

Errata & Updates

INFORMS RAS · 2020 Problem-Solving Competition

Dated: June 26, 2020

Errata:

- **There is a variable [in the Toy Problem dataset] called “RPTG_STN_FLG” (i.e., Reporting Station Flag), where Y is given if the station is in the list of important stations, and N otherwise. In the dataset, this column is missing. What makes it different if it’s an important station?**
 - Mr. Jha noted that only important stations will be given in the network diagrams, including the diagram to be provided in the validation dataset.
 - Mr. Baillargeon added that the definition should’ve been removed from the list and was simply an overlooked error in the Toy Problem dataset. As such, it should be ignored as only important stations will be included, as Mr. Jha noted.
- **On the network diagram in the Toy Problem dataset, the track speed is listed as 50 MPH at Station A, but it appears that the segment between Stations A and B have different speeds listed. So, what does the 50 MPH represent in this diagram?**
 - Mr. Baillargeon noted that should be considered as an erratum as the 50-MPH speed limit refers to the speed west of Station A, which is not modeled in this network. As such, it should be ignored and a corrected version of the Toy Problem dataset will be uploaded along with a summary of errata for those still using the previous version.
- **In “Distances” sheet, from row 107 to 131, the “From” and “To” stations are same and distance is also given for them. What do these mean?**
 - Mr. Baillargeon noted that this was an oversight; this data was included in the datasets from the 2018 competition. The intention was to delete them when the modifications were completed but, in the rush to get the validation dataset out to the participants, this was missed. Please ignore them for now and, in the meantime, they will be deleted other discrepancies will be address and a corrected dataset will be re-posted.
- **Some of the sequence orders (i.e., the “ORDER #” column in the dataset) do not include all orders and are not consecutive. For example, for TRAIN_CD 3546 ORDER # begins from 8 and not 1, and ORDER #'s 14, 27, and 27 are not included.**
 - I apologize for the confusion this has caused. As the data provided to us from the 2018 problem owners contained hundreds of thousands of trains over multiple weeks and for the entire network spanning a small European country, the committee had to modify the dataset so it was more manageable. As such, intermediate stations, or portions of the journey that ventured into other subdivisions, were removed, but we failed to adjust the order number accordingly to account for the removals. For now, since the segments are still in the appropriate sequential order, it is okay to assume the order is correct. In the meantime, we will work to correct this in the validation dataset and release an update version. Once again, I apologize for the oversight and the subsequent confusion it caused.

- **In row 43 of the sheet named “Distance”, the “From” station is Hmbv and “To” station is Tgra, but these two stations are not in the same route.**
 - This is an error; Tgra should precede the diverging routes such that the distance between Hmbv and Tgra are valid. This will be corrected in the version of the validation dataset and an updated version will be released.
- **In row 88 and 93 of the sheet named “Distance”, the distance from Tbu to Tbge is 0.7 and from Tbge to Tb is 1.7, which means the distance should be 2.4 from Tbu to Tb. However, in row 92, the distance from Tbu to Tb is 2.3, which requires clarification.**
 - It is likely the difference is due to rounding error and, in fact, there are issues like this very frequently in real-world freight railroad operations; documentation is not always consistent as the distances between “mile” posts can vary greatly. Although, for this competition, please use the value that is most in line with the other measures in the data (e.g., for the situation you’ve presented here, please use 2.4 km rather than the 2.3 km). As this is an issue railway engineers and transportation specialists are faced with on a day-to-day basis in revenue service operations, the discrepancies will not be corrected in the validation dataset in order to provide some realism to the problem.
- **The distance from Ehb to Ehs are not provided. Although, in the sheet named “Num Track Chart”, the length of track from Ehb to Ehv is also 2, which lead to contradiction.**
 - Going back to the actual track charts and diagrams provided by the European operator, it appears that Ehs isn’t technically a station; it is likely a marker of some sort. As such, Ehs will be removed and Ehb will be the only station between At and Ehv. This will be corrected in the version of the validation dataset and an updated version will be released.
- **The stations from Etn to Ot do not appear in the “Train Mvmt Data” sheet. Is there no train operating in this section? If that, the network is divided into two separate parts.**
 - This is an error, much like the lack of trains on the Northern Route that was brought up previously during the webinars. This will be corrected in the version of the validation dataset and an updated version will be released.

Other Updates:

- The committee ran into some unforeseen issues receiving the final dataset from the railroad partner, which has ultimately affected the schedule for getting the final validation dataset to participants. Although, it was announced that Mr. Baillargeon and Mr. Jha had come up with an alternate dataset to be used for validation purposes based on a previous Problem-Solving Competition’s dataset. As such, there will be slight variations to the formatting than what was previously presented and/or discussed.
- Given the affect this unfortunate circumstance has had on the schedule, the Committee agreed to change the date that the Quiet Period will begin from Friday, June 26, to Friday, July 3, starting at 11:59 PM CDT.
- Additional webinars will be hosted before the Quiet Period on Wednesday, July 1, and Friday, July 3, at 9:00 AM EDT to ensure all participants are comfortable with the validation dataset and have had a chance to have their questions addressed.

Action Items:

- In response to a request made during the webinar, the Problem-Solving Committee will provide information that elaborates on the siding and spur rules via the website so participants can properly model it.
 - Status: **COMPLETED**
 - **As noted in Webinar #3, only one train can occupy the length of a siding or spur between the switches. In the case of yards, one train can occupy each of the tracks (once again, the length between switches) making up the yard as if each track were its own siding.**
 - **The orientation of the switch at any given point in time should be ignored for this problem; participants should assume the switch will be aligned accordingly to the train movement being made.**
 - **A time penalty will be assigned to each train using a siding, spur, or wye, which is address below in the next Action Item.**
 - **As long as access it available in the direction of travel, any train can utilize a siding, spur, or wye as long as it is unoccupied at the time of arrival.**
- In response to a request made during the webinar, the Problem-Solving Committee will provide information that elaborates on the time penalty for utilizing a siding or wye during a train's journey so it can be properly modeled.
 - Status: **COMPLETED**
 - **Any train occupying a siding, wye, or industrial spur will be charged a time penalty equivalent to 5 minutes, which accounts for the associated time dispensed entering a siding, waiting for the end of the train to pass, receiving permission to proceed from the dispatcher, and exiting the siding at a speed slower than that of the mainline.**