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┌────────────────────────── MODULE MapCacheTrace ───────────────────────────┐

EXTENDS Naturals, Sequences, TLC, Trace

VARIABLE reads

VARIABLE events

VARIABLE i

INSTANCE MapHistory WITH history  $\leftarrow$  reads, events  $\leftarrow$  events

Read  $\triangleq$ 
  LET record  $\triangleq$  Trace[i']
  IN
     $\vee \wedge \vee$  record.op = "put"
       $\vee$  record.op = "get"
       $\vee$  record.op = "remove"
     $\wedge$  RecordRead(record.process, record.key, record.version)
     $\wedge$  UNCHANGED  $\langle$ events $\rangle$ 
     $\vee \wedge$  record.op = "event"
     $\wedge$  RecordEvent(record.process, record.key, record.version)
     $\wedge$  UNCHANGED  $\langle$ reads $\rangle$ 

Init  $\triangleq$ 
   $\wedge$  i = 1
   $\wedge$  reads = [p  $\in$  {}  $\mapsto$  [k  $\in$  {}  $\mapsto$   $\langle$  $\rangle$ ]]
   $\wedge$  events = [p  $\in$  {}  $\mapsto$  [k  $\in$  {}  $\mapsto$   $\langle$  $\rangle$ ]]
Next  $\triangleq$ 
   $\vee$  i < Len(Trace)  $\wedge$  i' = i + 1  $\wedge$  Read
   $\vee$  UNCHANGED  $\langle$ i, reads, events $\rangle$ 

Spec  $\triangleq$  Init  $\wedge$   $\Box$ [Next] $_{\langle i, reads, events \rangle}$ 

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\ * Modification History
\ * Last modified Sun Feb 16 19:07:08 PST 2020 by jordanhalterman
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