t29_osalg_2 (TM-cmTiX7zYndM8UtrpGAeUY3ZVeDjxToP7k)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v11\_struct\_0 : \iota \Rightarrow o$ be given. Let $v4\_osalg\_1 : \iota \Rightarrow o$ be given. Let $v5\_osalg\_1 : \iota \Rightarrow o$ be given. Let $l3\_osalg\_1 : \iota \Rightarrow o$ be given. Let $v12\_osalg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2\_osalg\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3\_msualg\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9\_osalg\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u4\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $k5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k2\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_osalg\_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $l2\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m3\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1\_osalg\_1 : \iota \Rightarrow o$ be given. Let $l2\_osalg\_1 : \iota \Rightarrow o$ be given. Let $l1\_msualg\_1 : \iota \Rightarrow o$ be given. Let $l1\_orders\_2 : \iota \Rightarrow o$ be given. Let $r1\_msualg\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((\neg v11\_struct\_0\ X0) \wedge ((v4\_osalg\_1\ X0) \wedge ((v5\_osalg\_1\ X0) \wedge (l3\_osalg\_1\ X0))))) \Rightarrow (\forall X1.((v12\_osalg\_1\ X1\ X0) \wedge (l3\_msualg\_1\ X1\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u4\_struct\_0\ X0)) \Rightarrow (\forall X3.(m2\_osalg\_2\ X3\ X0\ X1) \Rightarrow (r1\_tarski\ (k10\_xtuple\_0\ (k5\_relat\_1\ (k5\_msualg\_1\ X0\ X2\ X1)\ (k1\_funct\_1\ (k3\_relat\_1\ (u1\_msualg\_1\ X0)\ (k6\_finseq\_2\ (u1\_struct\_0\ X0)\ (k9\_osalg\_2\ X0\ X1\ X3)))\ X2)))\ (k1\_funct\_1\ (k3\_relat\_1\ (u2\_msualg\_1\ X0)\ (k9\_osalg\_2\ X0\ X1\ X3))\ X2))))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v4\_osalg\_1\ X0)\wedge((v5\_osalg\_1\ X0)\wedge(l3\_osalg\_1\ X0)))))\Rightarrow(\forall X1.((v12\_osalg\_1\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0))\Rightarrow(\forall X2.(m2\_osalg\_2\ X2\ X0\ X1)\Rightarrow(r2\_pboole\ (u1\_struct\_0\ X0)\ (k2\_pboole\ (u1\_struct\_0\ X0)\ (k3\_osalg\_2\ X0\ X1)\ X2)\ (k9\_osalg\_2\ X0\ X1\ X2)))) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\Rightarrow(\forall X2.((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ X0))))\Rightarrow(r2\_pboole\ X0\ X1\ (k2\_pboole\ X0\ X1\ X2))) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\Rightarrow(\forall X2.((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ X0))))\Rightarrow(\forall X3.((v1\_relat\_1\ X3)\wedge((v4\_relat\_1\ X3\ X0)\wedge((v1\_funct\_1\ X3)\wedge(v1\_partfun1\ X3\ X0))))\Rightarrow(((r2\_pboole\ X0\ X1\ X2)\wedge(r2\_pboole\ X0\ X2\ X3))\Rightarrow(r2\_pboole\ X0\ X1\ X3)))) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.((l1\_struct\_0\ X0)\wedge(l2\_msualg\_1\ X1\ X0))\Rightarrow((v1\_relat\_1\ (u3\_msualg\_1\ X0\ X1))\wedge((v4\_relat\_1\ (u3\_msualg\_1\ X0\ X1)\ (u1\_struct\_0\ X0))\wedge((v1\_funct\_1\ (u3\_msualg\_1\ X0\ X1))\wedge(v1\_partfun1\ (u3\_msualg\_1\ X0\ X1)\ (u1\_struct\_0\ X0))))) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\Rightarrow(\forall X2.(m3\_pboole\ X2\ X0\ X1)\Rightarrow((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ X0))))) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v4\_osalg\_1\ X0)\wedge((v5\_osalg\_1\ X0)\wedge(l3\_osalg\_1\ X0)))))\wedge((v12\_osalg\_1\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0)))\Rightarrow(\forall X2.(m2\_osalg\_2\ X2\ X0\ X1)\Rightarrow(m3\_pboole\ X2\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1))) \tag{7}$$

Assume the following.

$$\forall X0.(l3\_osalg\_1\ X0)\Rightarrow((l1\_osalg\_1\ X0)\wedge(l2\_osalg\_1\ X0)) \tag{8}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0))\Rightarrow(\forall X1.\ (l3\_msualg\_1\ X1\ X0)\Rightarrow(l2\_msualg\_1\ X1\ X0)) \tag{9}$$

Assume the following.

$$\forall X0.(l2\_osalg\_1\ X0)\Rightarrow((l1\_msualg\_1\ X0)\wedge(l1\_orders\_2\ X0)) \tag{10}$$

Assume the following.

$$\forall X0.(l1\_orders\_2\ X0)\Rightarrow(l1\_struct\_0\ X0) \tag{11}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v4\_osalg\_1\ X0)\wedge((v5\_osalg\_1\ X0)\wedge(l3\_osalg\_1\ X0)))))\wedge(((v12\_osalg\_1\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0))\wedge(m2\_osalg\_2\ X2\ X0\ X1)))\Rightarrow(m2\_osalg\_2\ (k9\_osalg\_2\ X0\ X1\ X2)\ X0\ X1) \tag{12}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v4\_osalg\_1\ X0)\wedge((v5\_osalg\_1\ X0)\wedge(l3\_osalg\_1\ X0)))))\wedge((v12\_osalg\_1\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0)))\Rightarrow(m2\_osalg\_2\ (k3\_osalg\_2\ X0\ X1)\ X0\ X1) \tag{13}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\wedge((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ X0)))))\Rightarrow((v1\_relat\_1\ (k2\_pboole\ X0\ X1\ X2))\wedge((v4\_relat\_1\ (k2\_pboole\ X0\ X1\ X2)\ X0)\wedge((v1\_funct\_1\ (k2\_pboole\ X0\ X1\ X2))\wedge(v1\_partfun1\ (k2\_pboole\ X0\ X1\ X2)\ X0)))) \tag{14}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0)))\Rightarrow(\forall X1.(l3\_msualg\_1\ X1\ X0)\Rightarrow(\forall X2.(m3\_pboole\ X2\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1))\Rightarrow((v3\_msualg\_2\ X2\ X0\ X1)\Leftrightarrow(\forall X3.(m1\_subset\_1\ X3\ (u4\_struct\_0\ X0))\Rightarrow(r1\_msualg\_2\ X0\ X1\ X3\ X2))))) \tag{15}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0)))\Rightarrow(\forall X1.(l3\_msualg\_1\ X1\ X0)\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u4\_struct\_0\ X0))\Rightarrow(\forall X3.(m3\_pboole\ X3\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1))\Rightarrow((r1\_msualg\_2\ X0\ X1\ X2\ X3)\Leftrightarrow(r1\_tarski\ (k10\_xtuple\_0\ (k5\_relat\_1\ (k5\_msualg\_1\ X0\ X2\ X1)\ (k1\_funct\_1\ (k3\_relat\_1\ (u1\_msualg\_1\ X0)\ (k6\_finseq\_2\ (u1\_struct\_0\ X0)\ X3))\ X2)))\ (k1\_funct\_1\ (k3\_relat\_1\ (u2\_msualg\_1\ X0)\ X3)\ X2))))))) \tag{16}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\wedge((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ X0)))))\Rightarrow(k2\_pboole\ X0\ X1\ X2 = k2\_pboole\ X0\ X2\ X1) \tag{17}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v4\_osalg\_1\ X0)\wedge((v5\_osalg\_1\ X0)\wedge(l3\_osalg\_1\ X0)))))\Rightarrow(\forall X1.((v12\_osalg\_1\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0))\Rightarrow(\forall X2.(m2\_osalg\_2\ X2\ X0\ X1)\Rightarrow((v3\_msualg\_2\ (k9\_osalg\_2\ X0\ X1\ X2)\ X0\ X1)\wedge(r2\_pboole\ (u1\_struct\_0\ X0)\ X2\ (k9\_osalg\_2\ X0\ X1\ X2)))))$$