Some examples of global threshold utilization:

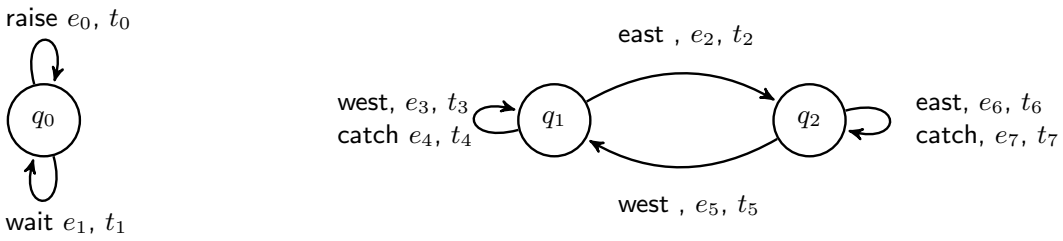

Figure 1: Automata A_0 on the left and A_1 on the right

{raise, west, east, wait, catch} are all possible actions. e_i and t_i are respectively the semiring value and the threshold associated to the corresponding transition. Each automaton has a global threshold T_{A_i} such that $A_{|T_{A_i}}$ is the restriction of the automaton to all transition involving semiring values below T_{A_i}. In the next figure, some values have been associated with each e_i and t_i

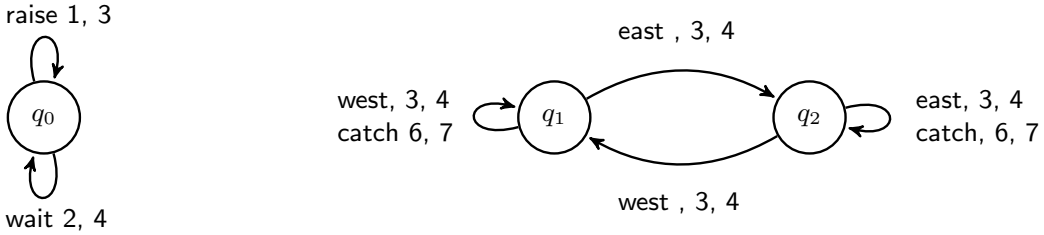

Figure 2: Automata A_0 on the left and A_1 on the right

Let $T_{A_0} = 3$ and $T_{A_1} = 5$. We assume that raise can only compose with catch, and wait can only compose with west or east. There are now two possibilities to compose A_1 and A_0. Either :

$$A = (A_0 \otimes A_1)_{|T_{A_0} \otimes T_{A_1}}$$

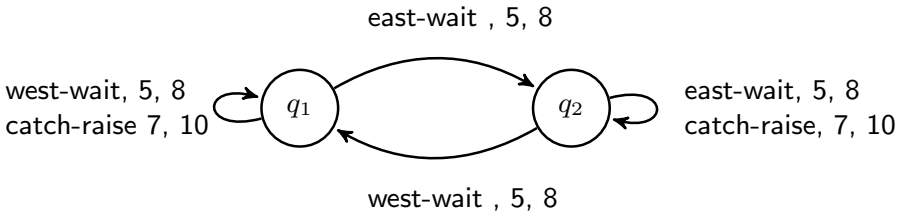

Figure 3: Automata $A = (A_0 \otimes A_1)_{|T_{A_0} \otimes T_{A_1}}$ with $T_A = 8$

Or :

$$A = A_{0|T_{A_0}} \otimes A_{1|T_{A_1}}$$

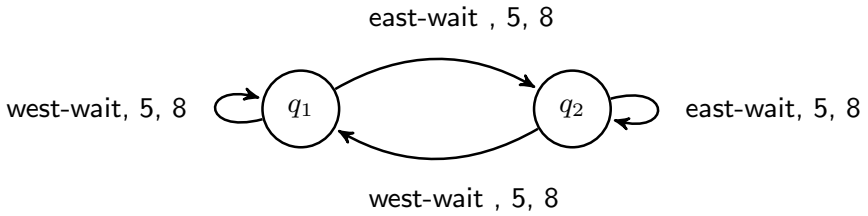

Figure 4: Automata $A = A_{0|T_{A_0}} \otimes A_{1|T_{A_1}}$ with $T_A = 8$

This threshold can be usefull to separate composition of *internal* actions and *external* actions. An action can be defined as *internal* if it involves a single agent (west or east action). An action is called *external* if it needs some other agents to be allowed (catch for instance). In this scope, internal actions have low semiring values, and external actions have high semiring values. By defining a global threshold T_A, and a restriction of the Automaton regarding the threshold, we allow only composition of internal action, or internal and external actions.