

## t16\_osalg\_2

(TMdbzef4j2LuNqWCB7onAKJTodi7hPy3Yxw)

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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  $m2\_osalg\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_osalg\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_msualg\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_msualg\_1 : \iota \Rightarrow o$  be given. Let  $m3\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $l1\_osalg\_1 : \iota \Rightarrow o$  be given. Let  $l2\_osalg\_1 : \iota \Rightarrow o$  be given. Let  $l1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v11\_osalg\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge (\neg v11\_struct\_0 \\ & X0) \wedge (l1\_msualg\_1 X0)) \wedge ((l3\_msualg\_1 X1 X0) \wedge (m3\_pboole X2 (u1\_struct\_0 \\ & X0) (u3\_msualg\_1 X0 X1)))) \Rightarrow (\neg v1\_xboole\_0 (k5\_msualg\_2 X0 X1 X2)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge (\neg v11\_struct\_0 X0) \wedge \\ & ((v4\_osalg\_1 X0) \wedge ((v5\_osalg\_1 X0) \wedge (l3\_osalg\_1 X0)))) \wedge ((v12\_osalg\_1 \\ & X1 X0) \wedge (l3\_msualg\_1 X1 X0))) \Rightarrow (\forall X2. (m2\_osalg\_2 X2 X0 X1) \Rightarrow \\ & (m3\_pboole X2 (u1\_struct\_0 X0) (u3\_msualg\_1 X0 X1))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. (l3\_osalg\_1 X0) \Rightarrow ((l1\_osalg\_1 X0) \wedge (l2\_osalg\_1 X0)) \quad (3)$$

Assume the following.

$$\forall X0. (l2\_osalg\_1 X0) \Rightarrow ((l1\_msualg\_1 X0) \wedge (l1\_orders\_2 X0)) \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge ((v4\_osalg\_1 \\ X0) \wedge ((v5\_osalg\_1 X0) \wedge (l3\_osalg\_1 X0)))))) \Rightarrow (\forall X1.((v12\_osalg\_1 \\ X1 X0) \wedge (l3\_msualg\_1 X1 X0)) \Rightarrow (\forall X2.(m2\_osalg\_2 X2 X0 X1) \Rightarrow \\ (k5\_osalg\_2 X0 X1 X2 = ReplSep (toset (\lambda X3 : \iota.m1\_subset\_1 X3 \\ (k5\_msualg\_2 X0 X1 X2))) (\lambda X3 : \iota.(v1\_relat\_1 X3) \wedge ((v4\_relat\_1 \\ X3 (u1\_struct\_0 X0)) \wedge ((v1\_funct\_1 X3) \wedge ((v1\_partfun1 X3 (u1\_struct\_0 \\ X0)) \wedge (v11\_osalg\_1 X3 X0)))))) (\lambda X3 : \iota.X3)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0. \forall X1. (r1\_tarski X0 X1) \Leftrightarrow (\forall X2. (X2 \in X0) \Rightarrow (X2 \in X1)) \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \Rightarrow ((m1\_subset\_1 X1 X0) \Leftrightarrow \\ (X1 \in X0))) \wedge ((v1\_xboole\_0 X0) \Rightarrow ((m1\_subset\_1 X1 X0) \Leftrightarrow (v1\_xboole\_0 \\ X1))) \end{aligned} \quad (7)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge ((v4\_osalg\_1 \\ X0) \wedge ((v5\_osalg\_1 X0) \wedge (l3\_osalg\_1 X0)))))) \Rightarrow (\forall X1.((v12\_osalg\_1 \\ X1 X0) \wedge (l3\_msualg\_1 X1 X0)) \Rightarrow (\forall X2.(m2\_osalg\_2 X2 X0 X1) \Rightarrow \\ (r1\_tarski (k5\_osalg\_2 X0 X1 X2) (k5\_msualg\_2 X0 X1 X2)))) \end{aligned}$$