

EXTENDS *Integers*

VARIABLES *inputs*, *output*

We have two buttons - *A* and *B* - and an indicator light. Spec like this can help with disambiguating written requirements in situations where multiple requirements concern same resource. In this case requirements say only what needs to be done if one of the button is pressed, or not totally ignoring the situation where both are pressed

*Inputs*  $\triangleq$  SUBSET { "a\_button\_pressed", "b\_button\_pressed" }

*Output*  $\triangleq$  { "off", "red", "green", "yellow" }

*TypeOK*  $\triangleq$   $\wedge$  *inputs*  $\in$  *Inputs*  
 $\wedge$  *output*  $\in$  *Output*

Initially indicator light is off and buttons can be pushed or not

*Init*  $\triangleq$   $\wedge$  *inputs*  $\in$  *Inputs*  
 $\wedge$  *output* = "off"

First requirement says that we signal with green light the fact that button *A* is pushed. If it's not then the light should be yellow

*Requirement1*  $\triangleq$   $\wedge$  IF "a\_button\_pressed"  $\in$  *inputs* THEN *output'* = "green"  
ELSE *output'* = "yellow"  
 $\wedge$  UNCHANGED  $\langle$ *inputs* $\rangle$

Second requirement says that we signal with red light the fact that button *B* is pushed. If it's not then the light should be yellow

*Requirement2*  $\triangleq$   $\wedge$  IF "b\_button\_pressed"  $\in$  *inputs* THEN *output'* = "green"  
ELSE *output'* = "yellow"  
 $\wedge$  UNCHANGED  $\langle$ *inputs* $\rangle$

We want to check all requirements

*Next*  $\triangleq$  *Requirement1*  $\vee$  *Requirement2*