
MODULE *TCommit*

CONSTANT *RM*
 VARIABLE *rmState*

 $TCTypeOK \triangleq rmState \in [RM \rightarrow \{\text{"working"}, \text{"prepared"}, \text{"committed"}, \text{"aborted"}\}]$
 $TCConsistent \triangleq \forall r1, r2 \in RM : \neg \wedge rmState[r1] = \text{"aborted"} \\ \wedge rmState[r2] = \text{"committed"}$

 $TCInit \triangleq rmState = [r \in RM \mapsto \text{"working"}]$
 $Prepare(r) \triangleq \wedge rmState[r] = \text{"working"} \\ \wedge rmState' = [rmState \text{ EXCEPT } ![r] = \text{"prepared"}]$

 $canCommit \triangleq \forall r \in RM : rmState[r] \in \{\text{"prepared"}, \text{"committed"}\}$
 $notCommitted \triangleq \forall r \in RM : rmState[r] \neq \text{"committed"}$

 $Decide(r) \triangleq \vee \wedge rmState[r] = \text{"prepared"} \\ \wedge canCommit \\ \wedge rmState' = [rmState \text{ EXCEPT } ![r] = \text{"committed"}] \\ \vee \wedge rmState[r] \in \{\text{"working"}, \text{"prepared"}\} \\ \wedge notCommitted \\ \wedge rmState' = [rmState \text{ EXCEPT } ![r] = \text{"aborted"}]$

 $TCNext \triangleq \exists r \in RM : Prepare(r) \vee Decide(r)$

\ * Modification History
 \ * Last modified *Mon Jul 31 20:00:14 CEST 2023* by *janezij*
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