Subject: internal connections

Posted by Matthias Hengartner on Tue, 16 Nov 2004 15:24:51 GMT

Hello,

visualisation:

```
begin of Track1 ||----------------------------------< [con1a1]
begin of Track2 ||----------------------------------< [con2a1]

[con1a2] >-----------------------------------------< [con1b1]
[con2a2] >-----------------------------------------< [con2b1]

[con1b2] >-------------------------------------|| end of Track1
[con2b2] >-------------------------------------|| end of Track2
```

In this outline, you can see a corridor (without any trackelements) of 2
tracks, which are each splitted into 3 parts.
The splitting is only for visualisation purposes (e.g. to show a corridor in
a compact way, or to disentangle visually a complicated topology) and has no
reference to reality.
[con1a1] is "connected" with [con1a2] etc. ("connected" means, that [con1a1]
has exactly the same position on Track1 as [con1a2], they have only
different visualisation coordinates).

After some first considerations, I see two different possibilities to
implement this (shortly outlined):

(1)
We use the existing schema with the <simpleConnection>-elements of
<trackBegin>/<trackEnd>. For Track1 in the example above, we have 3 tracks
(1A, 1B, 1C), and each of them have the same "trackID" (and the same for
Track2).
[con1a1] is the <trackEnd> of 1A and is connected to [con1a2], which is the
<trackBegin> of 1B (and so on).
Given the whole Track1 is e.g. 3 kilometers, and the 3 parts each are
equally long, we have [con1a1] AND [con1a2] at position 1.000 (kilometer),
and [con1b1] AND [con1b2] at position 2.000.

Here an extract of the appropriate sourcecode:

```
<tracks>
 <track trackID="Track1">
```

```xml
   <trackTopology>
    <trackBegin>
     <bufferStop pos="0.000"/>
    </trackBegin>
    <trackEnd>
     <simpleConnection pos="1.000">
      <connection connectionID="con1a1" branchIDRef="con1a2"/>
     </simpleConnection>
    </trackEnd>
   </trackTopology>
  </track>
  <track trackID="Track1">
   <trackTopology>
    <trackBegin>
     <simpleConnection pos="1.000">
      <connection connectionID="con1a2" branchIDRef="con1a1"/>
     </simpleConnection>
    </trackBegin>
    <trackEnd>
     <simpleConnection pos="2.000">
      <connection connectionID="con1b1" branchIDRef="con1b2"/>
     </simpleConnection>
    </trackEnd>
   </trackTopology>
  </track>
  <track trackID="Track1">
   <trackTopology>
    <trackBegin>
     <simpleConnection pos="2.000">
      <connection connectionID="con1b2" branchIDRef="con1b1"/>
     </simpleConnection>
    </trackBegin>
    <trackEnd>
     <bufferStop pos="3.000"/>
    </trackEnd>
   </trackTopology>
  </track>
 </tracks>
```

[We propably should introduce an additional ID for each <track> (which represents only a part of a track), which is unique (within the line/infrastructure). In our case, we have 1A, 1B, 1C]

(2)
Another possibility is to introduce a new trackElement, e.g.
<internalConnection> or <trackSplitPoint> (or to allow <simpleConnection>
not only on the beginning and end of a track).

(2a) In this case, we have 4 <internalConnection>-elements. Each of them has different visualisation coordinates. There are 2 pairs of them, which have the same position on the track and refer to each other (this reference is not absolutly necessary).

```
<track trackID="Track1">
 <trackTopology>
  <trackBegin>
   <bufferStop pos="0.000"/>
  </trackBegin>
  <internalConnection pos="1.000" elementID="con1a1" IDRef="con1a2"/>
  <internalConnection pos="1.000" elementID="con1a2" IDRef="con1a1"/>
  <internalConnection pos="2.000" elementID="con1b1" IDRef="con1b2"/>
  <internalConnection pos="2.000" elementID="con1b2" IDRef="con1b1"/>
  <trackEnd>
   <simpleConnection pos="3.000">
    <connection connectionID="con1a1" branchIDRef="con1a2"/>
   </simpleConnection>
  </trackEnd>
 </trackTopology>
</track>
```

(2b) In this case, we have only 2 <trackSplitPoints>. Each of them has 2 elementIDs. So in the visualisation part, we can refer twice to each <trackSplitPoint> (and give them 2 visualisation points for each).

```
<track trackID="Track1">
 <trackTopology>
  <trackBegin>
   <bufferStop pos="0.000"/>
  </trackBegin>
  <trackSplitPoint pos="1.000" elementID1="con1a1"
elementID2="con1a2"/>
  <trackSplitPoint pos="2.000" elementID1="con1b1"
elementID2="con1b2"/>
  <trackEnd>
   <simpleConnection pos="3.000">
    <connection connectionID="con1a1" branchIDRef="con1a2"/>
   </simpleConnection>
  </trackEnd>
 </trackTopology>
</track>
```

What do you think about these ideas?

I'll tell you about another application of such internal connections in another posting.

Please ask, critisize and discuss!

Best regartds
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