---------------- MODULE *BasicNetwork* ----------------

EXTENDS *SystemModel*

VARIABLES *lmsg*   *lmsg[r]*: the last message delivered at $r \in Replica$ to the upper-layer protocol

$BNInit \triangleq$
$\quad \wedge \ incoming = [r \in Replica \mapsto \{\}]$
$\quad \wedge \ lmsg = [r \in Replica \mapsto NotMsg]$

$BNBroadcast(r, m) \triangleq$
$\quad \wedge incoming' = [x \in Replica \mapsto \text{IF } x = r \text{ THEN } incoming[x]$
$\qquad\qquad\qquad\qquad\qquad\qquad\qquad \text{ELSE} \ \ incoming[x] \cup \{m\}]$
$\quad \wedge \text{UNCHANGED } \langle lmsg \rangle$

$BNDeliver(r) \triangleq$
$\quad \wedge \ incoming[r] \neq \{\}$ choose m from $incoming[r]$ non-deterministically
$\quad \wedge \ \exists \, m \in incoming[r] : lmsg' = [lmsg \text{ EXCEPT } ![r] = m]$
$\quad \wedge \text{UNCHANGED } \langle incoming \rangle$

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