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MODULE *Configuration*

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INSTANCE *Naturals*

INSTANCE *FiniteSets*

INSTANCE *Sequences*

INSTANCE *TLC*

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An empty constant  
CONSTANT *Nil*

Status constants  
CONSTANTS  
    *InProgress*,  
    *Complete*,  
    *Failed*

*State*  $\triangleq$   
    {*InProgress*,  
      *Complete*,  
      *Failed*}

Target is the set of all targets and their possible paths and values.

Example:

*Target*  $\triangleq$   
    [*target1*  $\mapsto$   
      [*persistent*  $\mapsto$  FALSE, *values*  $\mapsto$  [  
        *path1*  $\mapsto$  {“*value1*”, “*value2*”},  
        *path2*  $\mapsto$  {“*value2*”, “*value3*”}]],  
    *target2*  $\mapsto$   
      [*persistent*  $\mapsto$  TRUE, *values*  $\mapsto$  [  
        *path2*  $\mapsto$  {“*value3*”, “*value4*”},  
        *path3*  $\mapsto$  {“*value4*”, “*value5*”}]]]

CONSTANT *Target*

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A record of per-target configurations  
VARIABLE *configuration*

A record of target states  
VARIABLE *target*

A record of target masterhips  
VARIABLE *mastership*

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$$ReconcileConfiguration(n, t) \triangleq$$
$$\wedge \vee \wedge Target[t].persistent$$
$$\wedge configuration[t].state \neq Complete$$
$$\wedge configuration' = [configuration \text{ EXCEPT } ![t].state = Complete]$$
 $\wedge$  UNCHANGED  $\langle target \rangle$ 
$$\vee \wedge \neg Target[t].persistent$$
$$\wedge \vee \text{mastership}[t].\text{term} > \text{configuration}[t].\text{config.term}$$
$$\vee \wedge \mathit{mastership}[t].\mathit{term} = \mathit{configuration}[t].\mathit{config.term}$$
$$\wedge \text{mastership}[t].\text{master} = \text{Nil}$$
$$\wedge \text{configuration}' = [\text{configuration EXCEPT } ! [t].\text{config.term} = \text{mastership}[t].\text{term}, \\ ! [t].\text{state} = \text{InProgress}]$$
 $\wedge$  UNCHANGED  $\langle target \rangle$ 
$$\vee \wedge configuration[t].state = InProgress$$
$$\wedge \text{mastership}[t].\text{term} = \text{configuration}[t].\text{config.term}$$
$$\wedge \text{mastership}[t].\text{master} = n$$
$$\wedge target' = [target \text{ EXCEPT } ![t] = configuration[t].target.values]$$
$$\wedge \text{configuration}' = [\text{configuration} \text{ EXCEPT } \begin{array}{l} ! [t].\text{target.term} = \text{mastership}[t].\text{term}, \\ ! [t].\text{state} = \text{Complete} \end{array}]$$

$\wedge$  UNCHANGED  $\langle \textit{mastership} \rangle$