

EXTENDS *DieHarder*

To have *TLC* find a solution, we must tell it what values to use for the constant parameters Jug, Capacity, and Goal. However, *TLC* does not allow one to write function-valued expressions in a configuration file. So, we use this module, which extends module *DieHarder*, to define a function *MCCapacity* and have the configuration file *TLC* to substitute *MCCapacity* for Capacity. Since we need to know the value of Jug to define Capacity (which is a function having Jug as its domain), we also define *MCJug* and tell *TLC* to substitute it for Jug.

The following definitions duplicate the original Die Hard problem.

$$\begin{aligned}
 MCJug &\triangleq \{ \text{"j1"}, \text{"j2"} \} \\
 MCCapacity &\triangleq \\
 &[j \in MCJug \mapsto \text{CASE } j = \text{"j1"} \rightarrow 3 \\
 &\quad \square j = \text{"j2"} \rightarrow 5]
 \end{aligned}$$