Santos, L., Coutinho-Rodrigues, J., Current, J.R, 2007. An Improved Solution Algorithm for the Constrained Shortest Path Problem, *Transportation Research Part B: Methodological* 41 (7) 756-771.

Test Data Networks

The data test set contains 210 networks randomly generated and numbered from 10 to 219. Due the high number of generated networks, our algorithms were not tested for the set of the networks numbered form 40 to 49, from 110 to 119, and from 180 to 189. The tables with results would be too large (and those not tested networks have intermediate dimensions).

The well-known forward star form (represented in Figure 1) was used to store the structure of each network. In the example presented in Figure1, the number of outgoing arcs from node 2 is given by: array1 [3] - array1 [2] = 4-2=2 (the number of outgoing arc from node i is given by array1 [i+1] - array1 [i]); the tail node, c_{ij} value, and t_{ij} value for each outgoing arc from node 2 are given by the 2nd and the 3rd components of the three arrays (array2, array3 and array4).
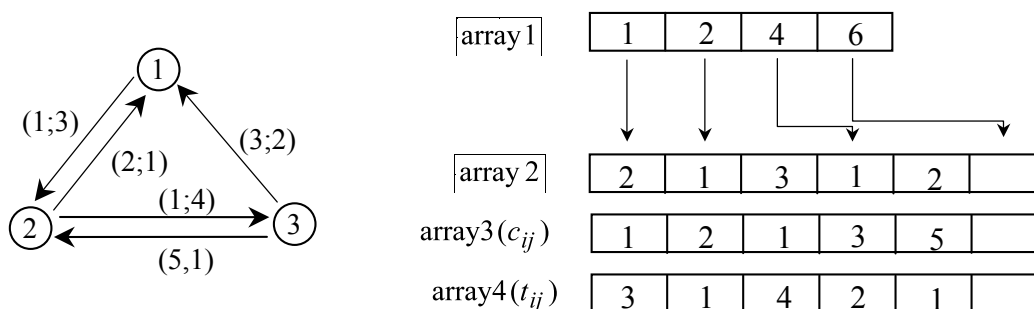

Figure 1 – Example: Forward star form structure used to store the network data.

Data are stored in the three files described below:

File1

1st column: Contains the ID of the network.

2nd column: Contains the number of nodes of the network.

3rd column: Contains the number of arcs of the network.

4th column: Contains the $f_2(A)$ value (see Fig. 2 on page 759 of the paper), i. e., the sum of t_{ij} values for the arcs belonging to path A (obtained by minimizing only the sum of the c_{ij} values).

5th column: Contains the $f_2(B)$ value (see Fig. 2 on page 759 of the paper), i. e., the sum of t_{ij}
values for the arcs belonging to path B (obtained by minimizing only the sum of the
t_{ij} values).

6th column: Contains the destination node of the network (the origin node is always node #1).

File2

1st column: Contains the ID of the network.

2nd column: Contains the values stored in the array 1.

File3

1st column: Contains the ID of the network.

2nd column: Contains the values stored in the array 2.

3rd column: Contains the values stored in the array 3.

4th column: Contains the values stored in the array 4.