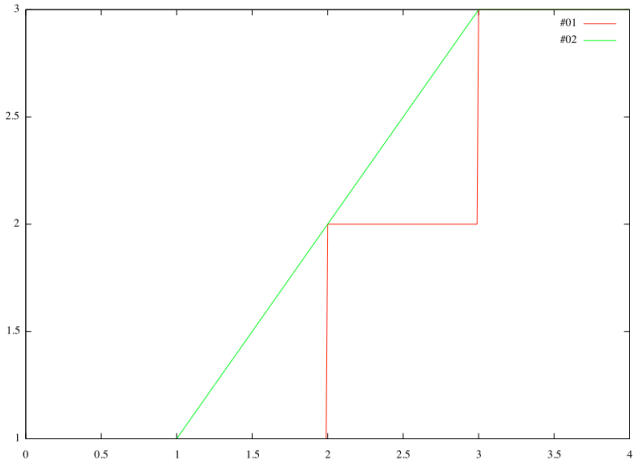
polygs.vseit



A DO block delivers values from 0 to 10 in steps of 0.1. The POLYG block interpolates as specified by the block parameters

```
4
1 2.5
3 1.7
5 1.5
9 2
```

The PLOT block displays the graph.



Please observe how the POLYG block keeps the output constant for data out of the specified parameter range.