

# t13\_msualg\_3 (TMbDGXfuB- TUmpZ8VA9HDqTsABPaybytuQ4i)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v11\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_msualg\_1 : \iota \Rightarrow o$  be given. Let  $l3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r4\_msualg\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_msualg\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_msualg\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_msualg\_3 : \iota \Rightarrow o$  be given. Let  $r3\_msualg\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r2\_msualg\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge (l1\_msualg\_1 \\ & \quad X0))) \Rightarrow (\forall X1.(l3\_msualg\_1 X1 X0) \Rightarrow (\forall X2.(l3\_msualg\_1 \\ & \quad X2 X0) \Rightarrow (\forall X3.(m2\_pboole X3 (u1\_struct\_0 X0) (u3\_msualg\_1 \\ & \quad X0 X1) (u3\_msualg\_1 X0 X2)) \Rightarrow ((r3\_msualg\_3 X0 X1 X2 X3) \Leftrightarrow ((r1\_msualg\_3 \\ & \quad X0 X1 X2 X3) \wedge (v1\_msualg\_3 X3)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge (l1\_msualg\_1 \\ & \quad X0))) \Rightarrow (\forall X1.(l3\_msualg\_1 X1 X0) \Rightarrow (\forall X2.(l3\_msualg\_1 \\ & \quad X2 X0) \Rightarrow (\forall X3.(m2\_pboole X3 (u1\_struct\_0 X0) (u3\_msualg\_1 \\ & \quad X0 X1) (u3\_msualg\_1 X0 X2)) \Rightarrow ((r2\_msualg\_3 X0 X1 X2 X3) \Leftrightarrow ((r1\_msualg\_3 \\ & \quad X0 X1 X2 X3) \wedge (v2\_msualg\_3 X3 (u1\_struct\_0 X0) (u3\_msualg\_1 X0 X1) \\ & \quad (u3\_msualg\_1 X0 X2)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge (l1\_msualg\_1 \\ & \quad X0))) \Rightarrow (\forall X1.(l3\_msualg\_1 X1 X0) \Rightarrow (\forall X2.(l3\_msualg\_1 \\ & \quad X2 X0) \Rightarrow (\forall X3.(m2\_pboole X3 (u1\_struct\_0 X0) (u3\_msualg\_1 \\ & \quad X0 X1) (u3\_msualg\_1 X0 X2)) \Rightarrow ((r4\_msualg\_3 X0 X1 X2 X3) \Leftrightarrow ((r2\_msualg\_3 \\ & \quad X0 X1 X2 X3) \wedge (r3\_msualg\_3 X0 X1 X2 X3)))))) \end{aligned} \tag{3}$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge (l1\_msualg\_1 \\ & \quad X0))) \Rightarrow (\forall X1. (l3\_msualg\_1 X1 X0) \Rightarrow (\forall X2. (l3\_msualg\_1 \\ & \quad X2 X0) \Rightarrow (\forall X3. (m2\_pboole X3 (u1\_struct\_0 X0) (u3\_msualg\_1 \\ X0 X1) (u3\_msualg\_1 X0 X2)) \Rightarrow ((r4\_msualg\_3 X0 X1 X2 X3) \Leftrightarrow ((r1\_msualg\_3 \\ X0 X1 X2 X3) \wedge ((v2\_msualg\_3 X3 (u1\_struct\_0 X0) (u3\_msualg\_1 X0 X1) \\ (u3\_msualg\_1 X0 X2)) \wedge (v1\_msualg\_3 X3))))))) \end{aligned}$$