

owes_ack-2-tt^{11,40}

$\forall es:ES, ff:FIFO, is_req, is_ack:(E \rightarrow \mathbb{P}), awaiting, owes_ack:(Id \rightarrow Id \rightarrow Id).$
 $(ff.C \subseteq_r Id)$
 $\Rightarrow (\forall i, j:ff.C. @i(awaiting(i,j):\mathbb{B}) \ \& \ @i(owes_ack(i,j):\mathbb{B}))$
 $\Rightarrow (\forall i:ff.C, e:E. (ff.R(i,e)) \Rightarrow (loc(e) = i \in Id))$
 $\Rightarrow (\forall e:E. Dec(is_req(e)) \ \& \ Dec(is_ack(e)))$
 $\Rightarrow (\forall i, j:ff.C, e:E. Dec(ff.S(i,j,e)))$
 $\Rightarrow (\forall i, j:ff.C, e:E. (ff.S(i,j,e)) \Rightarrow (loc(e) = i \in Id))$
 $\Rightarrow \text{plus-ify}\{i:l\}(es;ff;is_req;is_ack;awaiting;owes_ack)$
 $\Rightarrow (\forall sndr, rcvr:ff.C, e:E.$
 $(loc(e) = rcvr \in Id)$
 $\Rightarrow ((owes_ack(rcvr,sndr) \text{ when } e) = ff \in \mathbb{B})$
 $\Rightarrow ((owes_ack(rcvr,sndr) \text{ after } e) = tt \in \mathbb{B})$
 $\Rightarrow [e: rcvr \leftarrow is_req \dashv\vdash sndr])$