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1  |----- MODULE JupiterCtx -----|
   | Definitions and operators for context-based Jupiter protocols, including AbsJupiter, CJupiter, |
   | and XJupiter. |
6  | EXTENDS JupiterInterface |
7  |-----|
8  | VARIABLES
9      cseq, cseq[c]: local sequence number at client c ∈ Client
10     ds ds[r]: document state (a set of Oids) of replica r ∈ Replica
12     ctxVars  $\triangleq$   $\langle cseq, ds \rangle$ 
13 |-----|
   | Cop: operation of type Op with context
17 Oid  $\triangleq$  [c : Client, seq : Nat] operation identifier
18 Cop  $\triangleq$  [op : Op ∪ {Nop}, oid : Oid, ctx : SUBSET Oid]
   | OT of two operations of type Cop.
22 COT(lcop, rcop)  $\triangleq$ 
23     [lcop EXCEPT !op = Xform(lcop.op, rcop.op), !ctx = @ ∪ {rcop.oid}]
24 |-----|
25 UpdateDS(r, cop)  $\triangleq$ 
26     [ds EXCEPT ![r] = @ ∪ cop]
27 |-----|
28 TypeOKCtx  $\triangleq$ 
29     ∧ cseq ∈ [Client → Nat]
31 InitCtx  $\triangleq$ 
32     ∧ cseq = [c ∈ Client ↦ 0]
34 DoCtx(c)  $\triangleq$ 
35     ∧ cseq' = [cseq EXCEPT ![c] = @ + 1]
36     ∧ don't know the generated cop; no way to update ds
38 RevCtx(c)  $\triangleq$ 
39     ∧ UpdateDS(c, Head(cincoming[c]))
40     ∧ UNCHANGED cseq
42 SRevCtx  $\triangleq$ 
43     ∧ UpdateDS(Server, Head(sincoming))
44     ∧ UNCHANGED cseq
45 |-----|
   | * Modification History
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