t19_msualg_8 (TMG4tr8k7Vq781rHCUfsfXCfp9EbtsJ7Mtt)

October 27, 2020

Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v11\_struct\_0 : \iota \Rightarrow o$ be given. Let $l1\_msualg\_1 : \iota \Rightarrow o$ 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 $v1\_msualg\_7 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6\_msualg\_5 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5\_msualg\_5 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $u3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $v2\_msualg\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k16\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3\_msualg\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1\_msualg\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $l2\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $l5\_struct\_0 : \iota \Rightarrow o$ be given. Let $v3\_lattices : \iota \Rightarrow o$ be given. Let $m2\_nat\_lat : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v10\_lattices : \iota \Rightarrow o$ be given. Let $l3\_lattices : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((\neg v11\_struct\_0\ X0) \wedge (l1\_msualg\_1\ X0))) \Rightarrow (\forall X1.((v4\_msualg\_1\ X1\ X0) \wedge (l3\_msualg\_1\ X1\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ (k6\_msualg\_5\ X0\ X1)))) \Rightarrow ((v2\_msualg\_4\ (k16\_lattice3\ (k5\_msualg\_5\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1))\ X2)\ X0\ X1) \wedge ((v3\_msualg\_4\ (k16\_lattice3\ (k5\_msualg\_5\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1))\ X2)\ X0\ X1) \wedge (m1\_msualg\_4\ (k16\_lattice3\ (k5\_msualg\_5\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1))\ X2)\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1))))))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l1\_struct\_0\ X0)) \Rightarrow (\neg v1\_xboole\_0\ (u1\_struct\_0\ X0)) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.((l1\_struct\_0\ X0)\wedge(l2\_msualg\_1\ X1\ X0))\Rightarrow((v1\_relat\_1\ (u3\_msualg\_1\ X0\ X1))\wedge((v4\_relat\_1\ (u3\_msualg\_1\ X0\ X1)\ (u1\_struct\_0\ X0))\wedge((v1\_funct\_1\ (u3\_msualg\_1\ X0\ X1))\wedge(v1\_partfun1\ (u3\_msualg\_1\ X0\ X1)\ (u1\_struct\_0\ X0))))) \tag{3}$$

Assume the following.

$$\forall X0.(l5\_struct\_0\ X0)\Rightarrow(l1\_struct\_0\ X0) \tag{4}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0))\Rightarrow(\forall X1.(l3\_msualg\_1\ X1\ X0)\Rightarrow(l2\_msualg\_1\ X1\ X0)) \tag{5}$$

Assume the following.

$$\forall X0.(l1\_msualg\_1\ X0)\Rightarrow(l5\_struct\_0\ X0) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0)))\wedge((v4\_msualg\_1\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0)))\Rightarrow((v3\_lattices\ (k6\_msualg\_5\ X0\ X1))\wedge(m2\_nat\_lat\ (k6\_msualg\_5\ X0\ X1)\ (k5\_msualg\_5\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)))) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0)))))\Rightarrow((\neg v2\_struct\_0\ (k5\_msualg\_5\ X0\ X1))\wedge((v3\_lattices\ (k5\_msualg\_5\ X0\ X1))\wedge((v10\_lattices\ (k5\_msualg\_5\ X0\ X1))\wedge(l3\_lattices\ (k5\_msualg\_5\ X0\ X1))))) \tag{8}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0)))\Rightarrow(\forall X1.((v4\_msualg\_1\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0))\Rightarrow(\forall X2.((v3\_lattices\ X2)\wedge(m2\_nat\_lat\ X2\ (k5\_msualg\_5\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1))))\Rightarrow((X2 = k6\_msualg\_5\ X0\ X1)\Leftrightarrow(\forall X3.(X3 \in u1\_struct\_0\ X2)\Leftrightarrow((v2\_msualg\_4\ X3\ X0\ X1)\wedge((v3\_msualg\_4\ X3\ X0\ X1)\wedge(m1\_msualg\_4\ X3\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1)))))))) \tag{9}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v10\_lattices\ X0)\wedge(l3\_lattices\ X0)))\Rightarrow(\forall X1.(m2\_nat\_lat\ X1\ X0)\Rightarrow((v1\_msualg\_7\ X1\ X0)\Leftrightarrow(\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X1)))\Rightarrow(k16\_lattice3\ X0\ X2 \in u1\_struct\_0\ X1)))) \tag{10}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0)))\Rightarrow(\forall X1.((v4\_msualg\_1\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0))\Rightarrow(v1\_msualg\_7\ (k6\_msualg\_5\ X0\ X1)\ (k5\_msualg\_5\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1))))$$