An Algorithm for Building Reachability Trees

Step1. Label the initial marking M0 as the root & tag it "new";

Step2. While "new" markings exist, do the following:

1. Select a new marking M;

2. If M is identical to a marking on the path from the root to M, then tag M "old", and go to another new marking;

3. If no transitions are enabled at M, tag M "dead-end";

4. While there exist enabled transitions at M, do the following for each enabled transition t at M:

    4.1. Obtain the marking M' that results from firing t at M;

    4.2. On the path from the root to M if there exists a marking M" such that $M'(p) \geq M''(p)$ for each place p and $M' \neq M''$, then replace M'(p) by ω for each place such that $M'(p) > M''(p)$;

    4.3. Introduce M' as a node, draw an arc with label t from M to M', and tag M' "new".