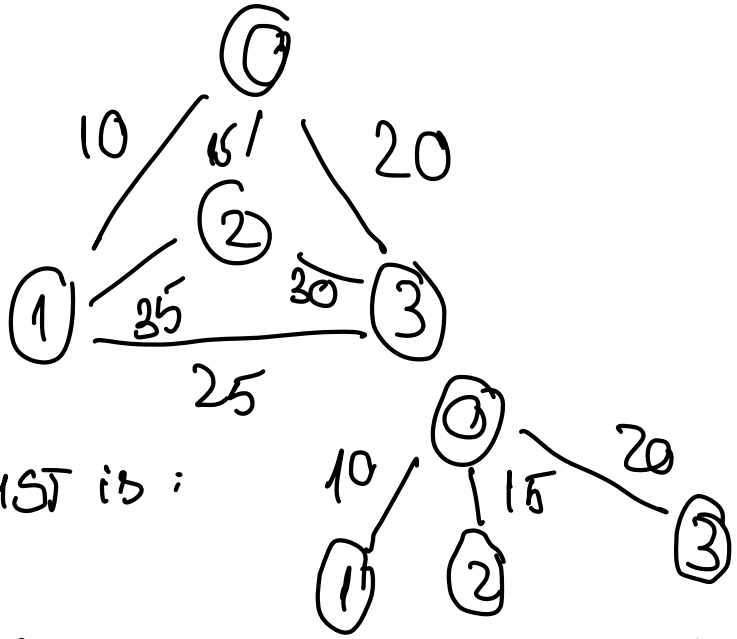
We know that the mst is the minimum tree from the nodes $\Rightarrow$ cost(mst) $\leq$ cost(min tsp) where min tsp is the minimum Hamilton cycle.

The cost of a full walk $\leq$ 2MST (every edge of the mst is visited at most once. Preorder walk $\leq$ FULL WALK (bc. of the Δ inequality)

Conclude: preorder walk $\leq$ 2 cost(mst) for this algorithm



MST is:

Preorder traversal of the MST: 0-1-2-3

Add 0 to the end 0-1-2-3-0