

# t61\_algspec1 (TMYJKx- uPRREAuse8qKHHqJJNZ6KXxpyvnLp)

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Let  $v11\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_instalg1 : \iota \Rightarrow o$  be given. Let  $l1\_msualg\_1 : \iota \Rightarrow o$  be given. Let  $v1\_msafree1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $u3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $l2\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$  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  $l5\_struct\_0 : \iota \Rightarrow o$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_prob\_2 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (1)$$

Assume the following.

$$\forall X0. ((\neg v1\_xboole\_0 X0) \wedge (v1\_relat\_1 X0)) \Rightarrow (\neg v1\_xboole\_0 (k10\_xtuple\_0 X0)) \quad (2)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((l1\_struct\_0 X0) \wedge (l2\_msualg\_1 X1 X0)) \Rightarrow \\ & ((v1\_relat\_1 (u3\_msualg\_1 X0 X1)) \wedge ((v4\_relat\_1 (u3\_msualg\_1 \\ & X0 X1) (u1\_struct\_0 X0)) \wedge ((v1\_funct\_1 (u3\_msualg\_1 X0 X1)) \wedge (v1\_partfun1 \\ & (u3\_msualg\_1 X0 X1) (u1\_struct\_0 X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0. (l5\_struct\_0 X0) \Rightarrow (l1\_struct\_0 X0) \quad (5)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_msualg\_1 X0)) \Rightarrow (\forall X1. (l3\_msualg\_1 X1 X0) \Rightarrow (l2\_msualg\_1 X1 X0)) \quad (6)$$

Assume the following.

$$\forall X0.(l1\_msualg\_1 X0) \Rightarrow (l5\_struct\_0 X0) \quad (7)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1.(X1 = k10\_xtuple\_0 X0) \Leftrightarrow (\forall X2.(X2 \in X1) \Leftrightarrow (\exists X3.(X3 \in k9\_xtuple\_0 X0) \wedge (X2 = k1\_funct\_1 X0 X3)))) \quad (8)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow ((v1\_prob\_2 X0) \Leftrightarrow (\forall X1.\forall X2.(X1 \neq X2) \Rightarrow (r1\_xboole\_0 (k1\_funct\_1 X0 X1) (k1\_funct\_1 X0 X2)))) \quad (9)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_msualg\_1 X0)) \Rightarrow (\forall X1. (l3\_msualg\_1 X1 X0) \Rightarrow ((v1\_msafree1 X1 X0) \Leftrightarrow (v1\_prob\_2 (u3\_msualg\_1 X0 X1)))) \quad (10)$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(((v1\_relat\_1 X1) \wedge (v4\_relat\_1 X1 X0) \wedge ((v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0)))) \Rightarrow ((\neg v1\_xboole\_0 X1) \wedge ((v1\_relat\_1 X1) \wedge (v4\_relat\_1 X1 X0) \wedge ((v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0)))))) \quad (11)$$

Assume the following.

$$\forall X0.(l1\_msualg\_1 X0) \Rightarrow (((v2\_struct\_0 X0) \wedge (v1\_instalg1 X0)) \Rightarrow (v11\_struct\_0 X0)) \quad (12)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (v1\_relat\_1 X0) \quad (13)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (v1\_funct\_1 X0) \quad (14)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v11\_struct\_0 X0) \wedge ((v1\_instalg1 X0) \wedge (l1\_msualg\_1 X0))) \Rightarrow (\forall X1.((v1\_msafree1 X1 X0) \wedge (l3\_msualg\_1 X1 X0)) \Rightarrow \\ & (\forall X2.(m1\_subset\_1 X2 (k10\_xtuple\_0 (u3\_msualg\_1 X0 X1))) \Rightarrow \\ & (\forall X3.(m1\_subset\_1 X3 (k10\_xtuple\_0 (u3\_msualg\_1 X0 X1))) \Rightarrow \\ & ((X2 = X3) \vee (r1\_xboole\_0 X2 X3)))))) \end{aligned}$$