

t8\_realset3  
(TMbSR9XjXZbGXSZcurQnEW3CmC4DDLsBRnG)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v6\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v33\_algstr\_0 : \iota \Rightarrow o$  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  $v3\_group\_1 : \iota \Rightarrow o$  be given. Let  $v5\_group\_1 : \iota \Rightarrow o$  be given. Let  $v4\_vectsp\_1 : \iota \Rightarrow o$  be given. Let  $v5\_vectsp\_1 : \iota \Rightarrow o$  be given. Let  $l6\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k5\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_realset3 : \iota \Rightarrow \iota$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $k1\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l5\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $k5\_vectsp\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_algstr\_0 : \iota \Rightarrow \iota$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v3\_rlvect\_1 \\ &X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l2\_algstr\_0 X0)))) \Rightarrow (\forall X1. (m1\_subset\_1 \\ &X1 (u1\_struct\_0 X0)) \Rightarrow ((k1\_algstr\_0 X0 X1 (k4\_algstr\_0 X0 X1) = k4\_struct\_0 \\ &X0) \wedge (k1\_algstr\_0 X0 (k4\_algstr\_0 X0 X1) X1 = k4\_struct\_0 X0))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. (l6\_algstr\_0 X0) \Rightarrow ((l2\_algstr\_0 X0) \wedge (l5\_algstr\_0 X0)) \quad (2)$$

Assume the following.

$$\forall X0. (l2\_algstr\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l1\_algstr\_0 X0)) \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2\_struct\_0 X0) \wedge (l2\_algstr\_0 X0)) \Rightarrow ((v1\_funct\_1 \\ &(k5\_vectsp\_1 X0)) \wedge ((v1\_funct\_2 (k5\_vectsp\_1 X0) (u1\_struct\_0 \\ &X0) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 (k5\_vectsp\_1 X0) (k1\_zfmisc\_1 \\ &(k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((l2\_algstr\_0 X0)\wedge(m1\_subset\_1 X1 (u1\_struct\_0 X0)))\Rightarrow(m1\_subset\_1 (k4\_algstr\_0 X0 X1) (u1\_struct\_0 X0)) \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0)\wedge(\neg v6\_struct\_0 X0)\wedge((v13\_algstr\_0 X0)\wedge((v33\_algstr\_0 X0)\wedge((v2\_rlvect\_1 X0)\wedge((v3\_rlvect\_1 X0)\wedge \\ ((v4\_rlvect\_1 X0)\wedge((v3\_group\_1 X0)\wedge((v5\_group\_1 X0)\wedge((v4\_vectsp\_1 X0)\wedge((v5\_vectsp\_1 X0)\wedge(l6\_algstr\_0 X0))))))))))\Rightarrow((v1\_funct\_1 \\ (k1\_realset3 X0)\wedge((v1\_funct\_2 (k1\_realset3 X0) (k2\_zfmisc\_1 \\ (u1\_struct\_0 X0) (u1\_struct\_0 X0)) (u1\_struct\_0 X0))\wedge(m1\_subset\_1 \\ (k1\_realset3 X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) \\ X0) (u1\_struct\_0 X0)) (u1\_struct\_0 X0)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0)\wedge(\neg v6\_struct\_0 X0)\wedge((v13\_algstr\_0 X0)\wedge((v33\_algstr\_0 X0)\wedge((v2\_rlvect\_1 X0)\wedge((v3\_rlvect\_1 X0)\wedge \\ ((v4\_rlvect\_1 X0)\wedge((v3\_group\_1 X0)\wedge((v5\_group\_1 X0)\wedge((v4\_vectsp\_1 X0)\wedge((v5\_vectsp\_1 X0)\wedge(l6\_algstr\_0 X0))))))))))\Rightarrow(\forall X1. \\ ((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) \\ (u1\_struct\_0 X0)) (u1\_struct\_0 X0))\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ (k2\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)) \\ (u1\_struct\_0 X0))))))\Rightarrow((X1 = k1\_realset3 X0)\Leftrightarrow(\forall X2.(m1\_subset\_1 \\ X2 (u1\_struct\_0 X0))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 \\ X0))\Rightarrow(k5\_binop\_1 (u1\_struct\_0 X0) X1 X2 X3 = k5\_binop\_1 (u1\_struct\_0 \\ X0) (u1\_algstr\_0 X0) X2 (k3\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 \\ X0) (k5\_vectsp\_1 X0) X3)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.(l1\_algstr\_0 X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow(k1\_algstr\_0 X0 X1 X2 = k5\_binop\_1 (u1\_struct\_0 X0) (u1\_algstr\_0 X0) X1 X2))) \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0)\wedge(l2\_algstr\_0 X0))\Rightarrow(\forall X1. \\ ((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 (u1\_struct\_0 X0) (u1\_struct\_0 X0))\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) \\ (u1\_struct\_0 X0))))))\Rightarrow((X1 = k5\_vectsp\_1 X0)\Leftrightarrow(\forall X2. \\ (m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow(k3\_funct\_2 (u1\_struct\_0 X0) \\ (u1\_struct\_0 X0) X1 X2 = k4\_algstr\_0 X0 X2)))) \end{aligned} \quad (9)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((\neg v6\_struct\_0 X0) \wedge ((v13\_algstr\_0 \\ & X0) \wedge ((v33\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge \\ & ((v4\_rlvect\_1 X0) \wedge ((v3\_group\_1 X0) \wedge ((v5\_group\_1 X0) \wedge ((v4\_vectsp\_1 \\ & X0) \wedge ((v5\_vectsp\_1 X0) \wedge (l6\_algstr\_0 X0)))))))))) \Rightarrow (\forall X1. \\ & (m1\_subset\_1 X1 (u1\_struct\_0 X0) \Rightarrow (k5\_binop\_1 (u1\_struct\_0 X0) \\ & (k1\_realset3 X0) X1 X1 = k4\_struct\_0 X0)) \end{aligned}$$