triangle_1.gce

Attributes

```
  mainvars: y
  iparms: i0=0
  rparms:
+    t1=1  t2=1  t0=0  g_high=1.0 g_low=-1.0
+    epsl=1.0e-9
```

Description

`triangle_1.gce` is a triangular wave source with the general variable `y` as its output. The parameters have the following meaning:

`t1:` The first part of one period. `y` goes from `g_high` to `g_low` in this interval if `i0`=0 (and from `g_low` to `g_high` if `i0`=1).

`t2:` The second part of one period.

`t0:` An "offset" time interval. Its meaning will become clear in the following example.

`epsl:` Used in time step control. `epsl` can generally be set to be $0.001 \times \min(\texttt{t1}, \texttt{t2})$.

AC behaviour is not implemented.

The effect of the various paramters of `triangle_1.gce` on the waveforms is shown in Fig. 1. The corresponding circuit file is given below.

```
title: testing of triangle_1

begin_circuit
   gelement type=triangle_1 y=y1 t1=2 t2=3 t0=0 i0=0
+     g_high=2 g_low=-2 epsl=1e-3

   gelement type=triangle_1 y=y2 t1=2 t2=3 t0=0 i0=1
+     g_high=2 g_low=-2 epsl=1e-3

   gelement type=triangle_1 y=y3 t1=2 t2=3 t0=1.5 i0=0
+     g_high=2 g_low=-2 epsl=1e-3

   outvar:
+     y1=var_of_y1
+     y2=var_of_y2
+     y3=var_of_y3
end_circuit

begin_solve
   solve_type=startup
   initial_sol initialize
end_solve

begin_solve
   solve_type=trns
   initial_sol previous
   begin_output
      filename=triangle_1_gce.dat
      variables: y1 y2 y3
   end_output
   method:
+    back_euler=yes
+    t_start=0 t_end=16 delt_const=0.5 delt_min=0.1
end_solve

end_cf
```

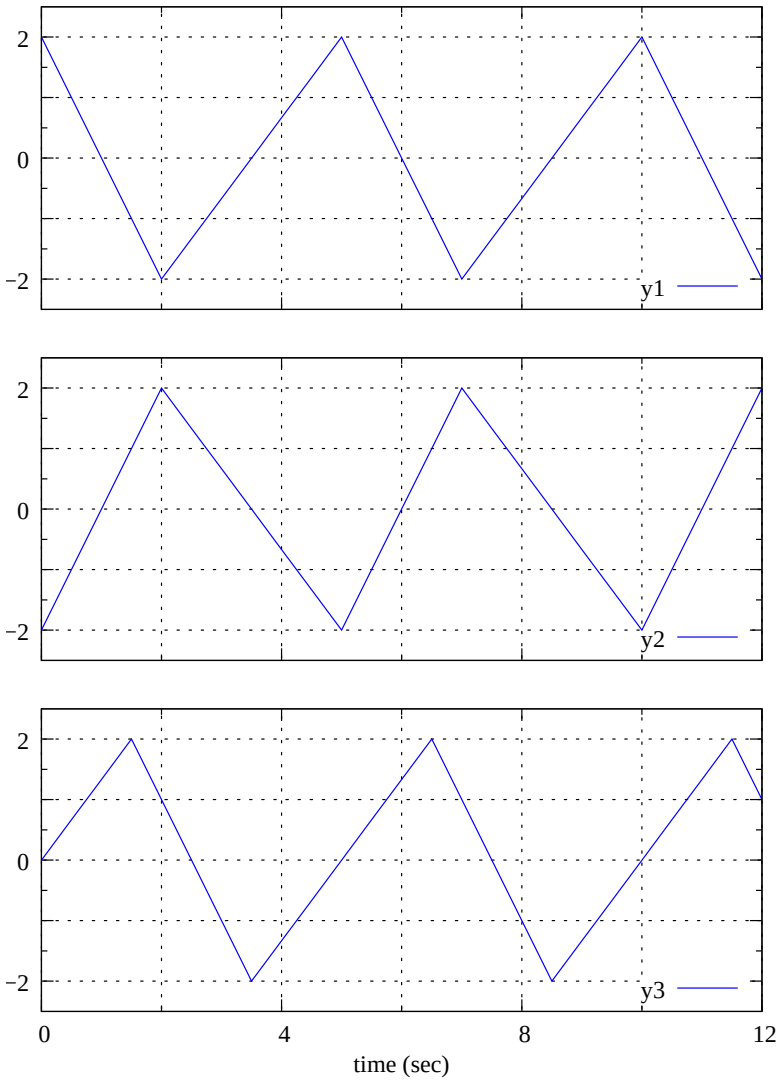

Figure 1: Waveforms obtained with `triangle_1.gce`: (a) `y1: t1=2, t2=3, t0=0, i0=0, g_high=2, g_low=-2`, (b) `y2: t1=2, t2=3, t0=0, i0=1, g_high=2, g_low=-2`, (c) `y3: t1=2, t2=3, t0=1.5, i0=0, g_high=2, g_low=-2`.