

fischer-delay^{11,40}

$$\begin{aligned}
& \text{fischer-delay}\{i:l, \\
& \quad \$x:ut2, \\
& \quad \$try:ut2, \\
& \quad \$taken:ut2, \\
& \quad \$contending:ut2, \\
& \quad \$free:ut2, \\
& \quad \$mine:ut2, \\
& \quad \$wanted:ut2, \\
& \quad \$z:ut2\} \\
& \quad (es; del; L) \\
\equiv_{\text{def}} & \forall e:es\text{-E}(es). \\
& (\text{loc}(e) \in L) \\
& \Rightarrow (((@e(\text{mkid}\{\$x:ut2\} \rightarrow \text{mkid}\{\$try:ut2\}) \vee @e(\text{mkid}\{\$x:ut2\} \rightarrow \text{mkid}\{\$taken:ut2\})) \\
& \quad \Rightarrow (((es\text{-when}(es; \text{mkid}\{\$x:ut2\}; e) = \text{mkid}\{\$free:ut2\}) \\
& \quad \Rightarrow (\text{mkid}\{\$x:ut2\} \text{ unchanged-for } del @ e)) \\
& \quad \wedge ((es\text{-when}(es; \text{mkid}\{\$x:ut2\}; e) = \text{mkid}\{\$contending:ut2\}) \\
& \quad \Rightarrow (\text{mkid}\{\$x:ut2\} \text{ unchanged-for } 2 * del @ e)))) \\
& \wedge (@e(\text{mkid}\{\$x:ut2\} \rightarrow \text{mkid}\{\$mine:ut2\}) \Rightarrow (\text{mkid}\{\$x:ut2\} \text{ unchanged-for } 2 * del @ e)) \\
& \wedge (((((es\text{-when}(es; \text{mkid}\{\$x:ut2\}; e) = \text{mkid}\{\$contending:ut2\}) \\
& \quad \wedge (\text{mkid}\{\$x:ut2\} \text{ unchanged-for } 2 * del @ e)) \\
& \quad \vee ((es\text{-when}(es; \text{mkid}\{\$x:ut2\}; e) = \text{mkid}\{\$free:ut2\}) \\
& \quad \wedge (\text{mkid}\{\$x:ut2\} \text{ unchanged-for } del @ e))) \\
& \quad \wedge ((\uparrow es\text{-isrcv}(es; e)) \\
& \quad \quad c \wedge ((es\text{-tag}(es; e) = \text{mkid}\{\$wanted:ut2\}) \\
& \quad \quad \quad \wedge (\exists i:\text{Id}. ((i \in L) \wedge (es\text{-lnk}(es; e) = \langle i, \text{loc}(e), \text{mkid}\{\$z:ut2\} \rangle)))))) \\
& \quad \Rightarrow @e(\text{mkid}\{\$x:ut2\} \rightarrow \text{mkid}\{\$taken:ut2\})) \\
& \wedge ((\uparrow es\text{-isrcv}(es; e)) \\
& \quad \Rightarrow ((es\text{-tag}(es; e) = \text{mkid}\{\$free:ut2\}) \vee (es\text{-tag}(es; e) = \text{mkid}\{\$wanted:ut2\})) \\
& \quad \Rightarrow (\exists i:\text{Id} \\
& \quad \quad ((i \in L) \wedge (\neg(i = \text{loc}(e))) \wedge (es\text{-lnk}(es; e) = \langle i, \text{loc}(e), \text{mkid}\{\$z:ut2\} \rangle)))) \\
& \quad \Rightarrow \text{qless}(es\text{-time}(es; e); (es\text{-time}(es; es\text{-sender}(es; e)) + del))))
\end{aligned}$$

clarification:

$$\begin{aligned}
& \text{fischer-delay}\{i:l, \\
& \quad \$x:ut2, \\
& \quad \$try:ut2, \\
& \quad \$taken:ut2, \\
& \quad \$contending:ut2, \\
& \quad \$free:ut2, \\
& \quad \$mine:ut2, \\
& \quad \$wanted:ut2,
\end{aligned}$$

$$\begin{aligned}
& \text{\$z:ut2} \\
& (es; del; L) \\
\equiv_{\text{def}} & \forall e:es-E(es). \\
& (es-loc(es; e) \in L \in \text{Id}) \\
\Rightarrow & (((es-change-to(es; \text{Id}; \text{mkid}\{\$x:ut2\}; e; \text{mkid}\{\$try:ut2\}) \\
& \vee es-change-to(es; \text{Id}; \text{mkid}\{\$x:ut2\}; e; \text{mkid}\{\$taken:ut2\})) \\
\Rightarrow & (((es-when(es; \text{mkid}\{\$x:ut2\}; e) = \text{mkid}\{\$free:ut2\} \in \text{Id}) \\
& \Rightarrow \text{unchanged-for}\{i:l\} \\
& \quad (\text{Id}; \text{id-deq}; es; \text{mkid}\{\$x:ut2\}; del; e)) \\
& \wedge ((es-when(es; \text{mkid}\{\$x:ut2\}; e) = \text{mkid}\{\$contending:ut2\} \in \text{Id}) \\
& \Rightarrow \text{unchanged-for}\{i:l\} \\
& \quad (\text{Id}; \text{id-deq}; es; \text{mkid}\{\$x:ut2\}; (2 * del); e)))) \\
\wedge & (es-change-to(es; \text{Id}; \text{mkid}\{\$x:ut2\}; e; \text{mkid}\{\$mine:ut2\}) \\
\Rightarrow & \text{unchanged-for}\{i:l\} \\
& \quad (\text{Id}; \text{id-deq}; es; \text{mkid}\{\$x:ut2\}; (2 * del); e)) \\
\wedge & (((((es-when(es; \text{mkid}\{\$x:ut2\}; e) = \text{mkid}\{\$contending:ut2\} \in \text{Id}) \\
& \wedge \text{unchanged-for}\{i:l\} \\
& \quad (\text{Id}; \text{id-deq}; es; \text{mkid}\{\$x:ut2\}; (2 * del); e)) \\
& \vee ((es-when(es; \text{mkid}\{\$x:ut2\}; e) = \text{mkid}\{\$free:ut2\} \in \text{Id}) \\
& \wedge \text{unchanged-for}\{i:l\} \\
& \quad (\text{Id}; \text{id-deq}; es; \text{mkid}\{\$x:ut2\}; del; e)))) \\
\wedge & ((\uparrow es-isrcv(es; e)) \\
& \quad c \wedge ((es-tag(es; e) = \text{mkid}\{\$wanted:ut2\} \in \text{Id}) \\
& \quad \wedge (\exists i:\text{Id} \\
& \quad \quad ((i \in L \in \text{Id}) \\
& \quad \quad \wedge (es-lnk(es; e) = \langle i, es-loc(es; e), \text{mkid}\{\$z:ut2\} \rangle \in \text{IdLnk}})))))) \\
\Rightarrow & es-change-to(es; \text{Id}; \text{mkid}\{\$x:ut2\}; e; \text{mkid}\{\$taken:ut2\})) \\
\wedge & ((\uparrow es-isrcv(es; e)) \\
\Rightarrow & ((es-tag(es; e) = \text{mkid}\{\$free:ut2\} \in \text{Id}) \\
& \vee (es-tag(es; e) = \text{mkid}\{\$wanted:ut2\} \in \text{Id})) \\
\Rightarrow & (\exists i:\text{Id} \\
& \quad ((i \in L \in \text{Id}) \\
& \quad \wedge (\neg(i = es-loc(es; e) \in \text{Id})) \\
& \quad \wedge (es-lnk(es; e) = \langle i, es-loc(es; e), \text{mkid}\{\$z:ut2\} \rangle \in \text{IdLnk}))) \\
\Rightarrow & \text{qless}(es-time(es; e); (es-time(es; es-sender(es; e)) + del)))))
\end{aligned}$$