Subject: interlocking scope limit
Posted by Bob Janssen railML on Mon, 06 Jun 2016 08:42:17 GMT
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An interlocking locks safe routes but this doesn't mean that these routes make operational sense. For instance, the signal man or control system can call routes that result in total gridlock. The interlocking allows this because stopped trains are safe though it's operational nonsense.

Normally, the scope of the IL is kept as small as possible because the SIL4 requirements on IL are much more stringent than on the operational control layer. In other words, the interlocking implements vital functions whereas non-vital functions are left to the control layer where they're cheap to implement. The IL provides safety and the control system provides fluid traffic.

This begs the following question: when is a function vital and should be modelled inside an interlocking and when is a function part of the operational control system. There are some shadow areas that we need to discuss.

Examples:

Freight trains are allowed into a tunnel only when the section beyond the tunnel is clear. This allows the train to clear the tunnel without the risk of a stop inside the tunnel. Is this a vital function for the interlocking or does the control system deal with it ?

To avoid gridlock, a route must only be called when a next section is available. Is this a vital or operational requirement ?
In day-to-day operations trains shouldn't come to a stop at closed signals because the danger of overshooting (SPAD) is deemed to risky. Is this a vital or operational requirement ?

A point that provided flankprotection returns to a preferred position after train passage to speed up operation. Vital or operational ?

Here's my challenge to you: do you know any more functions that shouldn't be in the vital domain ? The idea is to create awareness that the (costly !) IL mustn't include operational functions.