



railML.org

railML 3.x  
Modelling Examples

Mileage Changes

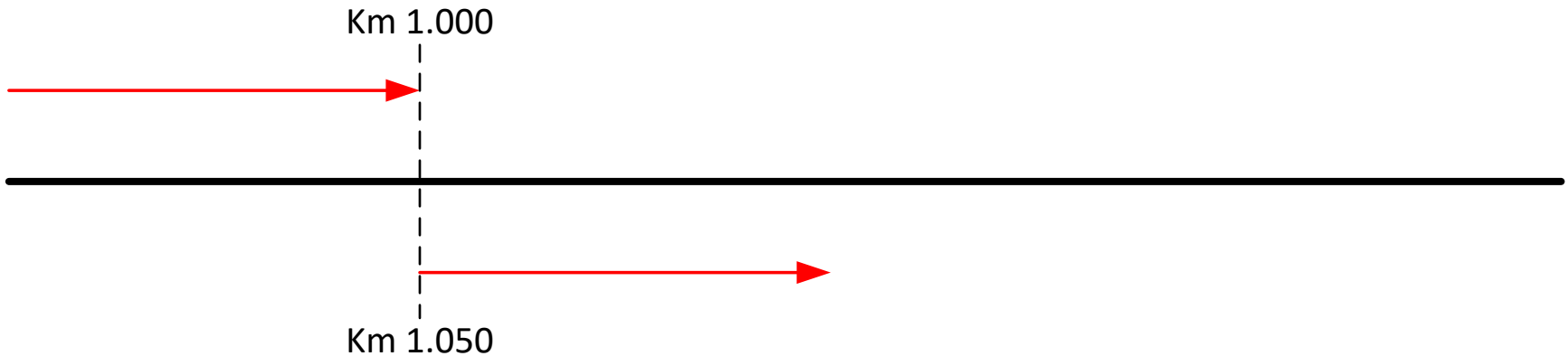
# Overview

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- Mileage gap
- Mileage overlap
- Compressed kilometer
- Stretched kilometer
- Begin and end of mileage
- [Mileage and intrinsic coordinates](#)

# Mileage Changes

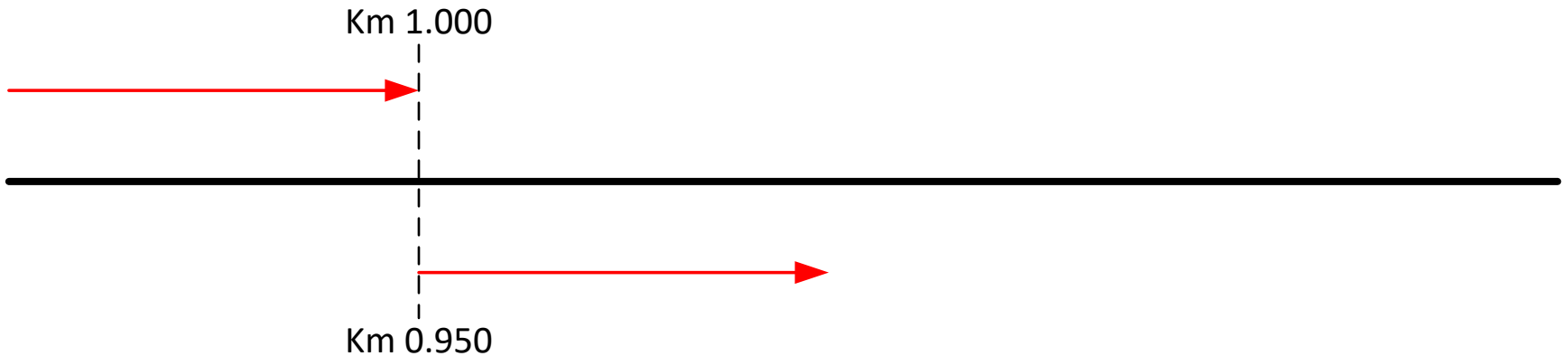
- Mileage gap



```
<linearPositioningSystem id="lps01" units="m" startMeasure="0.0" endMeasure="5000.0" linearReferencingMethod="absolute">  
  <name name="railway line 6869 mileage" language="en"/>  
  <isValid from="2018-01-01" to="2018-12-31"/>  
  <anchor id="lps01_anc01" measure="1000.0" measureToNext="0"/>  
  <anchor id="lps01_anc02" measure="1050.0" measureToNext="3950.0"/>  
</linearPositioningSystem>
```

# Mileage Changes

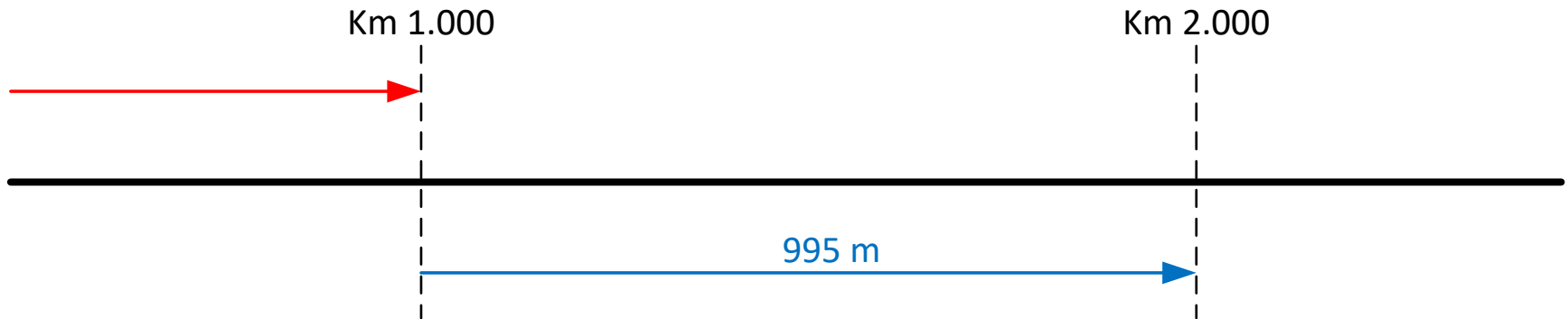
- Mileage overlap



```
<linearPositioningSystem id="lps01" units="m" startMeasure="0.0" endMeasure="5000.0" linearReferencingMethod="absolute">  
  <name name="railway line 6869 mileage" language="en"/>  
  <isValid from="2018-01-01" to="2018-12-31"/>  
  <anchor id="lps01_anc01" measure="1000.0" measureToNext="0"/>  
  <anchor id="lps01_anc02" measure="950.0" measureToNext="4050.0"/>  
</linearPositioningSystem>
```

# Mileage Changes

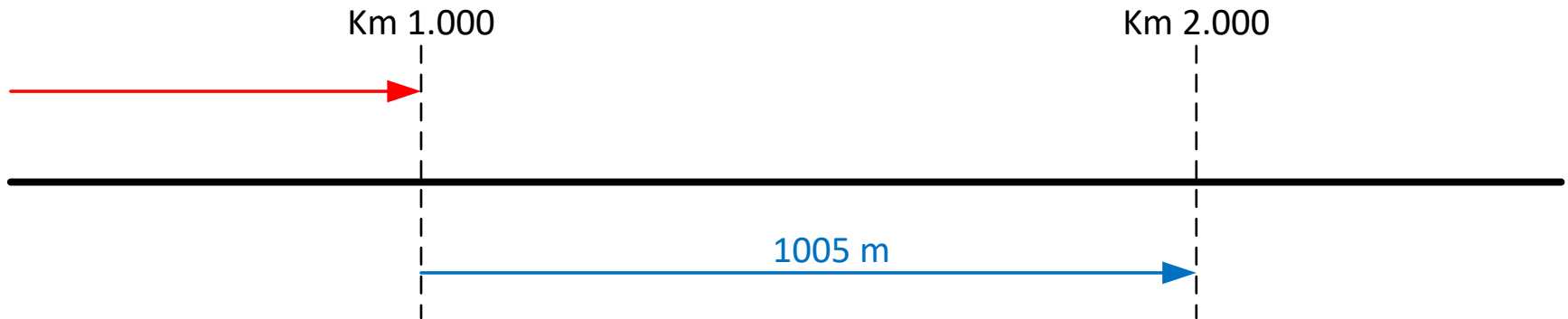
- Compressed kilometer



```
<linearPositioningSystem id="lps01" units="m" startMeasure="0.0" endMeasure="5000.0" linearReferencingMethod="absolute">  
  <name name="railway line 6869 mileage" language="en"/>  
  <isValid from="2018-01-01" to="2018-12-31"/>  
  <anchor id="lps01_anc01" measure="1000.0" measureToNext="995.0"/>  
  <anchor id="lps01_anc02" measure="2000.0" measureToNext="3000.0"/>  
</linearPositioningSystem>
```

# Mileage Changes

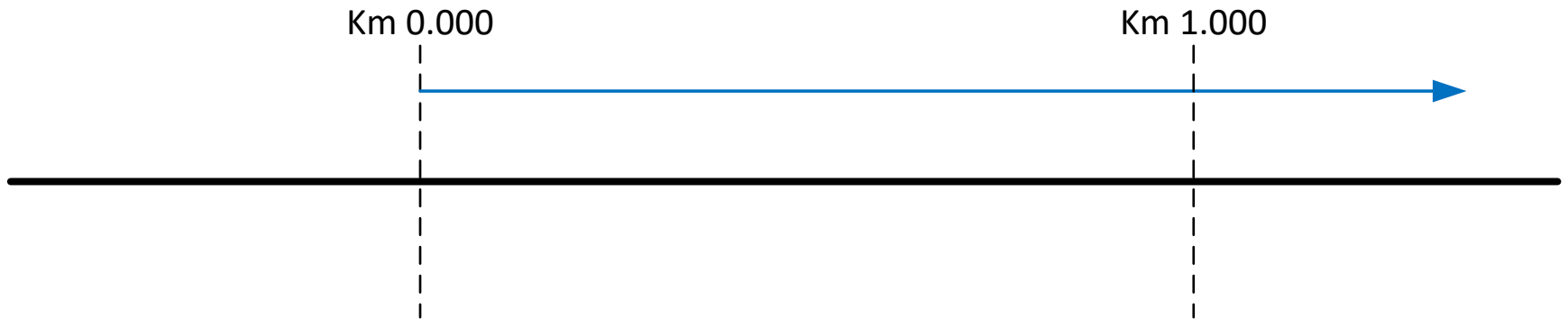
- Stretched kilometer



```
<linearPositioningSystem id="lps01" units="m" startMeasure="0.0" endMeasure="5000.0" linearReferencingMethod="absolute">
  <name name="railway line 6869 mileage" language="en"/>
  <isValid from="2018-01-01" to="2018-12-31"/>
  <anchor id="lps01_anc01" measure="1000.0" measureToNext="1005.0"/>
  <anchor id="lps01_anc02" measure="2000.0" measureToNext="3000.0"/>
</linearPositioningSystem>
```

# Mileage Changes

- Begin and end of mileage



- Is the begin of mileage (arbitrary start value) always identical with the begin of line?
  - Yes → define begin and end of mileage via the linear location of the <line>
  - No → define begin and end of mileage with the milepost signal

# Mileage Changes

- Begin and end of mileage

Km 0.000

Km 1.000



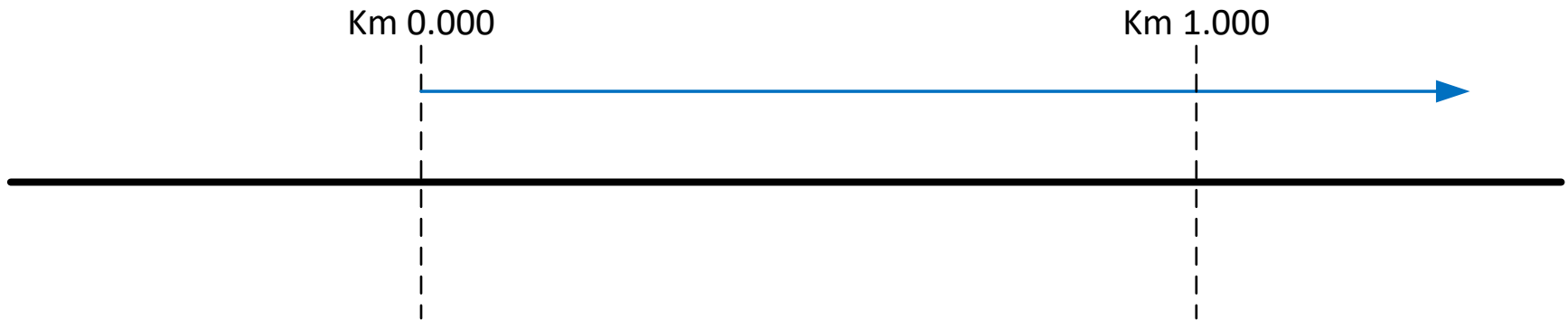
```
<line id="lin01" lineCategory="other:CE" lineType="mainLine" infrastructureManagerRef="im_01">
  <name name="Malý příklad železniční tratě" language="cz"/>
  <name name="Kleine Beispielstrecke" language="de"/>
  <name name="Simple Example railway line" language="en"/>
  <name name="Ejemplo Simple de Linea Ferroviaria" language="es"/>
  <name name="Petit Exemple Ligne Ferroviaire" language="fr"/>
  <name name="Semplice Esempio di Stazione/Linea Ferroviaria" language="it"/>
  <name name="Lille eksempelbanen" language="no"/>
  <name name="Lilla Exempellinjen" language="se"/>
  <linearLocation id="lin01_lloc01" applicationDirection="both">
    <associatedNetElement netElementRef="ne_a11" keepsOrientation="true">
      <linearCoordinateBegin positioningSystemRef="lps01" measure="0.0"/>
      <linearCoordinateEnd positioningSystemRef="lps01" measure="700.0"/>
    </associatedNetElement>
    <associatedNetElement netElementRef="ne_x11" keepsOrientation="true">
      <linearCoordinateBegin positioningSystemRef="lps01" measure="700.0"/>
      <linearCoordinateEnd positioningSystemRef="lps01" measure="4300.0"/>
    </associatedNetElement>
    <associatedNetElement netElementRef="ne_b11" keepsOrientation="true">
      <linearCoordinateBegin positioningSystemRef="lps01" measure="4300.0"/>
      <linearCoordinateEnd positioningSystemRef="lps01" measure="5000.0"/>
    </associatedNetElement>
  </linearLocation>
</line>
```

Yes



# Mileage Changes

- Begin and end of mileage



No

```
<signalIS id="mps01" isSwitchable="false">
  <spotLocation netElementRef="ne_all" id="mps01_sloc01" applicationDirection="normal" pos="4711.0">
    <linearCoordinate measure="0.0" positioningSystemRef="lps01"/>
  </spotLocation>
  <isMilepost shownValue="0.0" isBeginOfMileage="true">
    <refersToLine ref="lin01"/>
  </isMilepost>
</signalIS>
```

# Mileage Changes

- Relation between linearPositioningSystem and Intrinsic coordinates for mileage Changes...

```
<linearPositioningSystem id="lps01" units="m" startMeasure="0.0" endMeasure="5000.0" linearReferencingMethod="absolute">  
  <name name="railway line 6869 mileage" language="en"/>  
  <isValid from="2018-01-01" to="2018-12-31"/>  
  <anchor id="lps01_anc01" measure="1000.0" measureToNext="0"/>  
  <anchor id="lps01_anc02" measure="950.0" measureToNext="4050.0"/>  
</linearPositioningSystem>
```

- <linearPositioningSystem> and <anchor> don't „know“ the intrinsic coordinates ...

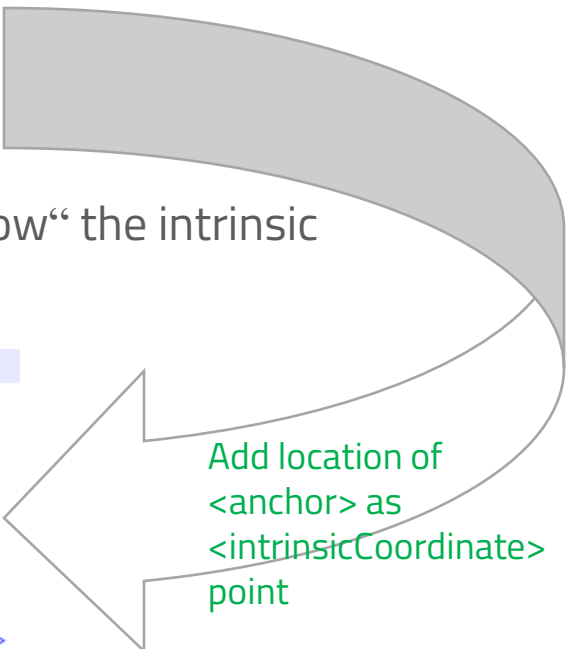
# Mileage Changes

- Relation between linearPositioningSystem and Intrinsic coordinates for mileage Changes...

```
<linearPositioningSystem id="lps01" units="m" startMeasure="0.0" endMeasure="5000.0" linearReferencingMethod="absolute">
  <name name="railway line 6869 mileage" language="en"/>
  <isValid from="2018-01-01" to="2018-12-31"/>
  <anchor id="lps01_anc01" measure="1000.0" measureToNext="0"/>
  <anchor id="lps01_anc02" measure="950.0" measureToNext="4050.0"/>
</linearPositioningSystem>
```

- <linearPositioningSystem> and <anchor> don't „know“ the intrinsic coordinates ... **only the <netElement> does**

```
<netElement id="ne_x01" length="3600.0">
  <relation ref="nr_a03x01"/>
  <relation ref="nr_x01b03"/>
  <associatedPositioningSystem id="ne_x01_aps01">
    <intrinsicCoordinate id="ne_x01_aps01_ic01" intrinsicCoord="0">
      <linearCoordinate positioningSystemRef="lps01" measure="700.0"/>
    </intrinsicCoordinate>
    <intrinsicCoordinate id="ne_x01_aps01_ic02" intrinsicCoord="1">
      <linearCoordinate positioningSystemRef="lps01" measure="4300.0"/>
    </intrinsicCoordinate>
  </associatedPositioningSystem>
</netElement>
```



Add location of  
<anchor> as  
<intrinsicCoordinate>  
point