

VARIABLES *copss* *copss*[*r*]: the set of context-based operations maintained at replica *r*

$$\begin{aligned} \text{Perform}(r, cop) &\triangleq \text{LET } xform \triangleq xForm(r, cop) \quad xform : [xcop, xcopss] \\ &\quad \text{IN} \quad \wedge copss' = [copss \text{ EXCEPT } ![r] = xform.xcopss] \\ &\quad \wedge \text{apply } xform.xcop.op \text{ to } list[r] \end{aligned}$$

$$\begin{aligned} Do(c, op) &\triangleq \text{LET } cop \triangleq [op \mapsto op, oid \mapsto [c \mapsto c, seq \mapsto cseq[c]], ctx \mapsto ds[c]] \\ &\quad \text{IN} \quad \wedge copss = [copss \text{ EXCEPT } ![c] = @ \cup \{cop\}] \\ &\quad \wedge \text{apply } op \text{ to } list[c]; \text{ send } cop \text{ to the Server} \end{aligned}$$

$$Rev(c, cop) \triangleq Perform(c, cop)$$

$$\begin{aligned} SRev(cop) &\triangleq \wedge Perform(Server, cop) \\ &\quad \wedge \text{broadcast } cop \text{ to clients other than } ClientOf(cop) \end{aligned}$$