fifo[11,40]

forclients C sends FIFO
  from j to i via (S[j,i],*codes*)
  receives at i via (R[i],*decodes*)
$\equiv_{\text{def}}$ $\forall i$:C.
  $\exists f$:{e:E| $R(i,e)$} $\rightarrow$ {e:E| $\exists j$:C. $(S(j,i,e))$}
   ($\lambda e.\exists j$:C. $(S(j,i,e))$ $\leftarrow\!\leftarrow$ f $--$ $\lambda e.R(i,e)$
   & ($\forall e$:{e:E| $R(i,e)$} , j:{j:C| $S(j,i,f(e))$} .
      decodes(i,e,(state when e)) = *codes*(j,i,$f(e)$,(state when $f(e)$)))
   & ($\forall e$, e':{e:E| $R(i,e)$} , j:C.
      $(S(j,i,f(e)))$ $\Rightarrow$ $(S(j,i,f(e')))$ $\Rightarrow$ $f(e)$ c$\leq$ $f(e')$ $\Rightarrow$ e c$\leq$ e'))

clarification:

fifo(es;*codes*;*decodes*;C;S;R;T)
$\equiv_{\text{def}}$ $\forall i$:C.
  $\exists f$:{e:es-E(es)| $R(i,e)$} $\rightarrow$ {e:es-E(es)| $\exists j$:C. $(S(j,i,e))$}
   (antecedent-surjection(es;$\lambda e.R(i,e)$;$\lambda e.\exists j$:C. $(S(j,i,e))$;f)
   & ($\forall e$:{e:es-E(es)| $R(i,e)$} , j:{j:C| $S(j,i,f(e))$} .
      decodes(i,e,es-state-when(es;e)) = *codes*(j,i,$f(e)$,es-state-when(es;$f(e)$)) $\in$ T)
   & ($\forall e$:{e:es-E(es)| $R(i,e)$} , e':{e:es-E(es)| $R(i,e)$} , j:C.
      $(S(j,i,f(e)))$
      $\Rightarrow$ $(S(j,i,f(e')))$
      $\Rightarrow$ es-causle(es;$f(e)$;$f(e')$)
      $\Rightarrow$ es-causle(es;e;e')))

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http://www.nuprl.org/FDLcontent/p0_963683_/p31_683015_{fifo}.html