

lag_1.xce

Attributes

```
main_vars: x y
rparms: tr=1
igparms: y0=0
```

Description

lag_1.xce is used to create a lag between the input variable (**x**) and the output variable (**y**).

The real parameter **tr** determines the amount by which **y** lags **x**. The equation used is

$$\frac{dy}{dt} = \frac{1}{T_r} (-y + x).$$

The parameter **y0** provides the initial value for **y**.

Fig. 1 shows typical waveforms obtained with lag_1.xce. The corresponding circuit file is given below.

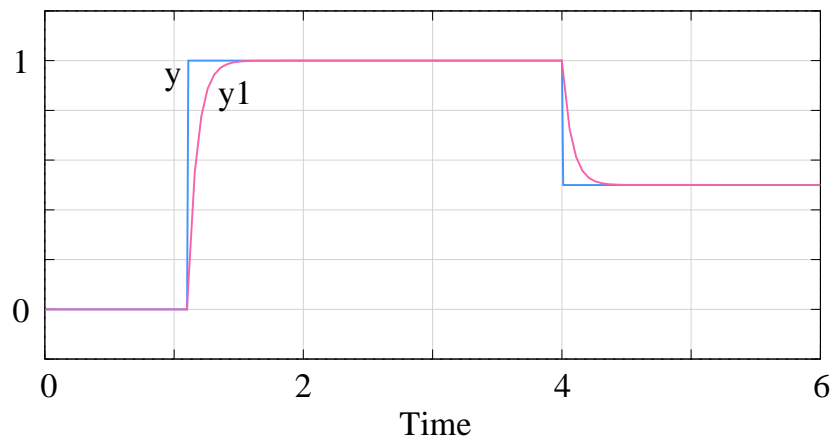


Figure 1: Waveforms obtained with lag_1.xce.

```

begin_circuit
    xelement type=pwl20 y=y
+     n=4
+     t1=1.1    v1=0
+     t2=1.11   v2=1
+     t3=4.00   v3=1
+     t4=4.01   v4=0.5
    xelement type=lag_1 x=y y=y1 tr=0.05
    outvar:
+     y=xvar_of_y
+     y1=xvar_of_y1
end_circuit

begin_solve
    solve_type=trns
    begin_output
        filename=test_lag_3.dat
        variables: y y1
    end_output

    method: t_start=0 t_end=6
    method: delt_const_x=0.05
    method: modified_euler=yes
end_solve

```

AC behaviour is not implemented.