

	MODULE	<i>DieHard</i>
EXTENDS <i>Integers</i>		
VARIABLES <i>small, big</i>		
$TypeOK \triangleq \quad \wedge \textit{small} \in 0 \dots 3$ $\quad \quad \quad \wedge \textit{big} \in 0 \dots 5$		
$Saved \triangleq \textit{big} \neq 4$		
$Init \triangleq \quad \wedge \textit{small} = 0$ $\quad \quad \quad \wedge \textit{big} = 0$		
WELL WELL WELL		
$FillSmall \triangleq \quad \wedge \textit{big}' = \textit{big}$ $\quad \quad \quad \wedge \textit{small}' = 3$		
$FillBig \triangleq \quad \wedge \textit{big}' = 5$ $\quad \quad \quad \wedge \textit{small}' = \textit{small}$		
$EmptySmall \triangleq \quad \wedge \textit{big}' = \textit{big}$ $\quad \quad \quad \wedge \textit{small}' = 0$		
$EmptyBig \triangleq \quad \wedge \textit{big}' = 0$ $\quad \quad \quad \wedge \textit{small}' = \textit{small}$		
$SmallToBig \triangleq \quad \text{IF } \textit{big} + \textit{small} \leq 5$ <div style="margin-left: 100px;"> THEN <math>\quad \wedge \textit{big}' = \textit{big} + \textit{small}</math>  <math>\quad \quad \quad \wedge \textit{small}' = 0</math> </div> <div style="margin-left: 100px;"> ELSE <math>\quad \wedge \textit{big}' = 5</math>  <math>\quad \quad \quad \wedge \textit{small}' = \textit{small} - (5 - \textit{big})</math> </div>		
$BigToSmall \triangleq \quad \text{IF } \textit{big} + \textit{small} \leq 3$ <div style="margin-left: 100px;"> THEN <math>\quad \wedge \textit{big}' = 0</math>  <math>\quad \quad \quad \wedge \textit{small}' = \textit{small} + \textit{big}</math> </div> <div style="margin-left: 100px;"> ELSE <math>\quad \wedge \textit{big}' = \textit{big} - (3 - \textit{small})</math>  <math>\quad \quad \quad \wedge \textit{small}' = 3</math> </div>		
$Next \triangleq \quad \vee FillSmall$ $\quad \quad \vee FillBig$ $\quad \quad \vee EmptySmall$ $\quad \quad \vee EmptyBig$ $\quad \quad \vee SmallToBig$ $\quad \quad \vee BigToSmall$		