Soft Constraint Automata

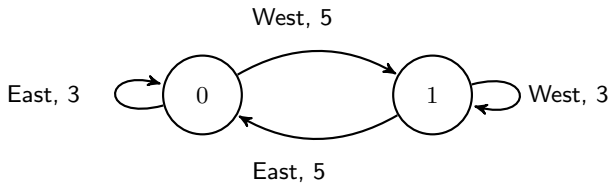


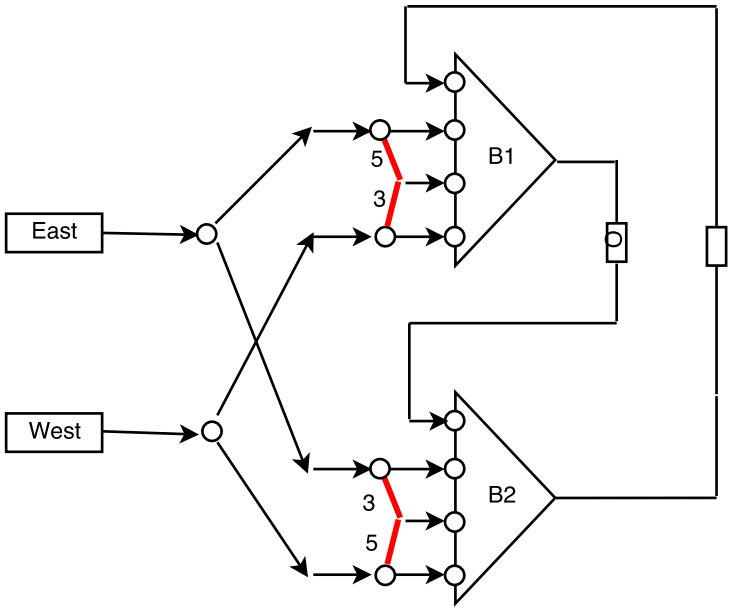
Figure 1: East-West patrolling agent

Reo Circuit

In the Reo circuit below, the actions are Reo components. Values assigned to actions can be viewed as preferences for non deterministic node (such as merger in this case). From the Reo circuit defined above, B_1 and B_2 are responsible of the patrolling protocol. Let denote b_{ij} the input ports of B_j, with b_{1j} the highest port, and b_{4j} the lowest port. The output of B_j is non null if $b_3 j$ is equal to $b_2 j$ and $b_1 j$ fires.

Composition of action East with another action which synchronize on the same port produces the conjunction of both action and semiring values. The resulting semiring value is given by the interpretation of composition operator between the two corresponding semirings.

If all actions are components, can we consider rewriting port data stream only in Maude ?
Could we define a special data item to say if a port is ready and build conditional rewrite rules regarding this item ?
We can prove properties on traces of our system. Could we use the trace of a "log" component synchronized on each actions to prove properties ?


East
West
5
3
3
5
B1
B2