plus-ify[11,40]

plus-ify{i:l}(es;ff;is_req;is_ack;$awaiting$;$owes\_ack$)
$\equiv_{\text{def}}$ $\forall i,\ j{:}\mathit{ff}$.C.
$owes\_ack(i,j)$ initially@i = ff & $awaiting(i,j)$ initially@i = ff
& ($\forall e$:E.
([e: i $--is\_req\rightarrow$ j] $\Rightarrow$ (($awaiting(i,j)$ when e) = ff))
& ([e: i $\leftarrow is\_ack--$ j] $\Rightarrow$ (($awaiting(i,j)$ after e) = ff))
& ([e: i $--is\_req\rightarrow$ j] $\Rightarrow$ (($awaiting(i,j)$ after e) = tt))
& ((loc(e) = i & ($\neg$(($awaiting(i,j)$ after e) = ($awaiting(i,j)$ when e))))
$\Rightarrow$ ([e: i $\leftarrow is\_ack--$ j] $\vee$ [e: i $--is\_req\rightarrow$ j]))
& ([e: i $--is\_ack\rightarrow$ j] $\Rightarrow$ (($owes\_ack(i,j)$ when e) = tt))
& ([e: i $\leftarrow is\_req--$ j] $\Rightarrow$ (($owes\_ack(i,j)$ after e) = tt))
& ([e: i $--is\_ack\rightarrow$ j] $\Rightarrow$ (($owes\_ack(i,j)$ after e) = ff))
& ((loc(e) = i & ($\neg$(($owes\_ack(i,j)$ after e) = ($owes\_ack(i,j)$ when e))))
$\Rightarrow$ ([e: i $\leftarrow is\_req--$ j] $\vee$ [e: i $--is\_ack\rightarrow$ j]))
& (((loc(e) = i) c$\wedge$ (($owes\_ack(i,j)$ after e) = tt))
$\Rightarrow$ ($\exists e'$:E. ((e < e') & [e': i $--is\_ack\rightarrow$ j])))))

clarification:

plus-ify{i:l}
(es; ff; is_req; is_ack; $awaiting$; $owes\_ack$)
$\equiv_{\text{def}}$ $\forall i{:}\mathit{ff}$.C, $j{:}\mathit{ff}$.C.
es-initially(es;i;$owes\_ack(i,j)$) = ff $\in \mathbb{B}$ & es-initially(es;i;$awaiting(i,j)$) = ff $\in \mathbb{B}$
& ($\forall e$:es-E(es).
(snd-it(ff;is_req;e;i;j) $\Rightarrow$ (es-when(es; ($awaiting(i,j)$); e) = ff $\in \mathbb{B}$))
& (rcv-it(ff;is_ack;e;i;j) $\Rightarrow$ (es-after(es; ($awaiting(i,j)$); e) = ff $\in \mathbb{B}$))
& (snd-it(ff;is_req;e;i;j) $\Rightarrow$ (es-after(es; ($awaiting(i,j)$); e) = tt $\in \mathbb{B}$))
& ((es-loc(es; e) = $i \in$ Id
& ($\neg$(es-after(es; ($awaiting(i,j)$); e) = es-when(es; ($awaiting(i,j)$); e) $\in \mathbb{B}$)))
$\Rightarrow$ (rcv-it(ff;is_ack;e;i;j) $\vee$ snd-it(ff;is_req;e;i;j)))
& (snd-it(ff;is_ack;e;i;j) $\Rightarrow$ (es-when(es; ($owes\_ack(i,j)$); e) = tt $\in \mathbb{B}$))
& (rcv-it(ff;is_req;e;i;j) $\Rightarrow$ (es-after(es; ($owes\_ack(i,j)$); e) = tt $\in \mathbb{B}$))
& (snd-it(ff;is_ack;e;i;j) $\Rightarrow$ (es-after(es; ($owes\_ack(i,j)$); e) = ff $\in \mathbb{B}$))
& ((es-loc(es; e) = $i \in$ Id
& ($\neg$(es-after(es; ($owes\_ack(i,j)$); e) = es-when(es; ($owes\_ack(i,j)$); e) $\in \mathbb{B}$)))
$\Rightarrow$ (rcv-it(ff;is_req;e;i;j) $\vee$ snd-it(ff;is_ack;e;i;j)))
& (((es-loc(es; e) = $i \in$ Id) c$\wedge$ (es-after(es; ($owes\_ack(i,j)$); e) = tt $\in \mathbb{B}$))
$\Rightarrow$ ($\exists e'$:es-E(es). (es-causl(es; e; e') & snd-it(ff;is_ack;e';i;j)))))

---

http://www.nuprl.org/FDLcontent/p0_963683_/p34_366611_{plus-ify}.html