1) $replicas \mapsto \langle$
    $[$
        $logs \mapsto \langle\rangle,$
        $commitNumber \mapsto 0,$
        $config \mapsto \langle 1,\, 2,\, 4\rangle,$
        $status \mapsto$ "normal",
        $viewNumber \mapsto 0,$
        $epochNumber \mapsto 0,$
        $opNumber \mapsto 0$
    $],\, [$
        $logs \mapsto \langle\rangle,$
        $commitNumber \mapsto 0,$
        $config \mapsto \langle 1,\, 2,\, 4\rangle,$
        $status \mapsto$ "normal",
        $viewNumber \mapsto 0,$
        $epochNumber \mapsto 0,$
        $opNumber \mapsto 0$
    $],\, [$
        $logs \mapsto \langle\rangle,$
        $commitNumber \mapsto 0,$
        $config \mapsto \langle 1,\, 2,\, 4\rangle,$
        $status \mapsto$ "shut down",
        $viewNumber \mapsto 0,$
        $epochNumber \mapsto 0,$
        $opNumber \mapsto 0$
    $],\, [$
        $logs \mapsto \langle\rangle,$
        $commitNumber \mapsto 0,$
        $config \mapsto \langle 1,\, 2,\, 4\rangle,$
        $status \mapsto$ "normal",
        $viewNumber \mapsto 0,$
        $epochNumber \mapsto 0,$
        $opNumber \mapsto 0$
    $]$
$\rangle$

2) $replicas \mapsto \langle$
    $[$
        $logs \mapsto \langle[config \mapsto \langle 1,\, 3,\, 4\rangle,\ epochNumber \mapsto 1]\rangle,$
        $commitNumber \mapsto 0,$
        $config \mapsto \langle 1,\, 2,\, 4\rangle,$
        $status \mapsto$ "normal",
        $viewNumber \mapsto 0,$
        $epochNumber \mapsto 0,$
        $opNumber \mapsto 1$
    $],\, [$

$$logs \mapsto \langle\rangle,$$
$$commitNumber \mapsto 0,$$
$$config \mapsto \langle 1,\ 2,\ 4\rangle,$$
$$status \mapsto \text{``normal''},$$
$$viewNumber \mapsto 0,$$
$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 0$$
$$],\ [$$
$$logs \mapsto \langle\rangle,$$
$$commitNumber \mapsto 0,$$
$$config \mapsto \langle 1,\ 2,\ 4\rangle,$$
$$status \mapsto \text{``shut down''},$$
$$viewNumber \mapsto 0,$$
$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 0$$
$$],\ [$$
$$logs \mapsto \langle\rangle,$$
$$commitNumber \mapsto 0,$$
$$config \mapsto \langle 1,\ 2,\ 4\rangle,$$
$$status \mapsto \text{``normal''},$$
$$viewNumber \mapsto 0,$$
$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 0$$
$$]$$
$$\rangle$$

3) $replicas \mapsto \langle$

$$[$$
$$logs \mapsto \langle [config \mapsto \langle 1,\ 3,\ 4\rangle,\ epochNumber \mapsto 1]\rangle,$$
$$commitNumber \mapsto 0,$$
$$config \mapsto \langle 1,\ 2,\ 4\rangle,$$
$$status \mapsto \text{``normal''},$$
$$viewNumber \mapsto 0,$$
$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 1$$
$$],\ [$$
$$logs \mapsto \langle\rangle,$$
$$commitNumber \mapsto 0,$$
$$config \mapsto \langle 1,\ 2,\ 4\rangle,$$
$$status \mapsto \text{``normal''},$$
$$viewNumber \mapsto 0,$$
$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 0$$
$$],\ [$$
$$logs \mapsto \langle\rangle,$$
$$commitNumber \mapsto 0,$$

$$config \mapsto \langle 1,\, 2,\, 4\rangle,$$
$$status \mapsto \text{``shut down''},$$
$$viewNumber \mapsto 0,$$
$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 0$$
$$],\, [$$
$$logs \mapsto \langle [config \mapsto \langle 1,\, 3,\, 4\rangle,\ epochNumber \mapsto 1]\rangle,$$
$$commitNumber \mapsto 0,$$
$$config \mapsto \langle 1,\, 2,\, 4\rangle,$$
$$status \mapsto \text{``normal''},$$
$$viewNumber \mapsto 0,$$
$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 1$$
$$]$$
$$\rangle$$

4) $replicas \mapsto \langle$
$$[$$
$$logs \mapsto \langle [config \mapsto \langle 1,\, 3,\, 4\rangle,\ epochNumber \mapsto 1]\rangle,$$
$$commitNumber \mapsto 1,$$
$$config \mapsto \langle 1,\, 3,\, 4\rangle,$$
$$status \mapsto \text{``view-change''},$$
$$viewNumber \mapsto 1,$$
$$epochNumber \mapsto 1,$$
$$opNumber \mapsto 1$$
$$],\, [$$
$$logs \mapsto \langle \rangle,$$
$$commitNumber \mapsto 0,$$
$$config \mapsto \langle 1,\, 2,\, 4\rangle,$$
$$status \mapsto \text{``normal''},$$
$$viewNumber \mapsto 0,$$
$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 0$$
$$],\, [$$
$$logs \mapsto \langle \rangle,$$
$$commitNumber \mapsto 0,$$
$$config \mapsto \langle 1,\, 2,\, 4\rangle,$$
$$status \mapsto \text{``shut down''},$$
$$viewNumber \mapsto 0,$$
$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 0$$
$$],\, [$$
$$logs \mapsto \langle [config \mapsto \langle 1,\, 3,\, 4\rangle,\ epochNumber \mapsto 1]\rangle,$$
$$commitNumber \mapsto 0,$$
$$config \mapsto \langle 1,\, 2,\, 4\rangle,$$
$$status \mapsto \text{``normal''},$$

$$viewNumber \mapsto 0,$$
$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 1$$
$$]$$
$$\rangle$$

5) $replicas \mapsto \langle$
    $[$
        $logs \mapsto \langle[config \mapsto \langle 1,\, 3,\, 4\rangle,\ epochNumber \mapsto 1]\rangle,$
        $commitNumber \mapsto 1,$
        $config \mapsto \langle 1,\, 3,\, 4\rangle,$
        $status \mapsto$ "view-change",
        $viewNumber \mapsto 1,$
        $epochNumber \mapsto 1,$
        $opNumber \mapsto 1$
    $],\, [$
        $logs \mapsto \langle\rangle,$
        $commitNumber \mapsto 0,$
        $config \mapsto \langle 1,\, 2,\, 4\rangle,$
        $status \mapsto$ "normal",
        $viewNumber \mapsto 0,$
        $epochNumber \mapsto 0,$
        $opNumber \mapsto 0$
    $],\, [$
        $logs \mapsto \langle\rangle,$
        $commitNumber \mapsto 0,$
        $config \mapsto \langle 1,\, 2,\, 4\rangle,$
        $status \mapsto$ "shut down",
        $viewNumber \mapsto 0,$
        $epochNumber \mapsto 0,$
        $opNumber \mapsto 0$
    $],\, [$
        $logs \mapsto \langle[config \mapsto \langle 1,\, 3,\, 4\rangle,\ epochNumber \mapsto 1]\rangle,$
        $commitNumber \mapsto 0,$
        $config \mapsto \langle 1,\, 2,\, 4\rangle,$
        $status \mapsto$ "view-change",
        $viewNumber \mapsto 1,$
        $epochNumber \mapsto 0,$
        $opNumber \mapsto 1$
    $]$
$\rangle$

6) $replicas \mapsto \langle$
    $[$
        $logs \mapsto \langle[config \mapsto \langle 1,\, 3,\, 4\rangle,\ epochNumber \mapsto 1]\rangle,$
        $commitNumber \mapsto 1,$

$$config \mapsto \langle 1,\ 3,\ 4 \rangle,$$
$$status \mapsto \text{``view-change''},$$
$$viewNumber \mapsto 1,$$
$$epochNumber \mapsto 1,$$
$$opNumber \mapsto 1$$
$$],\ [$$
$$logs \mapsto \langle \rangle,$$
$$commitNumber \mapsto 0,$$
$$config \mapsto \langle 1,\ 2,\ 4 \rangle,$$
$$status \mapsto \text{``normal''},$$
$$viewNumber \mapsto 0,$$
$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 0$$
$$],\ [$$
$$logs \mapsto \langle \rangle,$$
$$commitNumber \mapsto 0,$$
$$config \mapsto \langle 1,\ 2,\ 4 \rangle,$$
$$status \mapsto \text{``shut down''},$$
$$viewNumber \mapsto 0,$$
$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 0$$
$$],\ [$$
$$logs \mapsto \langle [config \mapsto \langle 1,\ 3,\ 4 \rangle,\ epochNumber \mapsto 1] \rangle,$$
$$commitNumber \mapsto 0,$$
$$config \mapsto \langle 1,\ 2,\ 4 \rangle,$$
$$status \mapsto \text{``view-change''},$$
$$viewNumber \mapsto 2,$$
$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 1$$
$$]$$
$$\rangle$$

7) $replicas \mapsto \langle$
$$[$$
$$logs \mapsto \langle [config \mapsto \langle 1,\ 3,\ 4 \rangle,\ epochNumber \mapsto 1] \rangle,$$
$$commitNumber \mapsto 1,$$
$$config \mapsto \langle 1,\ 3,\ 4 \rangle,$$
$$status \mapsto \text{``view-change''},$$
$$viewNumber \mapsto 1,$$
$$epochNumber \mapsto 1,$$
$$opNumber \mapsto 1$$
$$],\ [$$
$$logs \mapsto \langle \rangle,$$
$$commitNumber \mapsto 0,$$
$$config \mapsto \langle 1,\ 2,\ 4 \rangle,$$
$$status \mapsto \text{``view-change''},$$

$$viewNumber \mapsto 2,$$
$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 0$$
$$], [$$
$$logs \mapsto \langle \rangle,$$
$$commitNumber \mapsto 0,$$
$$config \mapsto \langle 1, 2, 4 \rangle,$$
$$status \mapsto \text{"shut down"},$$
$$viewNumber \mapsto 0,$$
$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 0$$
$$], [$$
$$logs \mapsto \langle [config \mapsto \langle 1, 3, 4 \rangle,\ epochNumber \mapsto 1] \rangle,$$
$$commitNumber \mapsto 0,$$
$$config \mapsto \langle 1, 2, 4 \rangle,$$
$$status \mapsto \text{"view-change"},$$
$$viewNumber \mapsto 2,$$
$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 1$$
$$]$$
$$\rangle$$

8) $replicas \mapsto \langle$
$$[$$
$$logs \mapsto \langle [config \mapsto \langle 1, 3, 4 \rangle,\ epochNumber \mapsto 1] \rangle,$$
$$commitNumber \mapsto 1,$$
$$config \mapsto \langle 1, 3, 4 \rangle,$$
$$status \mapsto \text{"view-change"},$$
$$viewNumber \mapsto 1,$$
$$epochNumber \mapsto 1,$$
$$opNumber \mapsto 1$$
$$], [$$
$$logs \mapsto \langle \rangle,$$
$$commitNumber \mapsto 0,$$
$$config \mapsto \langle 1, 2, 4 \rangle,$$
$$status \mapsto \text{"view-change"},$$
$$viewNumber \mapsto 2,$$
$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 0$$
$$], [$$
$$logs \mapsto \langle \rangle,$$
$$commitNumber \mapsto 0,$$
$$config \mapsto \langle 1, 2, 4 \rangle,$$
$$status \mapsto \text{"shut down"},$$
$$viewNumber \mapsto 0,$$
$$epochNumber \mapsto 0,$$

$$opNumber \mapsto 0$$
$$], [$$

  $logs \mapsto \langle$
    $[config \mapsto \langle 1,\, 3,\, 4 \rangle,\ epochNumber \mapsto 1],$
    $[viewNumber \mapsto 2]$
  $\rangle,$
  $commitNumber \mapsto 0,$
  $config \mapsto \langle 1,\, 2,\, 4 \rangle,$
  $status \mapsto \text{"normal"},$
  $viewNumber \mapsto 2,$
  $epochNumber \mapsto 0,$
  $opNumber \mapsto 2$

 $]$
$\rangle$

9) $replicas \mapsto \langle$
 $[$
  $logs \mapsto \langle [config \mapsto \langle 1,\, 3,\, 4 \rangle,\ epochNumber \mapsto 1] \rangle,$
  $commitNumber \mapsto 1,$
  $config \mapsto \langle 1,\, 3,\, 4 \rangle,$
  $status \mapsto \text{"view-change"},$
  $viewNumber \mapsto 1,$
  $epochNumber \mapsto 1,$
  $opNumber \mapsto 1$
 $], [$
  $logs \mapsto \langle \rangle,$
  $commitNumber \mapsto 0,$
  $config \mapsto \langle 1,\, 2,\, 4 \rangle,$
  $status \mapsto \text{"view-change"},$
  $viewNumber \mapsto 2,$
  $epochNumber \mapsto 0,$
  $opNumber \mapsto 0$
 $], [$
  $logs \mapsto \langle [config \mapsto \langle 1,\, 3,\, 4 \rangle,\ epochNumber \mapsto 1] \rangle,$
  $commitNumber \mapsto 1,$
  $config \mapsto \langle 1,\, 3,\, 4 \rangle,$
  $status \mapsto \text{"view-change"},$
  $viewNumber \mapsto 1,$
  $epochNumber \mapsto 1,$
  $opNumber \mapsto 1$
 $], [$
  $logs \mapsto \langle$
    $[config \mapsto \langle 1,\, 3,\, 4 \rangle,\ epochNumber \mapsto 1],$
    $[viewNumber \mapsto 2]$
  $\rangle,$
  $commitNumber \mapsto 0,$

$$config \mapsto \langle 1,\, 2,\, 4 \rangle,$$
$$status \mapsto \text{``normal''},$$
$$viewNumber \mapsto 2,$$
$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 2$$
$$]$$
$$\rangle$$

10) $replicas \mapsto \langle$
   [
      $logs \mapsto \langle [config \mapsto \langle 1,\, 3,\, 4 \rangle,\ epochNumber \mapsto 1] \rangle,$
      $commitNumber \mapsto 1,$
      $config \mapsto \langle 1,\, 3,\, 4 \rangle,$
      $status \mapsto \text{``view-change''},$
      $viewNumber \mapsto 1,$
      $epochNumber \mapsto 1,$
      $opNumber \mapsto 1$
   ], [
      $logs \mapsto \langle \rangle,$
      $commitNumber \mapsto 0,$
      $config \mapsto \langle 1,\, 2,\, 4 \rangle,$
      $status \mapsto \text{``view-change''},$
      $viewNumber \mapsto 2,$
      $epochNumber \mapsto 0,$
      $opNumber \mapsto 0$
   ], [
      $logs \mapsto \langle$
         $[config \mapsto \langle 1,\, 3,\, 4 \rangle,\ epochNumber \mapsto 1],$
         $[viewNumber \mapsto 1]$
      $\rangle,$
      $commitNumber \mapsto 1,$
      $config \mapsto \langle 1,\, 3,\, 4 \rangle,$
      $status \mapsto \text{``normal''},$
      $viewNumber \mapsto 1,$
      $epochNumber \mapsto 1,$
      $opNumber \mapsto 2$
   ], [
      $logs \mapsto \langle$
         $[config \mapsto \langle 1,\, 3,\, 4 \rangle,\ epochNumber \mapsto 1],$
         $[viewNumber \mapsto 2]$
      $\rangle,$
      $commitNumber \mapsto 0,$
      $config \mapsto \langle 1,\, 2,\, 4 \rangle,$
      $status \mapsto \text{``normal''},$
      $viewNumber \mapsto 2,$
      $epochNumber \mapsto 0,$

$opNumber \mapsto 2$
　　　$]$
$\rangle$

$11)\ replicas \mapsto \langle$
　　$[$
　　　$logs \mapsto \langle$
　　　　$[config \mapsto \langle 1,\ 3,\ 4\rangle,\ epochNumber \mapsto 1],$
　　　　$[viewNumber \mapsto 1]$
　　　$\rangle,$
　　　$commitNumber \mapsto 1,$
　　　$config \mapsto \langle 1,\ 3,\ 4\rangle,$
　　　$status \mapsto \text{``normal''},$
　　　$viewNumber \mapsto 1,$
　　　$epochNumber \mapsto 1,$
　　　$opNumber \mapsto 2$
　　$],\ [$
　　　$logs \mapsto \langle\rangle,$
　　　$commitNumber \mapsto 0,$
　　　$config \mapsto \langle 1,\ 2,\ 4\rangle,$
　　　$status \mapsto \text{``view-change''},$
　　　$viewNumber \mapsto 2,$
　　　$epochNumber \mapsto 0,$
　　　$opNumber \mapsto 0$
　　$],\ [$
　　　$logs \mapsto \langle$
　　　　$[config \mapsto \langle 1,\ 3,\ 4\rangle,\ epochNumber \mapsto 1],$
　　　　$[viewNumber \mapsto 1]$
　　　$\rangle,$
　　　$commitNumber \mapsto 1,$
　　　$config \mapsto \langle 1,\ 3,\ 4\rangle,$
　　　$status \mapsto \text{``normal''},$
　　　$viewNumber \mapsto 1,$
　　　$epochNumber \mapsto 1,$
　　　$opNumber \mapsto 2$
　　$],\ [$
　　　$logs \mapsto \langle$
　　　　$[config \mapsto \langle 1,\ 3,\ 4\rangle,\ epochNumber \mapsto 1],$
　　　　$[viewNumber \mapsto 2]$
　　　$\rangle,$
　　　$commitNumber \mapsto 0,$
　　　$config \mapsto \langle 1,\ 2,\ 4\rangle,$
　　　$status \mapsto \text{``normal''},$
　　　$viewNumber \mapsto 2,$
　　　$epochNumber \mapsto 0,$
　　　$opNumber \mapsto 2$

$]$

$\rangle$

12) $replicas \mapsto \langle$

    $[$

        $logs \mapsto \langle$

            $[config \mapsto \langle 1, 3, 4 \rangle, \ epochNumber \mapsto 1],$

            $[viewNumber \mapsto 1]$

        $\rangle,$

        $commitNumber \mapsto 1,$

        $config \mapsto \langle 1, 3, 4 \rangle,$

        $status \mapsto \text{“normal”},$

        $viewNumber \mapsto 1,$

        $epochNumber \mapsto 1,$

        $opNumber \mapsto 2$

    $], [$

        $logs \mapsto \langle \rangle,$

        $commitNumber \mapsto 0,$

        $config \mapsto \langle 1, 2, 4 \rangle,$

        $status \mapsto \text{“view-change”},$

        $viewNumber \mapsto 2,$

        $epochNumber \mapsto 0,$

        $opNumber \mapsto 0$

    $], [$

        $logs \mapsto \langle$

            $[config \mapsto \langle 1, 3, 4 \rangle, \ epochNumber \mapsto 1],$

            $[viewNumber \mapsto 1]$

        $\rangle,$

        $commitNumber \mapsto 2,$

        $config \mapsto \langle 1, 3, 4 \rangle,$

        $status \mapsto \text{“normal”},$

        $viewNumber \mapsto 1,$

        $epochNumber \mapsto 1,$

        $opNumber \mapsto 2$

    $], [$

        $logs \mapsto \langle$

            $[config \mapsto \langle 1, 3, 4 \rangle, \ epochNumber \mapsto 1],$

            $[viewNumber \mapsto 2]$

        $\rangle,$

        $commitNumber \mapsto 0,$

        $config \mapsto \langle 1, 2, 4 \rangle,$

        $status \mapsto \text{“normal”},$

        $viewNumber \mapsto 2,$

        $epochNumber \mapsto 0,$

        $opNumber \mapsto 2$

    $]$

$\rangle$

13) $replicas \mapsto \langle$

    $[$

        $logs \mapsto \langle$

            $[config \mapsto \langle 1,\ 3,\ 4 \rangle,\ epochNumber \mapsto 1],$

            $[viewNumber \mapsto 1]$

        $\rangle,$

        $commitNumber \mapsto 1,$

        $config \mapsto \langle 1,\ 3,\ 4 \rangle,$

        $status \mapsto \text{``normal''},$

        $viewNumber \mapsto 1,$

        $epochNumber \mapsto 1,$

        $opNumber \mapsto 2$

    $],\ [$

        $logs \mapsto \langle \rangle,$

        $commitNumber \mapsto 0,$

        $config \mapsto \langle 1,\ 2,\ 4 \rangle,$

        $status \mapsto \text{``view-change''},$

        $viewNumber \mapsto 2,$

        $epochNumber \mapsto 0,$

        $opNumber \mapsto 0$

    $],\ [$

        $logs \mapsto \langle$

            $[config \mapsto \langle 1,\ 3,\ 4 \rangle,\ epochNumber \mapsto 1],$

            $[viewNumber \mapsto 1],$

            $[config \mapsto \langle 1 \rangle,\ epochNumber \mapsto 2]$

        $\rangle,$

        $commitNumber \mapsto 2,$

        $config \mapsto \langle 1,\ 3,\ 4 \rangle,$

        $status \mapsto \text{``normal''},$

        $viewNumber \mapsto 1,$

        $epochNumber \mapsto 1,$

        $opNumber \mapsto 3$

    $],\ [$

        $logs \mapsto \langle$

            $[config \mapsto \langle 1,\ 3,\ 4 \rangle,\ epochNumber \mapsto 1],$

            $[viewNumber \mapsto 2]$

        $\rangle,$

        $commitNumber \mapsto 0,$

        $config \mapsto \langle 1,\ 2,\ 4 \rangle,$

        $status \mapsto \text{``normal''},$

        $viewNumber \mapsto 2,$

        $epochNumber \mapsto 0,$

        $opNumber \mapsto 2$

    $]$

$\rangle$

14) $replicas \mapsto \langle$

$\quad [$

$\qquad logs \mapsto \langle$

$\qquad\quad [config \mapsto \langle 1,\, 3,\, 4\rangle,\ epochNumber \mapsto 1],$

$\qquad\quad [viewNumber \mapsto 1],$

$\qquad\quad [config \mapsto \langle 1\rangle,\ epochNumber \mapsto 2]$

$\qquad \rangle,$

$\qquad commitNumber \mapsto 2,$

$\qquad config \mapsto \langle 1,\, 3,\, 4\rangle,$

$\qquad status \mapsto \text{``normal''},$

$\qquad viewNumber \mapsto 1,$

$\qquad epochNumber \mapsto 1,$

$\qquad opNumber \mapsto 3$

$\quad],\ [$

$\qquad logs \mapsto \langle\rangle,$

$\qquad commitNumber \mapsto 0,$

$\qquad config \mapsto \langle 1,\, 2,\, 4\rangle,$

$\qquad status \mapsto \text{``view-change''},$

$\qquad viewNumber \mapsto 2,$

$\qquad epochNumber \mapsto 0,$

$\qquad opNumber \mapsto 0$

$\quad],\ [$

$\qquad logs \mapsto \langle$

$\qquad\quad [config \mapsto \langle 1,\, 3,\, 4\rangle,\ epochNumber \mapsto 1],$

$\qquad\quad [viewNumber \mapsto 1],$

$\qquad\quad [config \mapsto \langle 1\rangle,\ epochNumber \mapsto 2]$

$\qquad \rangle,$

$\qquad commitNumber \mapsto 2,$

$\qquad config \mapsto \langle 1,\, 3,\, 4\rangle,$

$\qquad status \mapsto \text{``normal''},$

$\qquad viewNumber \mapsto 1,$

$\qquad epochNumber \mapsto 1,$

$\qquad opNumber \mapsto 3$

$\quad],\ [$

$\qquad logs \mapsto \langle$

$\qquad\quad [config \mapsto \langle 1,\, 3,\, 4\rangle,\ epochNumber \mapsto 1],$

$\qquad\quad [viewNumber \mapsto 2]$

$\qquad \rangle,$

$\qquad commitNumber \mapsto 0,$

$\qquad config \mapsto \langle 1,\, 2,\, 4\rangle,$

$\qquad status \mapsto \text{``normal''},$

$\qquad viewNumber \mapsto 2,$

$\qquad epochNumber \mapsto 0,$

$\qquad opNumber \mapsto 2$

$$]$$
$$\rangle$$

15) $replicas \mapsto \langle$
  $\quad [$
  $\qquad logs \mapsto \langle$
  $\qquad\quad [config \mapsto \langle 1,\, 3,\, 4 \rangle,\ epochNumber \mapsto 1],$
  $\qquad\quad [viewNumber \mapsto 1],$
  $\qquad\quad [config \mapsto \langle 1 \rangle,\ epochNumber \mapsto 2]$
  $\qquad \rangle,$
  $\qquad commitNumber \mapsto 2,$
  $\qquad config \mapsto \langle 1,\, 3,\, 4 \rangle,$
  $\qquad status \mapsto \text{``normal''},$
  $\qquad viewNumber \mapsto 1,$
  $\qquad epochNumber \mapsto 1,$
  $\qquad opNumber \mapsto 3$
  $\quad],\ [$
  $\qquad logs \mapsto \langle \rangle,$
  $\qquad commitNumber \mapsto 0,$
  $\qquad config \mapsto \langle 1,\, 2,\, 4 \rangle,$
  $\qquad status \mapsto \text{``view-change''},$
  $\qquad viewNumber \mapsto 2,$
  $\qquad epochNumber \mapsto 0,$
  $\qquad opNumber \mapsto 0$
  $\quad],\ [$
  $\qquad logs \mapsto \langle$
  $\qquad\quad [config \mapsto \langle 1,\, 3,\, 4 \rangle,\ epochNumber \mapsto 1],$
  $\qquad\quad [viewNumber \mapsto 1],$
  $\qquad\quad [config \mapsto \langle 1 \rangle,\ epochNumber \mapsto 2]$
  $\qquad \rangle,$
  $\qquad commitNumber \mapsto 3,$
  $\qquad config \mapsto \langle 1 \rangle,$
  $\qquad status \mapsto \text{``shut down''},$
  $\qquad viewNumber \mapsto 1,$
  $\qquad epochNumber \mapsto 2,$
  $\qquad opNumber \mapsto 3$
  $\quad],\ [$
  $\qquad logs \mapsto \langle$
  $\qquad\quad [config \mapsto \langle 1,\, 3,\, 4 \rangle,\ epochNumber \mapsto 1],$
  $\qquad\quad [viewNumber \mapsto 2]$
  $\qquad \rangle,$
  $\qquad commitNumber \mapsto 0,$
  $\qquad config \mapsto \langle 1,\, 2,\, 4 \rangle,$
  $\qquad status \mapsto \text{``normal''},$
  $\qquad viewNumber \mapsto 2,$
  $\qquad epochNumber \mapsto 0,$

$$opNumber \mapsto 2$$
$$]$$
$$\rangle$$

16) $replicas \mapsto \langle$
 $[$
  $logs \mapsto \langle$
   $[config \mapsto \langle 1,\, 3,\, 4\rangle,\, epochNumber \mapsto 1],$
   $[viewNumber \mapsto 1],$
   $[config \mapsto \langle 1\rangle,\, epochNumber \mapsto 2]$
  $\rangle,$
  $commitNumber \mapsto 2,$
  $config \mapsto \langle 1,\, 3,\, 4\rangle,$
  $status \mapsto \text{"normal"},$
  $viewNumber \mapsto 1,$
  $epochNumber \mapsto 1,$
  $opNumber \mapsto 3$
 $],\, [$
  $logs \mapsto \langle [config \mapsto \langle 1,\, 3,\, 4\rangle,\, epochNumber \mapsto 1]\rangle,$
  $commitNumber \mapsto 0,$
  $config \mapsto \langle 1,\, 2,\, 4\rangle,$
  $status \mapsto \text{"view-change"},$
  $viewNumber \mapsto 2,$
  $epochNumber \mapsto 0,$
  $opNumber \mapsto 1$
 $],\, [$
  $logs \mapsto \langle$
   $[config \mapsto \langle 1,\, 3,\, 4\rangle,\, epochNumber \mapsto 1],$
   $[viewNumber \mapsto 1],$
   $[config \mapsto \langle 1\rangle,\, epochNumber \mapsto 2]$
  $\rangle,$
  $commitNumber \mapsto 3,$
  $config \mapsto \langle 1\rangle,$
  $status \mapsto \text{"shut down"},$
  $viewNumber \mapsto 1,$
  $epochNumber \mapsto 2,$
  $opNumber \mapsto 3$
 $],\, [$
  $logs \mapsto \langle$
   $[config \mapsto \langle 1,\, 3,\, 4\rangle,\, epochNumber \mapsto 1],$
   $[viewNumber \mapsto 2]$
  $\rangle,$
  $commitNumber \mapsto 0,$
  $config \mapsto \langle 1,\, 2,\, 4\rangle,$
  $status \mapsto \text{"normal"},$
  $viewNumber \mapsto 2,$

$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 2$$
    ]
$\rangle$

17) $replicas \mapsto \langle$
    [
        $logs \mapsto \langle$
            $[config \mapsto \langle 1,\ 3,\ 4 \rangle,\ epochNumber \mapsto 1],$
            $[viewNumber \mapsto 1],$
            $[config \mapsto \langle 1 \rangle,\ epochNumber \mapsto 2]$
        $\rangle,$
        $commitNumber \mapsto 2,$
        $config \mapsto \langle 1,\ 3,\ 4 \rangle,$
        $status \mapsto \text{"normal"},$
        $viewNumber \mapsto 1,$
        $epochNumber \mapsto 1,$
        $opNumber \mapsto 3$
    ], [
        $logs \mapsto \langle$
            $[config \mapsto \langle 1,\ 3,\ 4 \rangle,\ epochNumber \mapsto 1],$
            $[viewNumber \mapsto 2]$
        $\rangle,$
        $commitNumber \mapsto 0,$
        $config \mapsto \langle 1,\ 2,\ 4 \rangle,$
        $status \mapsto \text{"normal"},$
        $viewNumber \mapsto 2,$
        $epochNumber \mapsto 0,$
        $opNumber \mapsto 2$
    ], [
        $logs \mapsto \langle$
            $[config \mapsto \langle 1,\ 3,\ 4 \rangle,\ epochNumber \mapsto 1],$
            $[viewNumber \mapsto 1],$
            $[config \mapsto \langle 1 \rangle,\ epochNumber \mapsto 2]$
        $\rangle,$
        $commitNumber \mapsto 3,$
        $config \mapsto \langle 1 \rangle,$
        $status \mapsto \text{"shut down"},$
        $viewNumber \mapsto 1,$
        $epochNumber \mapsto 2,$
        $opNumber \mapsto 3$
    ], [
        $logs \mapsto \langle$
            $[config \mapsto \langle 1,\ 3,\ 4 \rangle,\ epochNumber \mapsto 1],$
            $[viewNumber \mapsto 2]$
        $\rangle,$

15

$$commitNumber \mapsto 0,$$
$$config \mapsto \langle 1,\ 2,\ 4 \rangle,$$
$$status \mapsto \text{``normal''},$$
$$viewNumber \mapsto 2,$$
$$epochNumber \mapsto 0,$$
$$opNumber \mapsto 2$$

    ]

  $\rangle$

18) $replicas \mapsto \langle$

  [

    $logs \mapsto \langle$

      $[config \mapsto \langle 1,\ 3,\ 4 \rangle,\ epochNumber \mapsto 1],$

      $[viewNumber \mapsto 1],$

      $[config \mapsto \langle 1 \rangle,\ epochNumber \mapsto 2]$

    $\rangle,$

    $commitNumber \mapsto 2,$

    $config \mapsto \langle 1,\ 3,\ 4 \rangle,$

    $status \mapsto \text{``normal''},$

    $viewNumber \mapsto 1,$

    $epochNumber \mapsto 1,$

    $opNumber \mapsto 3$

  ], [

    $logs \mapsto \langle$

      $[config \mapsto \langle 1,\ 3,\ 4 \rangle,\ epochNumber \mapsto 1],$

      $[viewNumber \mapsto 2]$

    $\rangle,$

    $commitNumber \mapsto 0,$

    $config \mapsto \langle 1,\ 2,\ 4 \rangle,$

    $status \mapsto \text{``normal''},$

    $viewNumber \mapsto 2,$

    $epochNumber \mapsto 0,$

    $opNumber \mapsto 2$

  ], [

    $logs \mapsto \langle$

      $[config \mapsto \langle 1,\ 3,\ 4 \rangle,\ epochNumber \mapsto 1],$

      $[viewNumber \mapsto 1],$

      $[config \mapsto \langle 1 \rangle,\ epochNumber \mapsto 2]$

    $\rangle,$

    $commitNumber \mapsto 3,$

    $config \mapsto \langle 1 \rangle,$

    $status \mapsto \text{``shut down''},$

    $viewNumber \mapsto 1,$

    $epochNumber \mapsto 2,$

    $opNumber \mapsto 3$

  ], [

$logs \mapsto \langle$
  $[config \mapsto \langle 1, 3, 4 \rangle,\ epochNumber \mapsto 1],$
  $[viewNumber \mapsto 2]$
$\rangle,$
$commitNumber \mapsto 1,$
$config \mapsto \langle 1, 2, 4 \rangle,$
$status \mapsto$ "view-change",
$viewNumber \mapsto 3,$
$epochNumber \mapsto 0,$
$opNumber \mapsto 2$

$]$

$\rangle$

19) $replicas \mapsto \langle$
  $[$
    $logs \mapsto \langle$
      $[config \mapsto \langle 1, 3, 4 \rangle,\ epochNumber \mapsto 1],$
      $[viewNumber \mapsto 1],$
      $[config \mapsto \langle 1 \rangle,\ epochNumber \mapsto 2]$
    $\rangle,$
    $commitNumber \mapsto 2,$
    $config \mapsto \langle 1, 3, 4 \rangle,$
    $status \mapsto$ "view-change",
    $viewNumber \mapsto 3,$
    $epochNumber \mapsto 1,$
    $opNumber \mapsto 3$
  $], [$
    $logs \mapsto \langle$
      $[config \mapsto \langle 1, 3, 4 \rangle,\ epochNumber \mapsto 1],$
      $[viewNumber \mapsto 2]$
    $\rangle,$
    $commitNumber \mapsto 0,$
    $config \mapsto \langle 1, 2, 4 \rangle,$
    $status \mapsto$ "normal",
    $viewNumber \mapsto 2,$
    $epochNumber \mapsto 0,$
    $opNumber \mapsto 2$
  $], [$
    $logs \mapsto \langle$
      $[config \mapsto \langle 1, 3, 4 \rangle,\ epochNumber \mapsto 1],$
      $[viewNumber \mapsto 1],$
      $[config \mapsto \langle 1 \rangle,\ epochNumber \mapsto 2]$
    $\rangle,$
    $commitNumber \mapsto 3,$
    $config \mapsto \langle 1 \rangle,$
    $status \mapsto$ "shut down",

```
                viewNumber ↦ 1,
                epochNumber ↦ 2,
                opNumber ↦ 3
        ], [
            logs ↦ ⟨
                [config ↦ ⟨1, 3, 4⟩, epochNumber ↦ 1],
                [viewNumber ↦ 2]
            ⟩,
            commitNumber ↦ 1,
            config ↦ ⟨1, 2, 4⟩,
            status ↦ "view-change",
            viewNumber ↦ 3,
            epochNumber ↦ 0,
            opNumber ↦ 2
        ]
    ⟩

20) replicas ↦ ⟨
        [
            logs ↦ ⟨
                [config ↦ ⟨1, 3, 4⟩, epochNumber ↦ 1],
                [viewNumber ↦ 2]
            ⟩,
            commitNumber ↦ 2,
            config ↦ ⟨1, 3, 4⟩,
            status ↦ "view-change",
            viewNumber ↦ 3,
            epochNumber ↦ 1,
            opNumber ↦ 2
        ], [
            logs ↦ ⟨
                [config ↦ ⟨1, 3, 4⟩, epochNumber ↦ 1],
                [viewNumber ↦ 2]
            ⟩,
            commitNumber ↦ 0,
            config ↦ ⟨1, 2, 4⟩,
            status ↦ "normal",
            viewNumber ↦ 2,
            epochNumber ↦ 0,
            opNumber ↦ 2
        ], [
            logs ↦ ⟨
                [config ↦ ⟨1, 3, 4⟩, epochNumber ↦ 1],
                [viewNumber ↦ 1],
                [config ↦ ⟨1⟩, epochNumber ↦ 2]
            ⟩,
```

$$
\begin{array}{l}
\quad commitNumber \mapsto 3, \\
\quad config \mapsto \langle 1 \rangle, \\
\quad status \mapsto \text{``shut down''}, \\
\quad viewNumber \mapsto 1, \\
\quad epochNumber \mapsto 2, \\
\quad opNumber \mapsto 3 \\
], \, [\\
\quad logs \mapsto \langle \\
\qquad [config \mapsto \langle 1,\, 3,\, 4 \rangle,\ epochNumber \mapsto 1], \\
\qquad [viewNumber \mapsto 2] \\
\quad \rangle, \\
\quad commitNumber \mapsto 1, \\
\quad config \mapsto \langle 1,\, 2,\, 4 \rangle, \\
\quad status \mapsto \text{``view-change''}, \\
\quad viewNumber \mapsto 3, \\
\quad epochNumber \mapsto 0, \\
\quad opNumber \mapsto 2 \\
] \\
\rangle
\end{array}
$$