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1  |----- MODULE JupiterCtx -----|
  | Definitions for context-based Jupiter protocols, including AbsJupiter, CJupiter, and XJupiter. |
5  | EXTENDS JupiterInterface |
6  |-----|
7  VARIABLES
8      cseq,      cseq[c]: local sequence number at client c ∈ Client
9      ds         ds[r]: document state (i.e., a set of Oids) of replica r ∈ Replica

11 ctxVars ≜ ⟨cseq, ds⟩
12 |-----|
13 Oid ≜ [c : Client, seq : Nat] operation identifier
14 Cop ≜ [op : Op ∪ {Nop}, oid : Oid, ctx : SUBSET Oid] contexted-based op
16 ClientOf(cop) ≜ cop.oid.c

18 COT(lcop, rcop) ≜ OT of lcop ∈ Cop against rcop ∈ Cop
19     [lcop EXCEPT !.op = OT(lcop.op, rcop.op), !.ctx = @ ∪ {rcop.oid}]

21 UpdateDS(r, oid) ≜ update ds[r] to include new oid ∈ Oid
22     ds' = [ds EXCEPT ![r] = @ ∪ {oid}]
23 |-----|
24 TypeOKCtx ≜
25     ∧ cseq ∈ [Client → Nat]
26     ∧ ds ∈ [Replica → SUBSET Oid]

28 InitCtx ≜
29     ∧ cseq = [c ∈ Client ↦ 1]
30     ∧ ds = [r ∈ Replica ↦ {}]

32 DoCtx(c) ≜
33     ∧ cseq' = [cseq EXCEPT ![c] = @ + 1]
34     ∧ UpdateDS(c, [c ↦ c, seq ↦ cseq[c]) oid for newly generated operation

36 RevCtx(c) ≜
37     ∧ UNCHANGED cseq
38     ∧ UpdateDS(c, Head(cincoming[c]).oid)

40 SRevCtx ≜
41     ∧ UNCHANGED cseq
42     ∧ UpdateDS(Server, Head(sincoming).oid)
43 |-----|

  \ * Modification History
  \ * Last modified Sat Jan 12 20:20:08 CST 2019 by hengxin
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