

abs-fifo^{11,40}

$\text{abs-fifo}\{i:1\}(C;T)(es,In,Out)$

$$\begin{aligned} &\equiv_{\text{def}} \forall i:C. \\ &\quad \exists f:\{e:E \mid \text{abs-R}(i,e)\} \rightarrow \{e:E \mid \exists j:C. (\text{abs-S}(j,i,e))\} \\ &\quad (\lambda e.\exists j:C. (\text{abs-S}(j,i,e)) \leftarrow\leftarrow f \text{ -- } \lambda e.\text{abs-R}(i,e) \\ &\quad \& (\forall e:\{e:E \mid \text{abs-R}(i,e)\}, j:\{j:C \mid \text{abs-S}(j,i,f(e))\} . (\text{Out}(e).2) = (\text{In}(f(e)).2)) \\ &\quad \& (\forall e, e':\{e:E \mid \text{abs-R}(i,e)\}, j:C. \\ &\quad \quad (\text{abs-S}(j,i,f(e))) \Rightarrow (\text{abs-S}(j,i,f(e'))) \Rightarrow f(e) \text{ c}\leq f(e') \Rightarrow e \text{ c}\leq e')) \end{aligned}$$

clarification:

$\text{abs-fifo}\{i:1\}(C;T)(es,In,Out)$

$$\begin{aligned} &\equiv_{\text{def}} \forall i:C. \\ &\quad \exists f:\{e:\text{es-E}(es) \mid \text{abs-R}(C;Out)(i,e)\} \rightarrow \{e:\text{es-E}(es) \mid \exists j:C. (\text{abs-S}(C;In)(j,i,e))\} \\ &\quad (\text{antecedent-surjection}(es;\lambda e.\text{abs-R}(C;Out)(i,e);\lambda e.\exists j:C. (\text{abs-S}(C;In)(j,i,e));f) \\ &\quad \& (\forall e:\{e:\text{es-E}(es) \mid \text{abs-R}(C;Out)(i,e)\}, j:\{j:C \mid \text{abs-S}(C;In)(j,i,f(e))\} . \\ &\quad \quad (\text{Out}(e).2) = (\text{In}(f(e)).2) \in T) \\ &\quad \& (\forall e:\{e:\text{es-E}(es) \mid \text{abs-R}(C;Out)(i,e)\}, e':\{e:\text{es-E}(es) \mid \text{abs-R}(C;Out)(i,e)\}, j:C. \\ &\quad \quad (\text{abs-S}(C;In)(j,i,f(e))) \\ &\quad \quad \Rightarrow (\text{abs-S}(C;In)(j,i,f(e'))) \\ &\quad \quad \Rightarrow \text{es-causle}(es;f(e);f(e')) \\ &\quad \quad \Rightarrow \text{es-causle}(es;e;e')) \end{aligned}$$