## abstract chain replication[11,40]

ABS: updates($L$) **updates_of**

STM: updates_of_wf

STM: updates_of_append

ABS: consistent-updates($es$;$In$;$Out$;$Cmd$;$isupdate$;$expl$) **consistent-updates**

STM: consistent-updates_wf

ABS: is-query($In$;$isupdate$;$e$) **is-query**

STM: is-query_wf

ABS: approx_sm($es$; $In$; $Out$; $Cmd$; $isupdate$; $Rsp$; $Delta$; $Q$) **approx_sm**

STM: approx_sm_wf

ABS: sys-antecedent($es$;$Sys$) **sys-antecedent**

STM: sys-antecedent_wf

STM: sys-antecedent-retraction

ABS: fifo-antecedent($es$;$Sys$;$f$) **fifo-antecedent**

STM: fifo-antecedent_wf

STM: fifo-antecedent-order-preserving

ABS: effective($e$) **cr-effective**

STM: cr-effective_wf

ABS: chain-config($es$;$Sys$;$chain$) **chain-config**

STM: chain-config_wf

STM: chain-config-reverse

ABS: chain-consistent($f$;$chain$) **chain-consistent**

STM: chain-consistent_wf

STM: chain-consistent-member

STM: chain-consistent-after-input

STM: chain-consistent-prior-to-input

ABS: $x << y$ **chain-order**

STM: chain-order_wf

STM: chain-order-antisymmetric-config

STM: chain-order-antisymmetric

STM: chain-order-antireflexive

STM: chain-order-implies-before

STM: chain-order_transitivity

STM: chain-order-total-config

STM: chain-order-total

STM: chain-order-total2

ABS: $x <<= y$ **chain-order-le**

STM: chain-order-le_wf

STM: chain-order-le_transitivity

STM: chain-order_transitivity2

STM: chain-order_transitivity3

STM: chain-order-le_antisymmetry

STM: chain-order-in-out

STM: chain-path-ordered

STM: chain-path-ordered-same-loc

STM: chain-path-ordered-same-loc2

STM: chain-path-ordered-same-loc3

STM: chain-path-member-not-input

STM: chain-path-query

STM: chain-pullback

STM: chain-consistent-continuity

STM: chain-consistent-out-continuity

STM: chain-consistent-effective-continuity

ABS: $x$ fails-before $y$ **cr-fails-before**

STM: cr-fails-before_wf

STM: chain-consistent-fails-before

STM: chain-consistent-fails-before2

STM: chain-consistent-fails-before3

STM: chain-consistent-monotone-lemma0

STM: chain-consistent-continuity2

ABS: sys-order($es$;$Sys$;$f$) **sys-order**

STM: sys-order_wf

STM: chain-consistent-order

ABS: explanation($e$) **cr-explanation**

STM: cr-explanation_wf

STM: cr-explanation-step

STM: cr-explanation-connected

STM: chain-consistent-updates1

STM: cr-explanation-es-le

STM: chain-consistent-updates

ABS: $e$ did forward **did-forward**

STM: did-forward_wf

ABS: $a$ should forward **should-forward**

STM: should-forward_wf

ABS: input-forwarding($es$;$Cmd$;$Sys$;$isupdate$;$In$;$f$) **input-forwarding**

STM: input-forwarding_wf

STM: filter-updates-lemma

STM: chain-consistent-same-sender

STM: chain-consistent-same-receiver

STM: input-forwarding-invariant

ABS: abstract-chain-replication{i:l}($es$;$Cmd$;$Rsp$;$isupdate$;$In$;$Out$;$Sys$;$f$;$Delta$;$Q$)

**abstract-chain-replication**

STM: abstract-chain-replication_wf

STM: abstract-chain-replication-property

ABS: chain-replication-acks{i:l}($es$;$Cmd$;$Rsp$;$isupdate$;$In$;$Out$;$Sys$;$Ack$;$f$;$g$;$Delta$;$Q$)

**chain-replication-acks**

STM: chain-replication-acks_wf

STM: chain-replication-acks-refines

STM: acks-chain-consistent

STM: chain-consistent-input-continuity

STM: chain-consistent-dual-continuity

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http://www.nuprl.org/FDLcontent/p0_963683_/p39_919914_{abstract!chain!replication}.html