

t58\_rusub\_1 (TMQaZvD-  
dqQPFXxUe5efAS6LuCswXEbV2DL6)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v2\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v3\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v4\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v5\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v6\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v7\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v8\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v2\_bhsp\_1 : \iota \Rightarrow o$  be given. Let  $l1\_bhsp\_1 : \iota \Rightarrow o$  be given. Let  $m1\_rusub\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k3\_rusub\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_struct\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $k4\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $k3\_rlvect\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_rlvect\_1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v3\_rlvect\_1 \\ & X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l2\_algstr\_0 X0)))))) \Rightarrow (\forall X1. (m1\_subset\_1 \\ & X1 (u1\_struct\_0 X0)) \Rightarrow (k4\_algstr\_0 X0 (k4\_algstr\_0 X0 X1) = X1)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\ & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge ((v2\_bhsp\_1 \\ & X0) \wedge (l1\_bhsp\_1 X0)))))))))) \Rightarrow (\forall X1. (m1\_rusub\_1 X1 X0) \Rightarrow \\ & (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r1\_struct\_0 \\ & X1 X2) \Rightarrow (r1\_struct\_0 X1 (k4\_algstr\_0 X0 X2)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v2\_rlvect\_1 X0) \wedge (l1\_algstr\_0 \\ & X0)) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (u1\_struct\_0 \\ & X0)))) \Rightarrow (k3\_rlvect\_1 X0 X1 X2 = k1\_algstr\_0 X0 X1 X2) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0. (l2\_algstr\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l1\_algstr\_0 X0)) \quad (4)$$

Assume the following.

$$\forall X0.(l1\_rlvect\_1 X0) \Rightarrow (l2\_algstr\_0 X0) \quad (5)$$

Assume the following.

$$\forall X0.(l1\_bhsp\_1 X0) \Rightarrow (l1\_rlvect\_1 X0) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((l2\_algstr\_0 X0) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 X0))) \Rightarrow (m1\_subset\_1 (k4\_algstr\_0 X0 X1) (u1\_struct\_0 X0)) \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge ((v2\_bhsp\_1 X0) \wedge (l1\_bhsp\_1 X0)))))))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_rusub\_1 X2 X0) \Rightarrow (k3\_rusub\_1 X0 X1 X2 = ReplSep (toset (\lambda X3 : \iota.m1\_subset\_1 X3 (u1\_struct\_0 X0)) (\lambda X3 : \iota.r1\_struct\_0 X2 X3) (\lambda X3 : \iota.k3\_rlvect\_1 X0 X1 X3)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0.(l2\_algstr\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (k5\_algstr\_0 X0 X1 X2 = k1\_algstr\_0 X0 X1 (k4\_algstr\_0 X0 X2)))) \quad (9)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge ((v2\_bhsp\_1 X0) \wedge (l1\_bhsp\_1 X0)))))))))) \Rightarrow (\forall X1.(m1\_rusub\_1 X1 X0) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow ((X2 \in k3\_rusub\_1 X0 X3 X1) \Leftrightarrow (\exists X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0)) \wedge ((r1\_struct\_0 X1 X4) \wedge (X2 = k5\_algstr\_0 X0 X3 X4)))))) \end{aligned}$$