$$M = \begin{array}{c} \\ 1 \\ 2 \\ 3 \\ 4 \end{array} \begin{array}{c} \begin{array}{cccc} 1 & 2 & 3 & 4 \end{array} \\ \begin{bmatrix} 0 & 10 & 15 & 20 \\ 5 & 0 & 9 & 10 \\ 6 & 13 & 0 & 12 \\ 8 & 8 & 9 & 20 \end{bmatrix} \end{array}$$

We need to compute

$$g(1, \{2,3,4\}) = \min \begin{bmatrix} L_{1,2} + g(2, \{3,4\}) \\ L_{1,3} + g(3, \{2,4\}) \\ L_{1,4} + g(4, \{1,3\}) \end{bmatrix}$$

In order to compute $g(1, \{2,3,4\})$ we need to know the values of $g(2, \{3,4\})$, $g(3, \{2,4\})$ and $g(4, \{1,3\})$

$$g(2, \{3,4\}) = \min \begin{bmatrix} L_{2,3} + g(3, \{4\}) \\ L_{2,4} + g(4, \{3\}) \end{bmatrix}$$

$$g(3, \{2,4\}) = \min \begin{bmatrix} L_{3,2} + g(2, \{4\}) \\ L_{3,4} + g(4, \{2\}) \end{bmatrix}$$

$$g(4, \{1,3\}) = \min \begin{bmatrix} L_{4,1} + g(1, \{3\}) \\ L_{4,3} + g(3, \{1\}) \end{bmatrix}$$

$$g(3, \{4\}) = L_{3,4} + g(4, \phi) = 12 + 8 = 20$$

$$g(4, \{3\}) = L_{4,3} + g(3, \phi) = 9 + 6 = 15$$

$$g(2, \{4\}) = L_{2,4} + g(4, \phi) = 10 + 8 = 18$$

$$g(4, \{2\}) = L_{4,2} + g(2, \phi) = 8 + 5 = 13$$