t19_grcat_1 (TMR4xWcSG4oefWdERa4GhGFw39RcSrmMP8A)

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Let $v1\_grcat\_1 : \iota \Rightarrow o$ be given. Let $v2\_grcat\_1 : \iota \Rightarrow o$ be given. Let $l1\_grcat\_1 : \iota \Rightarrow o$ be given. Let $k7\_grcat\_1 : \iota \Rightarrow \iota$ be given. Let $k8\_grcat\_1 : \iota \Rightarrow \iota$ be given. Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v13\_algstr\_0 : \iota \Rightarrow o$ be given. Let $v3\_rlvect\_1 : \iota \Rightarrow o$ be given. Let $v4\_rlvect\_1 : \iota \Rightarrow o$ be given. Let $l2\_algstr\_0 : \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $g1\_grcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k13\_grcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1\_grcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k14\_grcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u3\_grcat\_1 : \iota \Rightarrow \iota$ be given. Let $u1\_grcat\_1 : \iota \Rightarrow \iota$ be given. Let $u2\_grcat\_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v13\_algstr\_0\ X0) \wedge ((v3\_rlvect\_1\ X0) \wedge ((v4\_rlvect\_1\ X0) \wedge (l2\_algstr\_0\ X0))))) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge ((v13\_algstr\_0\ X1) \wedge ((v3\_rlvect\_1\ X1) \wedge ((v4\_rlvect\_1\ X1) \wedge (l2\_algstr\_0\ X1))))) \Rightarrow (\forall X2.((\neg v2\_struct\_0\ X2) \wedge ((v13\_algstr\_0\ X2) \wedge ((v3\_rlvect\_1\ X2) \wedge ((v4\_rlvect\_1\ X2) \wedge (l2\_algstr\_0\ X2))))) \Rightarrow (\forall X3.(m1\_grcat\_1\ X3\ X1\ X2) \Rightarrow (\forall X4.(m1\_grcat\_1\ X4\ X0\ X1) \Rightarrow (\forall X5.((v1\_funct\_1\ X5) \wedge ((v1\_funct\_2\ X5\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X2)) \wedge (m1\_subset\_1\ X5\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X2)))))) \Rightarrow (\forall X6.((v1\_funct\_1\ X6) \wedge ((v1\_funct\_2\ X6\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)) \wedge (m1\_subset\_1\ X6\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)))))) \Rightarrow (((X3 = g1\_grcat\_1\ X1\ X2\ X5) \wedge (X4 = g1\_grcat\_1\ X0\ X1\ X6)) \Rightarrow (k14\_grcat\_1\ X0\ X1\ X2\ X3\ X4 = g1\_grcat\_1\ X0\ X2\ (k1\_partfun1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X2)\ X6\ X5)))))))))) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((\neg v2\_struct\_0\ X0)\wedge((v13\_algstr\_0\ X0)\wedge((v3\_rlvect\_1\ X0)\wedge((v4\_rlvect\_1\ X0)\wedge(l2\_algstr\_0\ X0)))))\wedge(((\neg v2\_struct\_0\ X1)\wedge((v13\_algstr\_0\ X1)\wedge((v3\_rlvect\_1\ X1)\wedge((v4\_rlvect\_1\ X1)\wedge(l2\_algstr\_0\ X1)))))\wedge(((\neg v2\_struct\_0\ X2)\wedge((v13\_algstr\_0\ X2)\wedge((v3\_rlvect\_1\ X2)\wedge((v4\_rlvect\_1\ X2)\wedge(l2\_algstr\_0\ X2)))))\wedge((m1\_grcat\_1\ X3\ X1\ X2)\wedge(m1\_grcat\_1\ X4\ X0\ X1)))))\Rightarrow(k14\_grcat\_1\ X0\ X1\ X2\ X3\ X4 = k13\_grcat\_1\ X3\ X4) \tag{2}$$

Assume the following.

$$\forall X0.(l1\_grcat\_1\ X0)\Rightarrow((v1\_funct\_1\ (u3\_grcat\_1\ X0))\wedge((v1\_funct\_2\ (u3\_grcat\_1\ X0)\ (u1\_struct\_0\ (u1\_grcat\_1\ X0))\ (u1\_struct\_0\ (u2\_grcat\_1\ X0)))\wedge(m1\_subset\_1\ (u3\_grcat\_1\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ (u1\_grcat\_1\ X0))\ (u1\_struct\_0\ (u2\_grcat\_1\ X0))))))) \tag{3}$$

Assume the following.

$$\forall X0.(l1\_grcat\_1\ X0)\Rightarrow((\neg v2\_struct\_0\ (k8\_grcat\_1\ X0))\wedge((v13\_algstr\_0\ (k8\_grcat\_1\ X0))\wedge((v3\_rlvect\_1\ (k8\_grcat\_1\ X0))\wedge((v4\_rlvect\_1\ (k8\_grcat\_1\ X0))\wedge(l2\_algstr\_0\ (k8\_grcat\_1\ X0)))))) \tag{4}$$

Assume the following.

$$\forall X0.(l1\_grcat\_1\ X0)\Rightarrow((\neg v2\_struct\_0\ (k7\_grcat\_1\ X0))\wedge((v13\_algstr\_0\ (k7\_grcat\_1\ X0))\wedge((v3\_rlvect\_1\ (k7\_grcat\_1\ X0))\wedge((v4\_rlvect\_1\ (k7\_grcat\_1\ X0))\wedge(l2\_algstr\_0\ (k7\_grcat\_1\ X0)))))) \tag{5}$$

Assume the following.

$$\forall X0.(l1\_grcat\_1\ X0)\Rightarrow(k7\_grcat\_1\ X0 = u1\_grcat\_1\ X0) \tag{6}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v13\_algstr\_0\ X0)\wedge((v3\_rlvect\_1\ X0)\wedge((v4\_rlvect\_1\ X0)\wedge(l2\_algstr\_0\ X0)))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((v13\_algstr\_0\ X1)\wedge((v3\_rlvect\_1\ X1)\wedge((v4\_rlvect\_1\ X1)\wedge(l2\_algstr\_0\ X1)))))\Rightarrow(\forall X2.((v2\_grcat\_1\ X2)\wedge(l1\_grcat\_1\ X2))\Rightarrow((m1\_grcat\_1\ X2\ X0\ X1)\Leftrightarrow((k7\_grcat\_1\ X2 = X0)\wedge(k8\_grcat\_1\ X2 = X1))))) \tag{7}$$

Assume the following.

$$\forall X0.(l1\_grcat\_1\ X0)\Rightarrow(k8\_grcat\_1\ X0 = u2\_grcat\_1\ X0) \tag{8}$$

Assume the following.

$$\forall X0.(l1\_grcat\_1\ X0)\Rightarrow((v1\_grcat\_1\ X0)\Rightarrow(X0 = g1\_grcat\_1\ (u1\_grcat\_1\ X0)\ (u2\_grcat\_1\ X0)\ (u3\_grcat\_1\ X0))) \tag{9}$$

Theorem 1

$$\forall X0.((v1\_grcat\_1\ X0)\wedge((v2\_grcat\_1\ X0)\wedge(l1\_grcat\_1\ X0)))\Rightarrow$$
$$(\forall X1.((v1\_grcat\_1\ X1)\wedge((v2\_grcat\_1\ X1)\wedge(l1\_grcat\_1\ X1)))\Rightarrow$$
$$(\neg(k7\_grcat\_1\ X1 = k8\_grcat\_1\ X0)\wedge(\forall X2.((\neg v2\_struct\_0$$
$$X2)\wedge((v13\_algstr\_0\ X2)\wedge((v3\_rlvect\_1\ X2)\wedge((v4\_rlvect\_1\ X2)\wedge$$
$$(l2\_algstr\_0\ X2)))))\Rightarrow(\forall X3.((\neg v2\_struct\_0\ X3)\wedge((v13\_algstr\_0$$
$$X3)\wedge((v3\_rlvect\_1\ X3)\wedge((v4\_rlvect\_1\ X3)\wedge(l2\_algstr\_0\ X3)))))\Rightarrow$$
$$(\forall X4.((\neg v2\_struct\_0\ X4)\wedge((v13\_algstr\_0\ X4)\wedge((v3\_rlvect\_1$$
$$X4)\wedge((v4\_rlvect\_1\ X4)\wedge(l2\_algstr\_0\ X4)))))\Rightarrow(\forall X5.((v1\_funct\_1$$
$$X5)\wedge((v1\_funct\_2\ X5\ (u1\_struct\_0\ X2)\ (u1\_struct\_0\ X3))\wedge(m1\_subset\_1$$
$$X5\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X2)\ (u1\_struct\_0\ X3))))))\Rightarrow$$
$$(\forall X6.((v1\_funct\_1\ X6)\wedge((v1\_funct\_2\ X6\ (u1\_struct\_0\ X3)$$
$$(u1\_struct\_0\ X4))\wedge(m1\_subset\_1\ X6\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1$$
$$(u1\_struct\_0\ X3)\ (u1\_struct\_0\ X4))))))\Rightarrow(\neg(X0 = g1\_grcat\_1\ X2\ X3$$
$$X5)\wedge((X1 = g1\_grcat\_1\ X3\ X4\ X6)\wedge(k13\_grcat\_1\ X1\ X0 = g1\_grcat\_1\ X2$$
$$X4\ (k1\_partfun1\ (u1\_struct\_0\ X2)\ (u1\_struct\_0\ X3)\ (u1\_struct\_0$$
$$X3)\ (u1\_struct\_0\ X4)\ X5\ X6))))))))))$$