Proposition :

Considering the State pattern on the classDiagramReignTillSalvation\_newtry.

If we use vector<unique\_ptr<Individual>> for leaders in Map as well as for surbordinates in Strong.

* FIRST STEP UPDATE GROUP ONE BY ONE

Iterating leaders (but only on the vector before adding the modification of the iteration, so we stop at current size of leaders){

-Update the position of the leader and its subordinates

-Check the deaths{

Erase death from surbordinates

if (leader is dead){

Choose a new leader in subordinates (now only living individuals left)

Change state of newleader to strong

Move newleader from subordinates to leaders

Move surbordinates from old leader to new leader surbordinates (at the end of the vector)

Erase old leader from leaders

}

}

-Check if subordinate of the current leader is still in the group (distance between subordinate and leader){

Iterating subordinate and for each of them out of the range{

Check if there is another leader in range (in case multiple are found, choose the ‘strongest one’ following the rule: number of subordinates following by the distance with this subordinate)

If(found){ move the subordinate to the subordinates of the leader found}

Else{

change state of the subordinate to strong

add to leaders at the end of the vector}

}

}

* SECOND STEP FUSION OF GROUPS

Iterating over leaders again{

Check if there is a leader stronger in range{

If yes find the strongest one

Move all subordinate to the stronger leader subordinates

Change state weak

Move this leader from leaders to the subordinates of the stronger leader

}

}