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|----- MODULE malgtd1ex10ter -----|

EXTENDS Naturals, Integers, TLC
CONSTANTS x0, y0
VARIABLES x, y, pc

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Interpretation: w assume that the precondition can hold and we have to find possible values for x0,y0, z0 to validate or not
ASSUME  $\wedge x0 \in Int \wedge y0 \in Int$ 
       $\wedge x0 = 1 \wedge y0 = 12$ 

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Auxiliary definitions
typeInt(u)  $\triangleq u \in Int$ 
pre  $\triangleq \wedge x0 \in Int \wedge y0 \in Int$ 
       $\wedge x0 = 1 \wedge y0 = 12$ 

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Action for transitioon of the algorithm
al1l2  $\triangleq$ 
   $\wedge pc = \text{"l1"}$ 
   $\wedge pc' = \text{"l2"}$ 
   $\wedge x' = 2 * y + x$ 
   $\wedge y' = y$ 

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Computations
Next  $\triangleq al1l2 \vee \text{UNCHANGED } \langle x, y, pc \rangle$ 
Init  $\triangleq pc = \text{"l1"} \wedge x = x0 \wedge y = y0 \wedge pre$ 

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Checking the annotation by checking the invariant i derived from the annotation
i  $\triangleq$ 
   $\wedge typeInt(x) \wedge typeInt(y)$ 
   $\wedge pc = \text{"l1"} \Rightarrow x = x0 \wedge y = y0 \wedge pre$ 
   $\wedge pc = \text{"l2"} \Rightarrow x = 25 \wedge y = y0 \wedge PrintT(x)$ 

safe  $\triangleq i$ 

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\ * Modification History
\ * Last modified Wed Feb 23 08:13:41 CET 2022 by mery
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