t31_autalg_1 (TM-LaqJXM7N1dfj2YD7zMrX7P1Yi5pEMWbBn)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v2\_unialg\_1 : \iota \Rightarrow o$ be given. Let $v3\_unialg\_1 : \iota \Rightarrow o$ be given. Let $v4\_unialg\_1 : \iota \Rightarrow o$ be given. Let $l1\_unialg\_1 : \iota \Rightarrow o$ be given. Let $r1\_unialg\_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k6\_msualg\_1 : \iota \Rightarrow \iota$ be given. Let $u3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9\_msualg\_1 : \iota \Rightarrow \iota$ be given. Let $k1\_msuhom\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6\_numbers : \iota$ be given. Let $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v11\_struct\_0 : \iota \Rightarrow o$ be given. Let $v1\_msualg\_1 : \iota \Rightarrow o$ be given. Let $l1\_msualg\_1 : \iota \Rightarrow o$ be given. Let $v3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $k7\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u4\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1\_msualg\_1 : \iota \Rightarrow \iota$ be given. Let $k6\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2\_msualg\_1 : \iota \Rightarrow \iota$ be given. Let $g3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_funcop\_1 : \iota \Rightarrow o$ be given. Let $k1\_tarski : \iota \Rightarrow \iota$ be given. Let $v7\_struct\_0 : \iota \Rightarrow o$ be given. Let $v13\_struct\_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $np\_\_1 : \iota$ be given. Let $v5\_msualg\_1 : \iota \Rightarrow o$ be given. Let $u4\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $l2\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l5\_struct\_0 : \iota \Rightarrow o$ be given. Let $k7\_msualg\_1 : \iota \Rightarrow \iota$ be given. Let $k16\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_finseq\_1 : \iota \Rightarrow \iota$ be given. Let $k1\_unialg\_1 : \iota \Rightarrow \iota$ be given. Let $k1\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5\_numbers : \iota$ be given. Let $k3\_finseq\_2 : \iota \Rightarrow \iota$ be given. Let $k7\_finseq\_2 : \iota \Rightarrow \iota$ be given. Let $k1\_margrel1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8\_msualg\_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((\neg v11\_struct\_0\ X0) \wedge ((v1\_msualg\_1\ X0) \wedge (l1\_msualg\_1\ X0)))) \Rightarrow (\forall X1.((v3\_msualg\_1\ X1\ X0) \wedge ((v4\_msualg\_1\ X1\ X0) \wedge (l3\_msualg\_1\ X1\ X0))) \Rightarrow (X1 = k1\_msuhom\_1\ X0\ X0\ X1)) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(X1 \in X0) \Rightarrow (k1\_funct\_1\ (k2\_funcop\_1\ X0\ X2)\ X1 = X2) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1\ X0\ X1) \Rightarrow ((v1\_xboole\_0\ X1) \vee (X0 \in X1)) \tag{3}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v2\_unialg\_1\ X0) \wedge ((v3\_unialg\_1\ X0) \wedge ((v4\_unialg\_1\ X0) \wedge (l1\_unialg\_1\ X0))))) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge ((v2\_unialg\_1\ X1) \wedge ((v3\_unialg\_1\ X1) \wedge ((v4\_unialg\_1\ X1) \wedge (l1\_unialg\_1\ X1))))) \Rightarrow ((r1\_unialg\_2\ X0\ X1) \Rightarrow (k6\_msualg\_1\ X0 = k6\_msualg\_1\ X1))) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.k7\_funcop\_1\ X0\ X1 = k2\_funcop\_1\ X0\ X1 \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0) \wedge (l1\_msualg\_1\ X0)) \wedge (((v1\_relat\_1\ X1) \wedge ((v4\_relat\_1\ X1\ (u1\_struct\_0\ X0)) \wedge ((v1\_funct\_1\ X1) \wedge (v1\_partfun1\ X1\ (u1\_struct\_0\ X0))))) \wedge (m2\_pboole\ X2\ (u4\_struct\_0\ X0)\ (k3\_relat\_1\ (u1\_msualg\_1\ X0)\ (k6\_finseq\_2\ (u1\_struct\_0\ X0)\ X1))\ (k3\_relat\_1\ (u2\_msualg\_1\ X0)\ X1)))) \Rightarrow (\forall X3.\forall X4.\forall X5.(g3\_msualg\_1\ X0\ X1\ X2 = g3\_msualg\_1\ X3\ X4\ X5) \Rightarrow ((X0 = X3) \wedge ((X1 = X4) \wedge (X2 = X5)))) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X0) \wedge ((v1\_funct\_1\ X0) \wedge (v1\_funcop\_1\ X0))) \Rightarrow ((v1\_relat\_1\ (k1\_funct\_1\ X0\ X1)) \wedge (v1\_funct\_1\ (k1\_funct\_1\ X0\ X1))) \tag{7}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v2\_unialg\_1\ X0) \wedge ((v3\_unialg\_1\ X0) \wedge ((v4\_unialg\_1\ X0) \wedge (l1\_unialg\_1\ X0))))) \Rightarrow ((v3\_msualg\_1\ (k9\_msualg\_1\ X0)\ (k6\_msualg\_1\ X0)) \wedge (v4\_msualg\_1\ (k9\_msualg\_1\ X0)\ (k6\_msualg\_1\ X0))) \tag{8}$$

Assume the following.

$$\forall X0.\neg v1\_xboole\_0\ (k1\_tarski\ X0) \tag{9}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_unialg\_1\ X0)\wedge((v3\_unialg\_1\ X0)\wedge((v4\_unialg\_1\ X0)\wedge(l1\_unialg\_1\ X0)))))\Rightarrow((v7\_struct\_0\ (k6\_msualg\_1\ X0))\wedge((\neg v11\_struct\_0\ (k6\_msualg\_1\ X0))\wedge((v13\_struct\_0\ (k6\_msualg\_1\ X0)\ np\_\_1)\wedge((v1\_msualg\_1\ (k6\_msualg\_1\ X0))\wedge(v5\_msualg\_1\ (k6\_msualg\_1\ X0))))))) \tag{10}$$

Assume the following.

$$\forall X0.\exists X1.m1\_subset\_1\ X1\ X0 \tag{11}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0))\wedge(l3\_msualg\_1\ X1\ X0))\Rightarrow(m2\_pboole\ (u4\_msualg\_1\ X0\ X1)\ (u4\_struct\_0\ X0)\ (k3\_relat\_1\ (u1\_msualg\_1\ X0)\ (k6\_finseq\_2\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)))\ (k3\_relat\_1\ (u2\_msualg\_1\ X0)\ (u3\_msualg\_1\ X0\ X1))) \tag{12}$$

Assume the following.

$$\forall X0.\forall X1.((l1\_struct\_0\ X0)\wedge(l2\_msualg\_1\ X1\ X0))\Rightarrow((v1\_relat\_1\ (u3\_msualg\_1\ X0\ X1))\wedge((v4\_relat\_1\ (u3\_msualg\_1\ X0\ X1)\ (u1\_struct\_0\ X0))\wedge((v1\_funct\_1\ (u3\_msualg\_1\ X0\ X1))\wedge(v1\_partfun1\ (u3\_msualg\_1\ X0\ X1)\ (u1\_struct\_0\ X0))))) \tag{13}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\wedge((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ X0)))))\Rightarrow(\forall X3.(m2\_pboole\ X3\ X0\ X1\ X2)\Rightarrow((v1\_relat\_1\ X3)\wedge((v4\_relat\_1\ X3\ X0)\wedge((v1\_funct\_1\ X3)\wedge(v1\_partfun1\ X3\ X0))))) \tag{14}$$

Assume the following.

$$\forall X0.(l5\_struct\_0\ X0)\Rightarrow(l1\_struct\_0\ X0) \tag{15}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0))\Rightarrow(\forall X1.(l3\_msualg\_1\ X1\ X0)\Rightarrow(l2\_msualg\_1\ X1\ X0)) \tag{16}$$

Assume the following.

$$\forall X0.(l1\_msualg\_1\ X0)\Rightarrow(l5\_struct\_0\ X0) \tag{17}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_unialg\_1\ X0)\wedge((v3\_unialg\_1\ X0)\wedge((v4\_unialg\_1\ X0)\wedge(l1\_unialg\_1\ X0)))))\Rightarrow((v3\_msualg\_1\ (k9\_msualg\_1\ X0)\ (k6\_msualg\_1\ X0))\wedge(l3\_msualg\_1\ (k9\_msualg\_1\ X0)\ (k6\_msualg\_1\ X0))) \tag{18}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_unialg\_1\ X0)\wedge((v3\_unialg\_1\ X0)\wedge((v4\_unialg\_1\ X0)\wedge(l1\_unialg\_1\ X0)))))\Rightarrow((v7\_struct\_0\ (k6\_msualg\_1\ X0))\wedge((\neg v11\_struct\_0\ (k6\_msualg\_1\ X0))\wedge((v1\_msualg\_1\ (k6\_msualg\_1\ X0))\wedge((v5\_msualg\_1\ (k6\_msualg\_1\ X0))\wedge(l1\_msualg\_1\ (k6\_msualg\_1\ X0))))))) \tag{19}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_unialg\_1\ X0)\wedge((v3\_unialg\_1\ X0)\wedge((v4\_unialg\_1\ X0)\wedge(l1\_unialg\_1\ X0)))))\Rightarrow(k7\_msualg\_1\ X0 = k16\_funcop\_1\ k6\_numbers\ (u1\_struct\_0\ X0)) \tag{20}$$

Assume the following.

$$\forall X0.\forall X1.k16\_funcop\_1\ X0\ X1 = k7\_funcop\_1\ (k1\_tarski\ X0)\ X1 \tag{21}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_unialg\_1\ X0)\wedge((v3\_unialg\_1\ X0)\wedge((v4\_unialg\_1\ X0)\wedge(l1\_unialg\_1\ X0)))))\Rightarrow(\forall X1.((v7\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge((v1\_msualg\_1\ X1)\wedge((v5\_msualg\_1\ X1)\wedge(l1\_msualg\_1\ X1)))))\Rightarrow((X1 = k6\_msualg\_1\ X0)\Leftrightarrow((u1\_struct\_0\ X1 = k1\_tarski\ k6\_numbers)\wedge((u4\_struct\_0\ X1 = k4\_finseq\_1\ (k1\_unialg\_1\ X0))\wedge((u1\_msualg\_1\ X1 = k1\_partfun1\ k5\_numbers\ k5\_numbers\ k5\_numbers\ (k3\_finseq\_2\ (k1\_tarski\ k6\_numbers))\ (k1\_unialg\_1\ X0)\ (k7\_finseq\_2\ k6\_numbers))\wedge(u2\_msualg\_1\ X1 = k1\_margrel1\ k5\_numbers\ (k4\_finseq\_1\ (k1\_unialg\_1\ X0))\ k6\_numbers)))))) \tag{22}$$

Assume the following.

$$\forall X0.\forall X1.k2\_funcop\_1\ X0\ X1 = k2\_zfmisc\_1\ X0\ (k1\_tarski\ X1) \tag{23}$$

Assume the following.

$$\forall X0.\forall X1.(X1 = k1\_tarski\ X0)\Leftrightarrow(\forall X2.(X2 \in X1)\Leftrightarrow(X2 = X0)) \tag{24}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\Rightarrow(\forall X2.((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ X0))))\Rightarrow(\forall X3.((v1\_relat\_1\ X3)\wedge((v4\_relat\_1\ X3\ X0)\wedge((v1\_funct\_1\ X3)\wedge(v1\_partfun1\ X3\ X0))))\Rightarrow((m2\_pboole\ X3\ X0\ X1\ X2)\Leftrightarrow(\forall X4.(X4\in X0)\Rightarrow((v1\_funct\_1\ (k1\_funct\_1\ X3\ X4))\wedge((v1\_funct\_2\ (k1\_funct\_1\ X3\ X4)\ (k1\_funct\_1\ X1\ X4)\ (k1\_funct\_1\ X2\ X4))\wedge(m1\_subset\_1\ (k1\_funct\_1\ X3\ X4)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k1\_funct\_1\ X1\ X4)\ (k1\_funct\_1\ X2\ X4))))))))))) \tag{25}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_unialg\_1\ X0)\wedge((v3\_unialg\_1\ X0)\wedge((v4\_unialg\_1\ X0)\wedge(l1\_unialg\_1\ X0)))))\Rightarrow(k9\_msualg\_1\ X0 = g3\_msualg\_1\ (k6\_msualg\_1\ X0)\ (k7\_msualg\_1\ X0)\ (k8\_msualg\_1\ X0)) \tag{26}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\wedge((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ X0)))))\Rightarrow(\forall X3.(m2\_pboole\ X3\ X0\ X1\ X2)\Rightarrow(v1\_funcop\_1\ X3)) \tag{27}$$

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0)\Rightarrow((v13\_struct\_0\ X0\ np\_\_1)\Rightarrow((\neg v2\_struct\_0\ X0)\wedge(v7\_struct\_0\ X0))) \tag{28}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0))\wedge(l3\_msualg\_1\ X1\ X0))\Rightarrow((v3\_msualg\_1\ X1\ X0)\Rightarrow(X1 = g3\_msualg\_1\ X0\ (u3\_msualg\_1\ X0\ X1)\ (u4\_msualg\_1\ X0\ X1))) \tag{29}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_unialg\_1\ X0)\wedge((v3\_unialg\_1\ X0)\wedge((v4\_unialg\_1\ X0)\wedge(l1\_unialg\_1\ X0)))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((v2\_unialg\_1\ X1)\wedge((v3\_unialg\_1\ X1)\wedge((v4\_unialg\_1\ X1)\wedge(l1\_unialg\_1\ X1)))))\Rightarrow((r1\_unialg\_2\ X0\ X1)\Rightarrow(\forall X2.(m2\_pboole\ X2\ (u1\_struct\_0\ (k6\_msualg\_1\ X0))\ (u3\_msualg\_1\ (k6\_msualg\_1\ X0)\ (k9\_msualg\_1\ X0))\ (u3\_msualg\_1\ (k6\_msualg\_1\ X0)\ (k1\_msuhom\_1\ (k6\_msualg\_1\ X0)\ (k6\_msualg\_1\ X1)\ (k9\_msualg\_1\ X1))))\Rightarrow((v1\_funct\_1\ (k1\_funct\_1\ X2\ k6\_numbers))\wedge((v1\_funct\_2\ (k1\_funct\_1\ X2\ k6\_numbers)\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))\wedge(m1\_subset\_1\ (k1\_funct\_1\ X2\ k6\_numbers)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))))))))$$