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Subject: internal connections

Posted by [Matthias Hengartner](#) on Tue, 16 Nov 2004 15:24:51 GMT

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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">
```

```

<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 probably 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 absolutely 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, criticize and discuss!

Best regards  
Matthias Hengartner

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