t25_facirc_1 (TMMkoNXepXGsB-MXsyzyrEeZpU2SyKoGuQfr)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v11\_struct\_0 : \iota \Rightarrow o$ be given. Let $v1\_circcomb : \iota \Rightarrow o$ be given. Let $v2\_circcomb : \iota \Rightarrow o$ be given. Let $v3\_circcomb : \iota \Rightarrow o$ be given. Let $l1\_msualg\_1 : \iota \Rightarrow o$ be given. Let $v4\_msafree2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v6\_circcomb : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l1\_msualg\_1\ X0)) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge (l1\_msualg\_1\ X1)) \Rightarrow (\forall X2.(l3\_msualg\_1\ X2\ X0) \Rightarrow (\forall X3.(l3\_msualg\_1\ X3\ X1) \Rightarrow (((v6\_circcomb\ X2\ X0) \wedge (v6\_circcomb\ X3\ X1)) \Rightarrow (r1\_partfun1\ (u3\_msualg\_1\ X0\ X2)\ (u3\_msualg\_1\ X1\ X3))))))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l1\_msualg\_1\ X0)) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge (l1\_msualg\_1\ X1)) \Rightarrow (\forall X2.((\neg v2\_struct\_0\ X2) \wedge (l1\_msualg\_1\ X2)) \Rightarrow (\forall X3.((v4\_msualg\_1\ X3\ X0) \wedge (l3\_msualg\_1\ X3\ X0)) \Rightarrow (\forall X4.((v4\_msualg\_1\ X4\ X1) \wedge (l3\_msualg\_1\ X4\ X1)) \Rightarrow (\forall X5.((v4\_msualg\_1\ X5\ X2) \wedge (l3\_msualg\_1\ X5\ X2)) \Rightarrow (((r1\_partfun1\ (u3\_msualg\_1\ X0\ X3)\ (u3\_msualg\_1\ X1\ X4)) \wedge (r1\_partfun1\ (u3\_msualg\_1\ X1\ X4)\ (u3\_msualg\_1\ X2\ X5)) \wedge (r1\_partfun1\ (u3\_msualg\_1\ X2\ X5)\ (u3\_msualg\_1\ X0\ X3)))) \Rightarrow (k3\_circcomb\ (k2\_circcomb\ X0\ X1)\ X2\ (k3\_circcomb\ X0\ X1\ X3\ X4)\ X5 = k3\_circcomb\ X0\ (k2\_circcomb\ X1\ X2)\ X3\ (k3\_circcomb\ X1\ X2\ X4\ X5)))))))) \tag{2}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l1\_msualg\_1\ X0)) \Rightarrow (\forall X1.(l3\_msualg\_1\ X1\ X0) \Rightarrow ((v6\_circcomb\ X1\ X0) \Rightarrow ((v4\_msualg\_1\ X1\ X0) \wedge (v4\_msafree2\ X1\ X0)))) \tag{3}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v1\_circcomb\ X0)\wedge((v2\_circcomb\ X0)\wedge((v3\_circcomb\ X0)\wedge(l1\_msualg\_1\ X0))))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge((v1\_circcomb\ X1)\wedge((v2\_circcomb\ X1)\wedge((v3\_circcomb\ X1)\wedge(l1\_msualg\_1\ X1))))))\Rightarrow(\forall X2.((\neg v2\_struct\_0\ X2)\wedge((\neg v11\_struct\_0\ X2)\wedge((v1\_circcomb\ X2)\wedge((v2\_circcomb\ X2)\wedge((v3\_circcomb\ X2)\wedge(l1\_msualg\_1\ X2))))))\Rightarrow(\forall X3.((v4\_msafree2\ X3\ X0)\wedge((v6\_circcomb\ X3\ X0)\wedge(l3\_msualg\_1\ X3\ X0)))\Rightarrow(\forall X4.((v4\_msafree2\ X4\ X1)\wedge((v6\_circcomb\ X4\ X1)\wedge(l3\_msualg\_1\ X4\ X1)))\Rightarrow(\forall X5.((v4\_msafree2\ X5\ X2)\wedge((v6\_circcomb\ X5\ X2)\wedge(l3\_msualg\_1\ X5\ X2)))\Rightarrow(k3\_circcomb\ (k2\_circcomb\ X0\ X1)\ X2\ (k3\_circcomb\ X0\ X1\ X3\ X4)\ X5 = k3\_circcomb\ X0\ (k2\_circcomb\ X1\ X2)\ X3\ (k3\_circcomb\ X1\ X2\ X4\ X5)))))))$$