Algorithm – Reliable Broadcast

Algorithm 1 Lazy Reliable Broadcast

Implements:

ReliableBroadcast, **instance** *rb*.

Uses:

BestEffortBroadcast, **instance** *beb*.

PerfectFailureDetector, **instance** P.

1: **upon event** $\langle$ *Init* $\rangle$ **do**
2: $\quad$ *delivered* $:= \emptyset$
3: $\quad$ *correct* $:= \Pi$
4: $\quad$ **for all** $q \in \Pi$ **do**
5: $\quad\quad$ *from*$[q] := \emptyset$
6: **upon event** $\langle$ *rb*, *Broadcast* | m $\rangle$ **do**
7: $\quad$ **trigger** $\langle$ *beb*, *Broadcast* | [DATA, *self*, m] $\rangle$
8: **upon event** $\langle$ *beb*, *Deliver* | p, [DATA, s, m] $\rangle$ **do**
9: $\quad$ **if** $m \notin$ *from*$[s]$ **then**
10: $\quad\quad$ **trigger** $\langle$ *rb*, *Deliver* | s, m $\rangle$
11: $\quad\quad$ *from* $:=$ *from* $\cup \{m\}$
12: $\quad\quad$ **if** $s \notin$ *correct* **then**
13: $\quad\quad\quad$ **trigger** $\langle$ *beb*, *Broadcast* | [DATA, s, m] $\rangle$
14: **upon event** $\langle$ P, *Crash* | p $\rangle$ **do**
15: $\quad$ *correct* $:=$ *correct* $\setminus \{p\}$
16: $\quad$ **for all** $m \in$ *from*$[p]$ **do**
17: $\quad\quad$ **trigger** $\langle$ *beb*, *Broadcast* | [DATA, p, m] $\rangle$

Algorithm 2 Eager Reliable Broadcast

Implements:

ReliableBroadcast, **instance** *rb*.

Uses:

BestEffortBroadcast, **instance** *beb*.

1: **upon event** $\langle$ *Init* $\rangle$ **do**
2: $\quad$ *delivered* $:= \emptyset$
3: **upon event** $\langle$ *rb*, *Broadcast* | *m* $\rangle$ **do**
4: $\quad$ **trigger** $\langle$ *beb*, *Broadcast* | [DATA, *self*, *m*] $\rangle$
5: **upon event** $\langle$ *beb*, *Deliver* | *p*, [DATA, *s*, *m*] $\rangle$ **do**
6: $\quad$ **if** $m \notin$ *delivered* **then**
7: $\quad\quad$ *delivered* $:=$ *delivered* $\cup \{m\}$
8: $\quad\quad$ **trigger** $\langle$ *rb*, *Deliver* | *s*, *m* $\rangle$
9: $\quad\quad$ **trigger** $\langle$ *beb*, *Broadcast* | [DATA, *s*, *m*] $\rangle$