t18_circcmb2 (TMJca-NurH4PYbVU7zwMR4yR26XZiFfQNwNd)

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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 $r1\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_msafree2 : \iota \Rightarrow \iota$ be given. Let $k3\_msafree2 : \iota \Rightarrow \iota$ be given. Let $k2\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $r2\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $v1\_circuit2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v7\_ordinal1 : \iota \Rightarrow o$ be given. Let $k5\_facirc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6\_circuit2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np\_\_1 : \iota$ be given. Let $k6\_numbers : \iota$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((\neg v11\_struct\_0\ X0) \wedge ((v2\_msafree2\ X0) \wedge (l1\_msualg\_1\ X0)))) \Rightarrow (\forall X1.((v4\_msualg\_1\ X1\ X0) \wedge ((v4\_msafree2\ X1\ X0) \wedge (l3\_msualg\_1\ X1\ X0))) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X1))) \Rightarrow ((v1\_circuit2\ X2\ X0\ X1) \Rightarrow (\forall X3.(v7\_ordinal1\ X3) \Rightarrow (k5\_facirc\_1\ X0\ X1\ X2\ X3 = X2))))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_msafree2\ X0)\wedge(l1\_msualg\_1\ X0))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge((v2\_msafree2\ X1)\wedge(l1\_msualg\_1\ X1))))\Rightarrow(\forall X2.((\neg v2\_struct\_0\ X2)\wedge((\neg v11\_struct\_0\ X2)\wedge((v2\_msafree2\ X2)\wedge(l1\_msualg\_1\ X2))))\Rightarrow(((r1\_xboole\_0\ (k2\_msafree2\ X0)\ (k3\_msafree2\ X1))\wedge(X2 = k2\_circcomb\ X0\ X1))\Rightarrow(\forall X3.((v4\_msualg\_1\ X3\ X0)\wedge((v4\_msafree2\ X3\ X0)\wedge(l3\_msualg\_1\ X3\ X0)))\Rightarrow(\forall X4.((v4\_msualg\_1\ X4\ X1)\wedge((v4\_msafree2\ X4\ X1)\wedge(l3\_msualg\_1\ X4\ X1)))\Rightarrow(\forall X5.((v4\_msualg\_1\ X5\ X2)\wedge((v4\_msafree2\ X5\ X2)\wedge(l3\_msualg\_1\ X5\ X2)))\Rightarrow(((r2\_circcomb\ X0\ X1\ X3\ X4)\wedge(X5 = k3\_circcomb\ X0\ X1\ X3\ X4))\Rightarrow(\forall X6.(m1\_subset\_1\ X6\ (k4\_card\_3\ (u3\_msualg\_1\ X2\ X5)))\Rightarrow(\forall X7.(m1\_subset\_1\ X7\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X3)))\Rightarrow(((X7 = k5\_relat\_1\ X6\ (u1\_struct\_0\ X0))\wedge(v1\_circuit2\ X7\ X0\ X3))\Rightarrow(\forall X8.(m1\_subset\_1\ X8\ (k4\_card\_3\ (u3\_msualg\_1\ X1\ X4)))\Rightarrow((X8 = k5\_relat\_1\ X6\ (u1\_struct\_0\ X1))\Rightarrow(k5\_relat\_1\ (k6\_circuit2\ X2\ X5\ X6)\ (u1\_struct\_0\ X1) = k6\_circuit2\ X1\ X4\ X8)))))))))))) \tag{2}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_msafree2\ X0)\wedge(l1\_msualg\_1\ X0))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge((v2\_msafree2\ X1)\wedge(l1\_msualg\_1\ X1))))\Rightarrow(\forall X2.((\neg v2\_struct\_0\ X2)\wedge((\neg v11\_struct\_0\ X2)\wedge((v2\_msafree2\ X2)\wedge(l1\_msualg\_1\ X2))))\Rightarrow(((r1\_xboole\_0\ (k2\_msafree2\ X0)\ (k3\_msafree2\ X1))\wedge(X2 = k2\_circcomb\ X0\ X1))\Rightarrow(\forall X3.((v4\_msualg\_1\ X3\ X0)\wedge((v4\_msafree2\ X3\ X0)\wedge(l3\_msualg\_1\ X3\ X0)))\Rightarrow(\forall X4.((v4\_msualg\_1\ X4\ X1)\wedge((v4\_msafree2\ X4\ X1)\wedge(l3\_msualg\_1\ X4\ X1)))\Rightarrow(\forall X5.((v4\_msualg\_1\ X5\ X2)\wedge((v4\_msafree2\ X5\ X2)\wedge(l3\_msualg\_1\ X5\ X2)))\Rightarrow(((r2\_circcomb\ X0\ X1\ X3\ X4)\wedge(X5 = k3\_circcomb\ X0\ X1\ X3\ X4))\Rightarrow(\forall X6.(m1\_subset\_1\ X6\ (k4\_card\_3\ (u3\_msualg\_1\ X2\ X5)))\Rightarrow(\forall X7.(m1\_subset\_1\ X7\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X3)))\Rightarrow((X7 = k5\_relat\_1\ X6\ (u1\_struct\_0\ X0))\Rightarrow(\forall X8.(v7\_ordinal1\ X8)\Rightarrow(k5\_relat\_1\ (k5\_facirc\_1\ X2\ X5\ X6\ X8)\ (u1\_struct\_0\ X0) = k5\_facirc\_1\ X0\ X3\ X7\ X8)))))))))))) \tag{3}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_msafree2\ X0)\wedge(l1\_msualg\_1\ X0))))\Rightarrow(\forall X1.((v4\_msualg\_1\ X1\ X0)\wedge((v4\_msafree2\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0)))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X1)))\Rightarrow(\forall X3.(v7\_ordinal1\ X3)\Rightarrow(k5\_facirc\_1\ X0\ X1\ X2\ (k1\_nat\_1\ X3\ np\_\_1) = k6\_circuit2\ X0\ X1\ (k5\_facirc\_1\ X0\ X1\ X2\ X3))))) \tag{4}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_msafree2\ X0)\wedge(l1\_msualg\_1\ X0))))\Rightarrow(\forall X1.((v4\_msualg\_1\ X1\ X0)\wedge((v4\_msafree2\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0)))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X1)))\Rightarrow(k5\_facirc\_1\ X0\ X1\ X2\ k6\_numbers = X2))) \tag{5}$$

Assume the following.

$$\forall X0 : \iota\Rightarrow o.((X0\ k6\_numbers)\wedge(\forall X1.(v7\_ordinal1\ X1)\Rightarrow((X0\ X1)\Rightarrow(X0\ (k1\_nat\_1\ X1\ np\_\_1)))))\Rightarrow(\forall X1.(v7\_ordinal1\ X1)\Rightarrow(X0\ X1)) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_msafree2\ X0)\wedge(l1\_msualg\_1\ X0))))\wedge(((v4\_msualg\_1\ X1\ X0)\wedge((v4\_msafree2\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0)))\wedge((m1\_subset\_1\ X2\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X1)))\wedge(v7\_ordinal1\ X3))))\Rightarrow(m1\_subset\_1\ (k5\_facirc\_1\ X0\ X1\ X2\ X3)\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X1))) \tag{7}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_msafree2\ X0)\wedge(l1\_msualg\_1\ X0))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge((v2\_msafree2\ X1)\wedge(l1\_msualg\_1\ X1))))\Rightarrow(\forall X2.((\neg v2\_struct\_0\ X2)\wedge((\neg v11\_struct\_0\ X2)\wedge((v2\_msafree2\ X2)\wedge(l1\_msualg\_1\ X2))))\Rightarrow(((r1\_xboole\_0\ (k2\_msafree2\ X0)\ (k3\_msafree2\ X1))\wedge(X2 = k2\_circcomb\ X0\ X1))\Rightarrow(\forall X3.((v4\_msualg\_1\ X3\ X0)\wedge((v4\_msafree2\ X3\ X0)\wedge(l3\_msualg\_1\ X3\ X0)))\Rightarrow(\forall X4.((v4\_msualg\_1\ X4\ X1)\wedge((v4\_msafree2\ X4\ X1)\wedge(l3\_msualg\_1\ X4\ X1)))\Rightarrow(\forall X5.((v4\_msualg\_1\ X5\ X2)\wedge((v4\_msafree2\ X5\ X2)\wedge(l3\_msualg\_1\ X5\ X2)))\Rightarrow(((r2\_circcomb\ X0\ X1\ X3\ X4)\wedge(X5 = k3\_circcomb\ X0\ X1\ X3\ X4))\Rightarrow(\forall X6.(m1\_subset\_1\ X6\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X3)))\Rightarrow(\forall X7.(m1\_subset\_1\ X7\ (k4\_card\_3\ (u3\_msualg\_1\ X1\ X4)))\Rightarrow(\forall X8.(m1\_subset\_1\ X8\ (k4\_card\_3\ (u3\_msualg\_1\ X2\ X5)))\Rightarrow(((X6 = k5\_relat\_1\ X8\ (u1\_struct\_0\ X0))\wedge((X7 = k5\_relat\_1\ X8\ (u1\_struct\_0\ X1))\wedge(v1\_circuit2\ X6\ X0\ X3)))\Rightarrow(\forall X9.(v7\_ordinal1\ X9)\Rightarrow(k5\_relat\_1\ (k5\_facirc\_1\ X2\ X5\ X8\ X9)\ (u1\_struct\_0\ X1) = k5\_facirc\_1\ X1\ X4\ X7\ X9)))))))))))))$$