MATRIX LOGICAL CLOCK

(Formal Definition as part of process *Pi*)

***Pi***::

**{STATE VARIABLES}**

T *tMClock [1..N] [1..N]*

***{EVENTS}***

**OnInit:**

{MC1 Rule - initialization}

**For All** k

**For All** m

*tMClock* [k][m] := 0;

**EndFor**

**EndFor**

**OnInternalEvent:**

{MC2 Rule - increment}

*tMClock* [i][i] := *tMClock* [i][i] + 1

**OnSend of <m>:**

{MC3 Rule}

*OnInternalEvent()*

*m* := *<m, intMClock>*

**OnReceive of <m, Mj>:**

{MC4 Rule – merging of matrix clocks}

**For All** m

**If** (m ≠ i)

**For All** k

*intMClock* [m][k]:= max(*intMClock* [m][k], *Mj* [m][*k*]);

**EndFor**

**EndIf**

**EndFor**

**For All** k

*intMClock* [i][k] := max(*intMClock* [i][k], *Mj* [j][k])

**EndFor**

{MC2 Rule}

*OnInternalEvent()*