Algorithm 3: QUBE(MUC_U)

input : MUC_U - Minimum Union Cycle that updated vertices belong to
output : $C[v_i]$ - Updated Betweenness Centrality Array

```
1  begin
2  |  Let SP be the set of all pair shortest paths in MUC_U ;
3  |  Let C[v_i] be an empty array, v_i ∈ MUC_U ;
4  |  SP, C[v_i] ← Betweenness() ;
5  |  for each shortest path <v_a, ..., v_b> in SP do
6  |  |  if v_a is a connecting vertex then
7  |  |  |  G_a := Subgraph connected by a connection
   |  |  |  vertex v_a ;
```