t31_semi_af1 (TMcTzp-WUg2e44DxWKCHaJNC2J85uUDG8b37)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v1\_semi\_af1 : \iota \Rightarrow o$ be given. Let $l1\_analoaf : \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $r1\_semi\_af1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2\_analoaf : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v1\_semi\_af1\ X0) \wedge (l1\_analoaf\ X0))) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X0)) \Rightarrow ((r2\_analoaf\ X0\ X1\ X2\ X3\ X4) \Rightarrow ((r2\_analoaf\ X0\ X2\ X1\ X3\ X4) \wedge ((r2\_analoaf\ X0\ X1\ X2\ X4\ X3) \wedge ((r2\_analoaf\ X0\ X2\ X1\ X4\ X3) \wedge ((r2\_analoaf\ X0\ X3\ X4\ X1\ X2) \wedge ((r2\_analoaf\ X0\ X4\ X3\ X1\ X2) \wedge ((r2\_analoaf\ X0\ X3\ X4\ X2\ X1) \wedge (r2\_analoaf\ X0\ X4\ X3\ X2\ X1)))))))))))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v1\_semi\_af1\ X0) \wedge (l1\_analoaf\ X0))) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X0)) \Rightarrow (((r1\_semi\_af1\ X0\ X1\ X2\ X3) \wedge (r1\_semi\_af1\ X0\ X1\ X2\ X4)) \Rightarrow (r2\_analoaf\ X0\ X1\ X2\ X3\ X4)))))) \tag{2}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_analoaf\ X0))\Rightarrow((v1\_semi\_af1\ X0)\Leftrightarrow((\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(r2\_analoaf\ X0\ X1\ X2\ X2\ X1)))\wedge((\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(r2\_analoaf\ X0\ X1\ X2\ X3\ X3))))\wedge((\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X0))\Rightarrow(\forall X5.(m1\_subset\_1\ X5\ (u1\_struct\_0\ X0))\Rightarrow(\forall X6.(m1\_subset\_1\ X6\ (u1\_struct\_0\ X0))\Rightarrow(((r2\_analoaf\ X0\ X1\ X2\ X3\ X4)\wedge(r2\_analoaf\ X0\ X1\ X2\ X5\ X6))\Rightarrow((X1=X2)\vee(r2\_analoaf\ X0\ X3\ X4\ X5\ X6)))))))))\wedge((\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow((r2\_analoaf\ X0\ X1\ X2\ X1\ X3)\Rightarrow(r2\_analoaf\ X0\ X2\ X1\ X2\ X3)))))\wedge((\neg\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(r2\_analoaf\ X0\ X1\ X2\ X1\ X3))))\wedge((\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\exists X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\wedge((r2\_analoaf\ X0\ X1\ X2\ X3\ X4)\wedge(r2\_analoaf\ X0\ X1\ X3\ X2\ X4))))))\wedge((\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\exists X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\wedge(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X0))\Rightarrow(\forall X5.(m1\_subset\_1\ X5\ (u1\_struct\_0\ X0))\Rightarrow((r2\_analoaf\ X0\ X1\ X2\ X1\ X3)\wedge(\neg\forall X6.(m1\_subset\_1\ X6\ (u1\_struct\_0\ X0))\Rightarrow((r2\_analoaf\ X0\ X1\ X3\ X1\ X4)\wedge(\neg(r2\_analoaf\ X0\ X1\ X5\ X1\ X6)\wedge(r2\_analoaf\ X0\ X3\ X5\ X4\ X6))))))))))\wedge((\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X0))\Rightarrow(\forall X5.(m1\_subset\_1\ X5\ (u1\_struct\_0\ X0))\Rightarrow(\forall X6.(m1\_subset\_1\ X6\ (u1\_struct\_0\ X0))\Rightarrow(\forall X7.(m1\_subset\_1\ X7\ (u1\_struct\_0\ X0))\Rightarrow(((r2\_analoaf\ X0\ X1\ X2\ X1\ X3)\wedge((r2\_analoaf\ X0\ X1\ X4\ X1\ X5)\wedge((r2\_analoaf\ X0\ X1\ X6\ X1\ X7)\wedge((r2\_analoaf\ X0\ X2\ X4\ X3\ X5)\wedge(r2\_analoaf\ X0\ X2\ X6\ X3\ X7)))))\Rightarrow((r2\_analoaf\ X0\ X1\ X2\ X1\ X4)\vee((r2\_analoaf\ X0\ X1\ X2\ X1\ X6)\vee(r2\_analoaf\ X0\ X4\ X6\ X5\ X7)))))))))))\wedge((\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X0))\Rightarrow(\forall X5.(m1\_subset\_1\ X5\ (u1\_struct\_0\ X0))\Rightarrow(\forall X6.(m1\_subset\_1\ X6\ (u1\_struct\_0\ X0))\Rightarrow(((r2\_analoaf\ X0\ X1\ X2\ X3\ X4)\wedge((r2\_analoaf\ X0\ X1\ X2\ X5\ X6)\wedge((r2\_analoaf\ X0\ X1\ X3\ X2\ X4)\wedge(r2\_analoaf\ X0\ X1\ X5\ X2\ X6))))\Rightarrow((r2\_analoaf\ X0\ X1\ X2\ X1\ X3)\vee((r2\_analoaf\ X0\ X1\ X2\ X1\ X5)\vee(r2\_analoaf\ X0\ X3\ X5\ X4\ X6)))))))))\wedge((\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X0))\Rightarrow(\forall X5.(m1\_subset\_1\ X5\ (u1\_struct\_0\ X0))\Rightarrow(\forall X6.(m1\_subset\_1\ X6\ (u1\_struct\_0\ X0))\Rightarrow(((r2\_analoaf\ X0\ X1\ X2\ X1\ X3)\wedge((r2\_analoaf\ X0\ X4\ X5\ X4\ X6)\wedge((r2\_analoaf\ X0\ X1\ X5\ X2\ X4)\wedge(r2\_analoaf\ X0\ X2\ X6\ X3\ X5))))\Rightarrow(r2\_analoaf\ X0\ X3\ X4\ X1\ X6)))))))\wedge((\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X0))\Rightarrow(\neg(\neg r2\_analoaf\ X0\ X1\ X2\ X1\ X3)\wedge((r2\_analoaf\ X0\ X1\ X2\ X3\ X4)\wedge((r2\_analoaf\ X0\ X1\ X3\ X2\ X4)\wedge(r2\_analoaf\ X0\ X1\ X4\ X2\ X3))))))))))))))))))))) \tag{3}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v1\_semi\_af1\ X0)\wedge(l1\_analoaf\ X0)))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X0))\Rightarrow(\forall X5.(m1\_subset\_1\ X5\ (u1\_struct\_0\ X0))\Rightarrow(\forall X6.(m1\_subset\_1\ X6\ (u1\_struct\_0\ X0))\Rightarrow(((r1\_semi\_af1\ X0\ X1\ X2\ X5)\wedge((r1\_semi\_af1\ X0\ X1\ X2\ X6)\wedge((r1\_semi\_af1\ X0\ X3\ X4\ X5)\wedge(r1\_semi\_af1\ X0\ X3\ X4\ X6))))\Rightarrow((r2\_analoaf\ X0\ X1\ X2\ X3\ X4)\vee(X5 = X6)))))))))$$