t50_circtrm1 (TMU2qU3syPXEkVo4144H2HoKZuuXEdjmgad)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v11\_struct\_0 : \iota \Rightarrow o$ be given. Let $v2\_msafree2 : \iota \Rightarrow o$ be given. Let $l1\_msualg\_1 : \iota \Rightarrow o$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $v4\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4\_msafree2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r5\_circtrm1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4\_card\_3 : \iota \Rightarrow \iota$ be given. Let $u3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r4\_circtrm1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_funct\_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((\neg v11\_struct\_0\ X0) \wedge ((v2\_msafree2\ X0) \wedge (l1\_msualg\_1\ X0)))) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge ((\neg v11\_struct\_0\ X1) \wedge ((v2\_msafree2\ X1) \wedge (l1\_msualg\_1\ X1)))) \Rightarrow (\forall X2.((v1\_relat\_1\ X2) \wedge (v1\_funct\_1\ X2)) \Rightarrow (\forall X3.((v1\_relat\_1\ X3) \wedge (v1\_funct\_1\ X3)) \Rightarrow (\forall X4.((v4\_msualg\_1\ X4\ X0) \wedge ((v4\_msafree2\ X4\ X0) \wedge (l3\_msualg\_1\ X4\ X0))) \Rightarrow (\forall X5.((v4\_msualg\_1\ X5\ X1) \wedge ((v4\_msafree2\ X5\ X1) \wedge (l3\_msualg\_1\ X5\ X1))) \Rightarrow ((r4\_circtrm1\ X0\ X1\ X2\ X3\ X4\ X5) \Rightarrow (\forall X6.(m1\_subset\_1\ X6\ (k4\_card\_3\ (u3\_msualg\_1\ X1\ X5))) \Rightarrow (m1\_subset\_1\ (k3\_relat\_1\ X2\ X6)\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X4))))))))))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l1\_msualg\_1\ X0)) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge (l1\_msualg\_1\ X1)) \Rightarrow (\forall X2.((v1\_relat\_1\ X2) \wedge (v1\_funct\_1\ X2)) \Rightarrow (\forall X3.((v1\_relat\_1\ X3) \wedge (v1\_funct\_1\ X3)) \Rightarrow (\forall X4.((v4\_msualg\_1\ X4\ X0) \wedge (l3\_msualg\_1\ X4\ X0)) \Rightarrow (\forall X5.((v4\_msualg\_1\ X5\ X1) \wedge (l3\_msualg\_1\ X5\ X1)) \Rightarrow ((r5\_circtrm1\ X0\ X1\ X2\ X3\ X4\ X5) \Leftrightarrow ((r4\_circtrm1\ X0\ X1\ X2\ X3\ X4\ X5) \wedge (r4\_circtrm1\ X1\ X0\ (k2\_funct\_1\ X2)\ (k2\_funct\_1\ X3)\ X5\ X4)))))))) \tag{2}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_msafree2\ X0)\wedge(l1\_msualg\_1\ X0))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge((v2\_msafree2\ X1)\wedge(l1\_msualg\_1\ X1))))\Rightarrow(\forall X2.((v1\_relat\_1\ X2)\wedge(v1\_funct\_1\ X2))\Rightarrow(\forall X3.((v1\_relat\_1\ X3)\wedge(v1\_funct\_1\ X3))\Rightarrow(\forall X4.((v4\_msualg\_1\ X4\ X0)\wedge((v4\_msafree2\ X4\ X0)\wedge(l3\_msualg\_1\ X4\ X0)))\Rightarrow(\forall X5.((v4\_msualg\_1\ X5\ X1)\wedge((v4\_msafree2\ X5\ X1)\wedge(l3\_msualg\_1\ X5\ X1)))\Rightarrow((r5\_circtrm1\ X0\ X1\ X2\ X3\ X4\ X5)\Rightarrow(\forall X6.(m1\_subset\_1\ X6\ (k4\_card\_3\ (u3\_msualg\_1\ X1\ X5)))\Rightarrow(m1\_subset\_1\ (k3\_relat\_1\ X2\ X6)\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X4)))))))))))$$