t54_msualg_6 (TMMorsHfk3TGRCzvBBCf7tLC45fhBDrFq5m)

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 $m1\_msualg\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $u3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r8\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10\_msualg\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9\_msualg\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8\_msualg\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2\_msualg\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $v3\_msualg\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4\_msualg\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $l2\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l5\_struct\_0 : \iota \Rightarrow o$ be given. Let $k3\_msualg\_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((\neg v11\_struct\_0\ X0) \wedge (l1\_msualg\_1\ X0))) \Rightarrow (\forall X1.((v4\_msualg\_1\ X1\ X0) \wedge (l3\_msualg\_1\ X1\ X0)) \Rightarrow (\forall X2.(m1\_msualg\_4\ X2\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1)) \Rightarrow (\forall X3.((v2\_msualg\_4\ X3\ X0\ X1) \wedge (m1\_msualg\_4\ X3\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1))) \Rightarrow ((r2\_pboole\ (u1\_struct\_0\ X0)\ X2\ X3) \Rightarrow (r2\_pboole\ (u1\_struct\_0\ X0)\ (k9\_msualg\_6\ X0\ X1\ X2)\ X3)))))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((\neg v11\_struct\_0\ X0) \wedge (l1\_msualg\_1\ X0))) \Rightarrow (\forall X1.((v4\_msualg\_1\ X1\ X0) \wedge (l3\_msualg\_1\ X1\ X0)) \Rightarrow (\forall X2.(m1\_msualg\_4\ X2\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1)) \Rightarrow (r2\_pboole\ (u1\_struct\_0\ X0)\ X2\ (k9\_msualg\_6\ X0\ X1\ X2)))) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\Rightarrow(\forall X2.((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ X0))))\Rightarrow(\forall X3.((v1\_relat\_1\ X3)\wedge((v4\_relat\_1\ X3\ X0)\wedge((v1\_funct\_1\ X3)\wedge(v1\_partfun1\ X3\ X0))))\Rightarrow(((r2\_pboole\ X0\ X1\ X2)\wedge(r2\_pboole\ X0\ X2\ X3))\Rightarrow(r2\_pboole\ X0\ X1\ X3))))) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0\ X0)\wedge(((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\wedge((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ X0))))))\Rightarrow((r8\_pboole\ X0\ X1\ X2)\Leftrightarrow(X1 = X2)) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0)))\wedge(((v4\_msualg\_1\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0))\wedge((v3\_msualg\_6\ X2\ X0\ X1)\wedge(m1\_msualg\_4\ X2\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1)))))\Rightarrow((v2\_msualg\_4\ (k9\_msualg\_6\ X0\ X1\ X2)\ X0\ X1)\wedge(v3\_msualg\_6\ (k9\_msualg\_6\ X0\ X1\ X2)\ X0\ X1)) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0)))\wedge(((v4\_msualg\_1\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0))\wedge((v4\_msualg\_6\ X2\ X0\ X1)\wedge(m1\_msualg\_4\ X2\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1)))))\Rightarrow((v2\_msualg\_4\ (k9\_msualg\_6\ X0\ X1\ X2)\ X0\ X1)\wedge(v4\_msualg\_6\ (k9\_msualg\_6\ X0\ X1\ X2)\ X0\ X1)) \tag{6}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_struct\_0\ X0))\Rightarrow(\neg v1\_xboole\_0\ (u1\_struct\_0\ X0)) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.((l1\_struct\_0\ X0)\wedge(l2\_msualg\_1\ X1\ X0))\Rightarrow((v1\_relat\_1\ (u3\_msualg\_1\ X0\ X1))\wedge((v4\_relat\_1\ (u3\_msualg\_1\ X0\ X1)\ (u1\_struct\_0\ X0))\wedge((v1\_funct\_1\ (u3\_msualg\_1\ X0\ X1))\wedge(v1\_partfun1\ (u3\_msualg\_1\ X0\ X1)\ (u1\_struct\_0\ X0))))) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\wedge((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ X0)))))\Rightarrow(\forall X3.(m1\_msualg\_4\ X3\ X0\ X1\ X2)\Rightarrow((v1\_relat\_1\ X3)\wedge((v4\_relat\_1\ X3\ X0)\wedge((v1\_funct\_1\ X3)\wedge(v1\_partfun1\ X3\ X0)))))) \tag{9}$$

Assume the following.

$$\forall X0.(l5\_struct\_0\ X0)\Rightarrow(l1\_struct\_0\ X0) \tag{10}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0))\Rightarrow(\forall X1.(l3\_msualg\_1\ X1\ X0)\Rightarrow(l2\_msualg\_1\ X1\ X0)) \tag{11}$$

Assume the following.

$$\forall X0.(l1\_msualg\_1\ X0)\Rightarrow(l5\_struct\_0\ X0) \tag{12}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0)))\wedge(((v4\_msualg\_1\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0))\wedge(m1\_msualg\_4\ X2\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1))))\Rightarrow((v2\_msualg\_4\ (k9\_msualg\_6\ X0\ X1\ X2)\ X0\ X1)\wedge(m1\_msualg\_4\ (k9\_msualg\_6\ X0\ X1\ X2)\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1))) \tag{13}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0)))\wedge(((v4\_msualg\_1\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0))\wedge(m1\_msualg\_4\ X2\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1))))\Rightarrow((v3\_msualg\_6\ (k8\_msualg\_6\ X0\ X1\ X2)\ X0\ X1)\wedge((v4\_msualg\_6\ (k8\_msualg\_6\ X0\ X1\ X2)\ X0\ X1)\wedge(m1\_msualg\_4\ (k8\_msualg\_6\ X0\ X1\ X2)\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1)))) \tag{14}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0)))\wedge(((v4\_msualg\_1\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0))\wedge(m1\_msualg\_4\ X2\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1))))\Rightarrow((v2\_msualg\_4\ (k10\_msualg\_6\ X0\ X1\ X2)\ X0\ X1)\wedge((v3\_msualg\_6\ (k10\_msualg\_6\ X0\ X1\ X2)\ X0\ X1)\wedge((v4\_msualg\_6\ (k10\_msualg\_6\ X0\ X1\ X2)\ X0\ X1)\wedge(m1\_msualg\_4\ (k10\_msualg\_6\ X0\ X1\ X2)\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1))))) \tag{15}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0)))\Rightarrow(\forall X1.((v4\_msualg\_1\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0))\Rightarrow(\forall X2.(m1\_msualg\_4\ X2\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1))\Rightarrow(\forall X3.((v2\_msualg\_4\ X3\ X0\ X1)\wedge((v3\_msualg\_6\ X3\ X0\ X1)\wedge((v4\_msualg\_6\ X3\ X0\ X1)\wedge(m1\_msualg\_4\ X3\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1)))))\Rightarrow((X3 = k10\_msualg\_6\ X0\ X1\ X2)\Leftrightarrow((r2\_pboole\ (u1\_struct\_0\ X0)\ X2\ X3)\wedge(\forall X4.((v2\_msualg\_4\ X4\ X0\ X1)\wedge((v3\_msualg\_6\ X4\ X0\ X1)\wedge((v4\_msualg\_6\ X4\ X0\ X1)\wedge(m1\_msualg\_4\ X4\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1)))))\Rightarrow((r2\_pboole\ (u1\_struct\_0\ X0)\ X2\ X4)\Rightarrow(r2\_pboole\ (u1\_struct\_0\ X0)\ X3\ X4)))))))) \tag{16}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0)))\Rightarrow(\forall X1.((v4\_msualg\_1\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0))\Rightarrow(\forall X2.(m1\_msualg\_4\ X2\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1))\Rightarrow(k9\_msualg\_6\ X0\ X1\ X2 = k3\_msualg\_5\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ X2))) \tag{17}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0)))\Rightarrow(\forall X1.((v4\_msualg\_1\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0))\Rightarrow(\forall X2.(m1\_msualg\_4\ X2\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1))\Rightarrow(\forall X3.((v3\_msualg\_6\ X3\ X0\ X1)\wedge((v4\_msualg\_6\ X3\ X0\ X1)\wedge(m1\_msualg\_4\ X3\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1))))\Rightarrow((X3 = k8\_msualg\_6\ X0\ X1\ X2)\Leftrightarrow((r2\_pboole\ (u1\_struct\_0\ X0)\ X2\ X3)\wedge(\forall X4.((v3\_msualg\_6\ X4\ X0\ X1)\wedge((v4\_msualg\_6\ X4\ X0\ X1)\wedge(m1\_msualg\_4\ X4\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1))))\Rightarrow((r2\_pboole\ (u1\_struct\_0\ X0)\ X2\ X4)\Rightarrow(r2\_pboole\ (u1\_struct\_0\ X0)\ X3\ X4)))))))) \tag{18}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0)))\Rightarrow(\forall X1.((v4\_msualg\_1\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0))\Rightarrow(\forall X2.(m1\_msualg\_4\ X2\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)\ (u3\_msualg\_1\ X0\ X1))\Rightarrow(r8\_pboole\ (u1\_struct\_0\ X0)\ (k10\_msualg\_6\ X0\ X1\ X2)\ (k9\_msualg\_6\ X0\ X1\ (k8\_msualg\_6\ X0\ X1\ X2)))))$$