

## t17\_osalg\_3

(TMTvU4n1o4Z5VMzhoQk8KhSNav9yYC2ZUWk)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v11\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v4\_osalg\_1 : \iota \Rightarrow o$  be given. Let  $v5\_osalg\_1 : \iota \Rightarrow o$  be given. Let  $l3\_osalg\_1 : \iota \Rightarrow o$  be given. Let  $v12\_osalg\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v13\_osalg\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $g3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u4\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_msualg\_1 : \iota \Rightarrow o$  be given. Let  $k2\_instalg1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_msualg\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_osalg\_1 : \iota \Rightarrow o$  be given. Let  $l2\_osalg\_1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_msualg\_1 X0)) \Rightarrow (\forall X1. \\ & (l3\_msualg\_1 X1 X0) \Rightarrow (k2\_instalg1 X0 X0 X1 = g3\_msualg\_1 X0 (u3\_msualg\_1 \\ & X0 X1) (u4\_msualg\_1 X0 X1))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge (l1\_msualg\_1 \\ & X0))) \Rightarrow (\forall X1.(l3\_msualg\_1 X1 X0) \Rightarrow (m1\_msualg\_2 X1 X0 (g3\_msualg\_1 \\ & X0 (u3\_msualg\_1 X0 X1) (u4\_msualg\_1 X0 X1)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge (l1\_msualg\_1 \\ & X0))) \Rightarrow (\forall X1.(l3\_msualg\_1 X1 X0) \Rightarrow (m1\_msualg\_2 (g3\_msualg\_1 \\ & X0 (u3\_msualg\_1 X0 X1) (u4\_msualg\_1 X0 X1)) X0 X1)) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge \\ & ((v4\_osalg\_1 X0) \wedge (v5\_osalg\_1 X0) \wedge (l3\_osalg\_1 X0)))) \wedge ((v12\_osalg\_1 \\ & X1 X0) \wedge (l3\_msualg\_1 X1 X0))) \Rightarrow ((v3\_msualg\_1 (g3\_msualg\_1 X0 (u3\_msualg\_1 \\ & X0 X1) (u4\_msualg\_1 X0 X1)) X0) \wedge (v12\_osalg\_1 (g3\_msualg\_1 X0 (u3\_msualg\_1 \\ & X0 X1) (u4\_msualg\_1 X0 X1)) X0)) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2\_struct\_0 X0)\wedge((\neg v11\_struct\_0 X0)\wedge \\ (l1\_msualg\_1 X0)))\wedge(l3\_msualg\_1 X1 X0))\Rightarrow(\forall X2.(m1\_msualg\_2 \\ X2 X0 X1)\Rightarrow(l3\_msualg\_1 X2 X0)) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.(l3\_osalg\_1 X0)\Rightarrow((l1\_osalg\_1 X0)\wedge(l2\_osalg\_1 X0)) \quad (6)$$

Assume the following.

$$\forall X0.(l1\_osalg\_1 X0)\Rightarrow(l1\_msualg\_1 X0) \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2\_struct\_0 X0)\wedge((\neg v11\_struct\_0 X0)\wedge \\ ((v4\_osalg\_1 X0)\wedge((v5\_osalg\_1 X0)\wedge(l3\_osalg\_1 X0))))\wedge((v12\_osalg\_1 \\ X1 X0)\wedge((v13\_osalg\_1 X1 X0)\wedge(l3\_msualg\_1 X1 X0))))\Rightarrow(\forall X2. \\ (m1\_msualg\_2 X2 X0 X1)\Rightarrow((v12\_osalg\_1 X2 X0)\Rightarrow((v12\_osalg\_1 X2 X0)\wedge \\ (v13\_osalg\_1 X2 X0)))) \end{aligned} \quad (8)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0)\wedge((\neg v11\_struct\_0 X0)\wedge((v4\_osalg\_1 \\ X0)\wedge((v5\_osalg\_1 X0)\wedge(l3\_osalg\_1 X0))))\Rightarrow(\forall X1.((v12\_osalg\_1 \\ X1 X0)\wedge(l3\_msualg\_1 X1 X0))\Rightarrow((v13\_osalg\_1 X1 X0)\Leftrightarrow(v13\_osalg\_1 \\ (g3\_msualg\_1 X0 (u3\_msualg\_1 X0 X1) (u4\_msualg\_1 X0 X1)) X0))) \end{aligned}$$