Example: ElevationGrid animation

Goal: animate height field of an ElevationGrid

- TimeSensor clock outputs triggering events
- Script response computes grid heights each time
- Output event of full height matrix, with matching size, is then sent to ElevationGrid
- TimeSensor clock repeats with geometric continuity
- ElevationGridSimpleWaveAnimation.x3d



```
<X3D profile='Interchange' version='3.3' xmlns:xsd='http://www.w3.org/2001/XMLSchema-instance' xsd:noNamespaceSchemaLocation='http://www.web3d.org/spec
 3 -
 4 🕂
       <head>
16 
      <Scene>
17
         <Viewpoint description='Wave view' orientation='1 0 0 -0.358771' position='0 3 8'/>
        <Background groundColor='1 1 1' skyColor='1 1 1'/>
18
        <!-- Shift zero-based ElevationGrid to left, centering it -->
19
20 🗀
        <Transform translation='-4 0 0'>
21 F
          <Shape>
            22
            <Appearance>
23 -
              <Material diffuseColor='0 0.5 1'/>
24
25
            </Appearance>
          </Shape>
26
27
         </Transform>
        <TimeSensor DEF='Clock' cycleInterval='5' loop='true'/>
28
29
        <Script DEF='WaveGenerationScript'>
       <field accessType='inputOnly' appinfo='provide value and trigger new computation' name='newInputValue' type='SFFloat'/>
30
          <field accessType='outputOnly' appinfo='provide values to ElevationGrid' name='gridOutput' type='MFFloat'/>
31
          <field accessType='initializeOnly' appinfo='wave variation' name='waveStep' type='SFTime' value='0.1'/>
32
33
          <! [CDATA]
34
    ecmascript:
35
36
    function newInputValue (eventValue)
37
38
       fraction = eventValue; // connected by ROUTE, receives values from TimeSensor Clock fraction changed
39
       value0 = 0.2 * Math.sin (2 * Math.PI * (fraction - 4*waveStep));
40
       value1 = 0.2 * Math.sin (2 * Math.PI * (fraction - 3*waveStep));
41
42
       value2 = 0.2 * Math.sin (2 * Math.PI * (fraction - 2*waveStep));
43
       value3 = 0.2 * Math.sin (2 * Math.PI * (fraction - waveStep));
44
       value4 = 0.2 * Math.sin (2 * Math.PI * (fraction
                                                                  ));
45
       value5 = 0.2 * Math.sin (2 * Math.PI * (fraction + waveStep));
       value6 = 0.2 * Math.sin (2 * Math.PI * (fraction + 2*waveStep));
46
47
       value7 = 0.2 * Math.sin (2 * Math.PI * (fraction + 3*waveStep));
       value8 = 0.2 * Math.sin (2 * Math.PI * (fraction + 4*waveStep));
48
49
       // setting the gridOutput value creates an output event that is connected via ROUTE to the ElevationGrid set height field.
50
51
       // note that types match (MFFloat) and accessTypes also match (output only connects to inputOnly).
52
        gridOutput = new MFFloat (
53
                    value0, value1, value2, value3, value4, value5, value6, value7, value8,
54
                    value0, value1, value2, value3, value4, value5, value6, value7, value8,
                    value0, value1, value2, value3, value4, value5, value6, value7, value8 );
55
56
     Ł
57
    11>
        </Script>
58
     <ROUTE fromField='fraction changed' fromNode='Clock' toField='newInputValue' toNode='WaveGenerationScript'/>
59
60
     2 <ROUTE fromField='gridOutput' fromNode='WaveGenerationScript' toField='set height' toNode='GridSurface'/>
61
      </Scene>
     </X3D>
62
```