

## t4\_ec\_pf\_2

(TMLu5YQ2iAUPmnsiLUMaaDxNa1Rn58T3umn)

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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  $k8\_group\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k11\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l3\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $k6\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l5\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l4\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l4\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l3\_struct\_0 : \iota \Rightarrow o$  be given. Let  $k5\_struct\_0 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. (&((\neg v2\_struct\_0 X0) \wedge ((v5\_group\_1 \\ &X0) \wedge (l3\_algstr\_0 X0))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge \\ &m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow (k8\_group\_1 X0 X1 X2 = k6\_algstr\_0 \\ &X0 X1 X2) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. (l6\_algstr\_0 X0) \Rightarrow ((l2\_algstr\_0 X0) \wedge (l5\_algstr\_0 X0)) \tag{2}$$

Assume the following.

$$\forall X0. (l5\_algstr\_0 X0) \Rightarrow ((l4\_algstr\_0 X0) \wedge (l4\_struct\_0 X0)) \tag{3}$$

Assume the following.

$$\forall X0. (l4\_algstr\_0 X0) \Rightarrow ((l3\_struct\_0 X0) \wedge (l3\_algstr\_0 X0)) \tag{4}$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. (&((\neg v2\_struct\_0 X0) \wedge ((v5\_group\_1 \\ &X0) \wedge (l3\_algstr\_0 X0))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge \\ &m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow (m1\_subset\_1 (k8\_group\_1 \\ &X0 X1 X2) (u1\_struct\_0 X0)) \end{aligned} \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.((l5\_algstr\_0 X0)\wedge(m1\_subset\_1 X1 (u1\_struct\_0 X0)))\Rightarrow(m1\_subset\_1 (k11\_algstr\_0 X0 X1) (u1\_struct\_0 X0)) \quad (6)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge(l4\_algstr\_0 X0))\Rightarrow((v4\_vectsp\_1 X0)\Leftrightarrow(\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)))\Rightarrow((k6\_algstr\_0 X0 X1 (k5\_struct\_0 X0) = X1)\wedge(k6\_algstr\_0 X0 (k5\_struct\_0 X0) X1 = X1)))) \quad (7)$$

Assume the following.

$$\forall X0.(l3\_algstr\_0 X0)\Rightarrow((v3\_group\_1 X0)\Leftrightarrow(\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)))\Rightarrow(\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0))\Rightarrow(k6\_algstr\_0 X0 (k6\_algstr\_0 X0 X1 X2) X3 = k6\_algstr\_0 X0 X1 (k6\_algstr\_0 X0 X2 X3)))))) \quad (8)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge((v33\_algstr\_0 X0)\wedge((v3\_group\_1 X0)\wedge((v5\_group\_1 X0)\wedge((v4\_vectsp\_1 X0)\wedge(l6\_algstr\_0 X0))))))\Rightarrow(\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0))\Rightarrow((X1\neq k4\_struct\_0 X0)\Rightarrow(\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow((X2 = k11\_algstr\_0 X0 X1)\Leftrightarrow(k8\_group\_1 X0 X2 X1 = k5\_struct\_0 X0)))))) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0)\wedge((v5\_group\_1 X0)\wedge(l3\_algstr\_0 X0)))\wedge((m1\_subset\_1 X1 (u1\_struct\_0 X0))\wedge(m1\_subset\_1 X2 (u1\_struct\_0 X0))))\Rightarrow(k8\_group\_1 X0 X1 X2 = k8\_group\_1 X0 X2 X1) \quad (10)$$

**Theorem 1**

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge((\neg v6\_struct\_0 X0)\wedge((v13\_algstr\_0 X0)\wedge((v33\_algstr\_0 X0)\wedge((v2\_rlvect\_1 X0)\wedge((v3\_rlvect\_1 X0)\wedge((v4\_rlvect\_1 X0)\wedge((v3\_group\_1 X0)\wedge((v5\_group\_1 X0)\wedge((v4\_vectsp\_1 X0)\wedge((v5\_vectsp\_1 X0)\wedge(l6\_algstr\_0 X0))))))))))\Rightarrow(\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0))\Rightarrow(\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0))\Rightarrow((k8\_group\_1 X0 X3 X2 = k8\_group\_1 X0 X1 X4)\Rightarrow((X1 = k4\_struct\_0 X0)\vee((X2 = k4\_struct\_0 X0)\vee(k8\_group\_1 X0 X3 (k11\_algstr\_0 X0 X1) = k8\_group\_1 X0 X4 (k11\_algstr\_0 X0 X2)))))))))) \quad (10)$$