–––––––––––––– MODULE *DieHard* ––––––––––––––

EXTENDS *Integers*

VARIABLES *small*, *big*

$TypeOK \triangleq \land small \in 0 .. 3$
$\qquad\qquad\quad \land big \in 0 .. 5$

$Init \triangleq \land big = 0$
$\qquad\quad \land small = 0$

$FillSmall \triangleq \land small' = 3$
$\qquad\qquad\quad \land big' = big$ ▨thats a bad idea. It's not math▨

$FillBig \triangleq \land big' = 5$
$\qquad\qquad \land small' = small$ ▨thats a bad idea. It's not math▨

$EmptySmall \triangleq \land small' = 0$
$\qquad\qquad\qquad \land big' = big$

$EmptyBig \triangleq \land big' = 0$
$\qquad\qquad\quad \land small' = small$

$SmallToBig \triangleq$ IF $big + small \leq 5$
$\qquad\qquad\qquad$ THEN $\land big' = big + small$
$\qquad\qquad\qquad\qquad\quad \land small' = 0$
$\qquad\qquad\qquad$ ELSE $\land big' = 5$
$\qquad\qquad\qquad\qquad\quad \land small' = big + small - 5$

$BigToSmall \triangleq$ IF $big + small \quad \leq 3$
$\qquad\qquad\qquad$ THEN $\land small' = big + small$
$\qquad\qquad\qquad\qquad\quad \land big' = 0$
$\qquad\qquad\qquad$ ELSE $\land small' = 3$
$\qquad\qquad\qquad\qquad\quad \land big' = big + small - 3$

$Next \triangleq \lor FillSmall$
$\qquad\qquad \lor FillBig$
$\qquad\qquad \lor EmptySmall$
$\qquad\qquad \lor EmptyBig$
$\qquad\qquad \lor SmallToBig$
$\qquad\qquad \lor BigToSmall$

$NotSolved \triangleq big \neq 4$

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