t19_instalg1 (TMZJzsWujmtYxYtaFG-YNkbqmGTgLEbWvbZY)

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Let $l1\_msualg\_1 : \iota \Rightarrow o$ be given. Let $v1\_instalg1 : \iota \Rightarrow o$ be given. Let $m1\_instalg1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $r3\_pua2mss1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_relat\_1 : \iota \Rightarrow \iota$ be given. Let $k6\_partfun1 : \iota \Rightarrow \iota$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $u4\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k9\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $u2\_msualg\_1 : \iota \Rightarrow \iota$ be given. Let $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1\_msualg\_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.(v1\_relat\_1\ X1) \Rightarrow ((r1\_tarski\ (k10\_xtuple\_0\ X1)\ X0) \Rightarrow (k3\_relat\_1\ X1\ (k4\_relat\_1\ X0) = X1)) \tag{1}$$

Assume the following.

$$\forall X0.(l1\_msualg\_1\ X0) \Rightarrow (\forall X1.(l1\_msualg\_1\ X1) \Rightarrow (\forall X2.(l1\_msualg\_1\ X2) \Rightarrow (\forall X3.((v1\_relat\_1\ X3) \wedge (v1\_funct\_1\ X3)) \Rightarrow (\forall X4.((v1\_relat\_1\ X4) \wedge (v1\_funct\_1\ X4)) \Rightarrow (\forall X5.((v1\_relat\_1\ X5) \wedge (v1\_funct\_1\ X5)) \Rightarrow (\forall X6.((v1\_relat\_1\ X6) \wedge (v1\_funct\_1\ X6)) \Rightarrow (((r3\_pua2mss1\ X0\ X1\ X3\ X5) \wedge (r3\_pua2mss1\ X1\ X2\ X4\ X6)) \Rightarrow (r3\_pua2mss1\ X0\ X2\ (k3\_relat\_1\ X3\ X4)\ (k3\_relat\_1\ X5\ X6)))))))))) \tag{2}$$

Assume the following.

$$\forall X0.k6\_partfun1\ X0 = k4\_relat\_1\ X0 \tag{3}$$

Assume the following.

$$\forall X0.(v1\_relat\_1\ (k4\_relat\_1\ X0)) \wedge (v1\_funct\_1\ (k4\_relat\_1\ X0)) \tag{4}$$

Assume the following.

$$\forall X0.((v1\_instalg1\ X0) \wedge (l1\_msualg\_1\ X0)) \Rightarrow (\forall X1.(m1\_instalg1\ X1\ X0) \Rightarrow (l1\_msualg\_1\ X1)) \tag{5}$$

Assume the following.

$$\forall X0.((v1\_instalg1\ X0)\wedge(l1\_msualg\_1\ X0))\Rightarrow(\forall X1.\ (l1\_msualg\_1\ X1)\Rightarrow((m1\_instalg1\ X1\ X0)\Leftrightarrow(r3\_pua2mss1\ X1\ X0\ (k6\_partfun1\ (u1\_struct\_0\ X1))\ (k6\_partfun1\ (u4\_struct\_0\ X1))))) \tag{6}$$

Assume the following.

$$\forall X0.(l1\_msualg\_1\ X0)\Rightarrow(\forall X1.(l1\_msualg\_1\ X1)\Rightarrow(\forall X2.\ ((v1\_relat\_1\ X2)\wedge(v1\_funct\_1\ X2))\Rightarrow(\forall X3.((v1\_relat\_1\ X3)\wedge(v1\_funct\_1\ X3))\Rightarrow((r3\_pua2mss1\ X0\ X1\ X2\ X3)\Leftrightarrow((k9\_xtuple\_0\ X2 = u1\_struct\_0\ X0)\wedge((k9\_xtuple\_0\ X3 = u4\_struct\_0\ X0)\wedge((r1\_tarski\ (k10\_xtuple\_0\ X2)\ (u1\_struct\_0\ X1))\wedge((r1\_tarski\ (k10\_xtuple\_0\ X3)\ (u4\_struct\_0\ X1))\wedge((k3\_relat\_1\ (u2\_msualg\_1\ X0)\ X2 = k3\_relat\_1\ X3\ (u2\_msualg\_1\ X1))\wedge(\forall X4.\forall X5.((v1\_relat\_1\ X5)\wedge(v1\_funct\_1\ X5))\Rightarrow(((X4 \in u4\_struct\_0\ X0)\wedge(X5 = k1\_funct\_1\ (u1\_msualg\_1\ X0)\ X4))\Rightarrow(k3\_relat\_1\ X5\ X2 = k1\_funct\_1\ (u1\_msualg\_1\ X1)\ (k1\_funct\_1\ X3\ X4)))))))))))) \tag{7}$$

Theorem 1

$$\forall X0.(l1\_msualg\_1\ X0)\Rightarrow(\forall X1.((v1\_instalg1\ X1)\wedge(l1\_msualg\_1\ X1))\Rightarrow(\forall X2.(m1\_instalg1\ X2\ X1)\Rightarrow(\forall X3.\ ((v1\_relat\_1\ X3)\wedge(v1\_funct\_1\ X3))\Rightarrow(\forall X4.((v1\_relat\_1\ X4)\wedge(v1\_funct\_1\ X4))\Rightarrow((r3\_pua2mss1\ X0\ X2\ X3\ X4)\Rightarrow(r3\_pua2mss1\ X0\ X1\ X3\ X4))))))$$