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MODULE diehard
  from the 1995 movie Die Hard 3. Bruce Willis
EXTENDS Integers

VARIABLES smol, big

TypeOK  $\triangleq$   $\wedge$  smol  $\in$  0 .. 3
            $\wedge$  big  $\in$  0 .. 5

Init  $\triangleq$   $\wedge$  big = 0
            $\wedge$  smol = 0

FillSmol  $\triangleq$   $\wedge$  smol' = 3
               $\wedge$  big' = big

FillBig  $\triangleq$   $\wedge$  smol' = smol
               $\wedge$  big' = 5

EmptySmol  $\triangleq$   $\wedge$  smol' = 0
                $\wedge$  big' = big

EmptyBig  $\triangleq$   $\wedge$  big' = 0
                $\wedge$  smol' = smol

SmolToBig  $\triangleq$  IF big + smol  $\leq$  5
                  THEN  $\wedge$  smol' = 0
                        $\wedge$  big' = big + smol
                  ELSE
                        $\wedge$  big' = 5
                        $\wedge$  smol' = smol - (5 - big)

BigToSmol  $\triangleq$  IF big + smol  $\leq$  3
                  THEN
                        $\wedge$  smol' = big + smol
                        $\wedge$  big' = 0
                  ELSE
                        $\wedge$  smol' = 3
                        $\wedge$  big' = big - (3 - smol)

Next  $\triangleq$   $\vee$  FillSmol      fill a jug
            $\vee$  FillBig
            $\vee$  EmptySmol
            $\vee$  EmptyBig
            $\vee$  SmolToBig
            $\vee$  BigToSmol

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\ * Modification History
\ * Last modified Fri Jan 26 22:24:26 EST 2018 by SabraouM

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