Solution 1-4

This is an example solution from the forthcoming book Networks and Complexity.
Find more exercises at https://github.com/NC-Book/NCB

Ex 1.4: Return to Moravia [2]

Solve the Moravian example with a slightly modified distance matrix that is now given by

$$
\mathbf{D} = \begin{pmatrix}
0 & 137 & 100 & 74 & 77 \\
137 & 0 & 75 & 76 & 198 \\
100 & 75 & 0 & 51 & 121 \\
74 & 76 & 51 & 0 & 151 \\
77 & 198 & 121 & 151 & 0
\end{pmatrix}
$$

and the nodes are

$$1 : \text{B}, \ 2 : \text{O}, \ 3 : \text{L}, \ 4 : \text{Z}, \ 5 : \text{J}.$$

Solution

The solution network has the edge set

$$E = \{(\text{L}, \text{Z}), (\text{B}, \text{Z}), (\text{O}, \text{L}), (\text{B}, \text{J})\} \tag{1}$$

we find it by

1. Try (L,Z) [51km] – accept

2. Try (B,Z) [74km] – accept

3. Try (L,O) [75km] – accept

4. Try (O,Z) [76km] – reject

5. Try (B,J) [77km] – accept

Of course just drawing the solution network is also an acceptable answer to this question, but also writing down these steps makes it easier to discuss the solution and identify the nature of the mistake if there is one.