─────────────── MODULE *hanoi3* ───────────────

EXTENDS *TLC, Sequences, Integers*

   --algorithm *hanoi3*
variables *tower* = $\langle\langle 1, 2, 3\rangle, \langle\rangle, \langle\rangle\rangle$,

define
  $D \triangleq$ DOMAIN *tower*
end define ;

begin
while TRUE **do**
  assert *tower*[3] $\neq \langle 1, 2, 3\rangle$;
  with *from* $\in \{x \in D : tower[x] \neq \langle\rangle\}$,
       to $\in \{$
             $y \in D :$
               $\vee\ tower[y] = \langle\rangle$
               $\vee\ Head(tower[from]) < Head(tower[y])$
           $\}$
   do
    tower[*from*] := *Tail*(*tower*[*from*]) ∥
    tower[*to*] := $\langle Head(tower[from])\rangle \circ tower[to]$;
  end with ;
end while ;
end algorithm ;
  BEGIN TRANSLATION (*chksum(pcal)* = "1*a*2110*da*" $\wedge$ *chksum(tla)* = "19*c*39*e*85")
VARIABLE *tower*

define statement
$D \triangleq$ DOMAIN *tower*

vars $\triangleq \langle tower\rangle$

Init $\triangleq$ Global variables
       $\wedge\ tower = \langle\langle 1, 2, 3\rangle, \langle\rangle, \langle\rangle\rangle$

Next $\triangleq$ $\wedge\ Assert(tower[3] \neq \langle 1, 2, 3\rangle,$
               "Failure of assertion at line 13, column 3.")
      $\wedge\ \exists\ from \in \{x \in D : tower[x] \neq \langle\rangle\} :$
          $\exists\ to\ \in \{$
                $y \in D :$
                  $\vee\ tower[y] = \langle\rangle$
                  $\vee\ Head(tower[from]) < Head(tower[y])$
             $\} :$
          tower' = [*tower* EXCEPT ![*from*] = *Tail*(*tower*[*from*]),
                            ![*to*] = $\langle Head(tower[from])\rangle \circ tower[to]$]

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$Spec \;\triangleq\; Init \wedge \square[Next]_{vars}$

END TRANSLATION

* Modification History
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