1 Introduction

The thing to remember is that the algorithm is channel based. The idea is to record the state of all the channels in the system as well as the states of the nodes.

2 The Algorithm

function Marker Sending Rule for process $i$
Process $i$ records its state
For each outgoing channel $C$ on which a marker has not been sent, $i$ sends a marker along $C$ before $i$ sends further messages along $C$.
end function

function Marker Receiving rule for process $j$
On receiving a marker along Channel $C$
if $j$ has not recorded its state then
    Record the state of $C$ as the empty list and Follow the ’Marker Sending Rule’
else
    Record the state of $C$ as the set of messages received along $C$ after $j$’s state was recorded and before $j$ received the marker along $C$.
end if
end function

- The algorithm starts by a single node decided to record the state and executing the Marker sending Rule. marker.
- The algorithm terminates when each node has received a marker along all its incoming channel.
3 Example

Consider the system with 3 processes and 4 channels. The aim of the algorithm is to record the state of the channels.

- Suppose that process $A$ executes the marker sending rule, its outgoing edges is $c_1$ and $c_3$, so $A$ sends a marker to $B$ via $c_1$ and $C$ via $c_3$.

- When $B$ receives the marker it executes the Marker Receiving rule. It has never received a marker along channel $c_1$ so it begins recording the state of $c_1$ as the empty list and executes the marker sending rule to its outgoing channel $c_2$ to $A$.

- When $A$ has received a marker along $c_2$ it can stop recording its state. Note that it would of recorded all the messages that where sent along $c_2$ after it had sent $M$ along $c_1$.

- When $C$ receives the marker it executes the Marker Receiving rule. It has never received a marker along channel $c_3$ so it begins recording the state of $c_3$ as the empty list and executes the marker sending rule to its outgoing channel $c_4$ to $C$.


outgoing channel $c_4$ to $B$.

- Note that $C$ has received a marker along all its input channels. So it can stop recording its state.
- When $B$ receives a marker along $c_4$ from $C$ it can stop recording its state.