1 ──────────────────── MODULE *JupiterOid* ────────────────────

2 EXTENDS *JupiterInterface*, *OT*

3 ├──

4 VARIABLES

5   *cseq*   *cseq[c]*: local sequence number at client $c \in Client$

7 $oidVars \triangleq \langle cseq \rangle$

8 ├──

9 $Oid \triangleq [c : Client, seq : Nat]$ operation identifier

11 $Oop \triangleq [op : Op \cup \{Nop\}, oid : Oid]$ operation identified by *oid*

13 $OOT(loop, roop) \triangleq$ OT of $loop \in Oop$ against $roop \in Oop$

14     $[loop \text{ EXCEPT } !.op = OT(loop.op, roop.op)]$

16 $xForm(r, cop) \triangleq$ Transform cop at replica r.

17   LET $ctxDiff \triangleq ds[r] \setminus cop.ctx$ calculate concurrent operations

18         $xFormHelper(coph, ctxDiffh, xcopssh) \triangleq$ Return transformed $xcop$ and

19   IF $ctxDiffh = \{\}$ THEN $[xcop \mapsto coph, xcopss \mapsto xcopssh]$ new $copss$

20   ELSE LET $foidh \triangleq$ CHOOSE $oid \in ctxDiffh :$ the first oid in $ctxDiffh$

21                           $\forall id \in ctxDiffh \setminus \{oid\} : tb(oid, id, serial[r])$

22                   $fcoph \triangleq$ CHOOSE $fcop \in copss[r] :$

23                           $fcop.oid = foidh \wedge fcop.ctx = coph.ctx$ CC

24                 $xcoph \triangleq COT(coph, fcoph)$

25               $xfcoph \triangleq COT(fcoph, coph)$

26   IN $xFormHelper(xcoph, ctxDiffh \setminus \{fcoph.oid\},$

27                                $xcopssh \cup \{xcoph, xfcoph\})$

28   IN $xFormHelper(cop, ctxDiff, copss[r] \cup \{cop\})$

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* Modification History
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1