

MODULE *pluscal1*

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EXTENDS *TLC*, *Integers*, *Naturals*

```
--fair algorithm ex1{
variables x = 10, z = 2 * x, y = z + x ;
{
l1: y := z + x ;
l2: print ⟨x, y, z⟩ ;
}
}
```

BEGIN TRANSLATION

VARIABLES  $x, z, y, pc$

$vars \triangleq \langle x, z, y, pc \rangle$

$Init \triangleq$  Global variables  
 $\wedge x = 10$   
 $\wedge z = 2 * x$   
 $\wedge y = z + x$   
 $\wedge pc = \text{"l1"}$

$l1 \triangleq$   $\wedge pc = \text{"l1"}$   
 $\wedge y' = z + x$   
 $\wedge pc' = \text{"l2"}$   
 $\wedge \text{UNCHANGED } \langle x, z \rangle$

$l2 \triangleq$   $\wedge pc = \text{"l2"}$   
 $\wedge \text{PrintT}(\langle x, y, z \rangle)$   
 $\wedge pc' = \text{"Done"}$   
 $\wedge \text{UNCHANGED } \langle x, z, y \rangle$

$Next \triangleq l1 \vee l2$   
 $\vee$  Disjunct to prevent deadlock on termination  
 $(pc = \text{"Done"} \wedge \text{UNCHANGED } vars)$

$Spec \triangleq$   $\wedge Init \wedge \Box [Next]_{vars}$   
 $\wedge \text{WF}_{vars}(Next)$

$Termination \triangleq \Diamond (pc = \text{"Done"})$

END TRANSLATION

$MIN \triangleq -32768$   
 $MAX \triangleq 32767$   
 $D \triangleq MIN .. MAX$

$i \triangleq$   
 $\wedge pc \in \{\text{"l1"}, \text{"l2"}, \text{"Done"}\}$

$$\wedge pc = \text{"l1"} \Rightarrow x = 10 \wedge y = z + x \wedge z = 2 * x$$

$$\wedge pc = \text{"l2"} \Rightarrow x = 10 \wedge y = x + 2 * 10$$

$$safetypc \stackrel{\Delta}{=} pc = \text{"Done"} \Rightarrow x = 10 \wedge y = x + 2 * 10$$

$$safety \stackrel{\Delta}{=} i$$


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\ \* Modification History  
 \ \* Last modified *Mon Dec 03 17:05:05 CET 2018* by *mery*  
 \ \* Created *Wed Nov 18 15:48:54 CET 2015* by *mery*