

t88\_semi\_af1  
(TMPHv8VAF3L3rNgzqYpiJfczxd1KBPSnJs3)

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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  $r2\_analoaf : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_semi\_af1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_semi\_af1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_semi\_af1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v1\_semi\_af1 X0) \wedge (l1\_analoaf \\ & X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\ & (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow \\ & (r2\_analoaf X0 X1 X2 (k1\_semi\_af1 X0 X1 X3 X4) (k1\_semi\_af1 X0 X2 X3 \\ & X4)))))) \end{aligned} \tag{1}$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v2\_struct\_0 \\ & X0) \wedge ((v1\_semi\_af1 X0) \wedge (l1\_analoaf X0))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 \\ & X0)) \wedge ((m1\_subset\_1 X2 (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X3 (u1\_struct\_0 \\ & X0)))) \Rightarrow (m1\_subset\_1 (k3\_semi\_af1 X0 X1 X2 X3) (u1\_struct\_0 X0)) \end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0)\wedge((v1\_semi\_af1 X0)\wedge(l1\_analoaf X0)))\wedge((m1\_subset\_1 X1 (u1\_struct\_0 X0))\wedge(m1\_subset\_1 X2 (u1\_struct\_0 X0))))\Rightarrow(m1\_subset\_1 (k2\_semi\_af1 X0 X1 X2) (u1\_struct\_0 X0))) \quad (4)$$

Assume the following.

$$\forall X0.(((\neg v2\_struct\_0 X0)\wedge((v1\_semi\_af1 X0)\wedge(l1\_analoaf X0)))\Rightarrow(\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0))\Rightarrow(k3\_semi\_af1 X0 X1 X2 X3 = k1\_semi\_af1 X0 X1 (k2\_semi\_af1 X0 X2 X3) X3)))))) \quad (5)$$

Assume the following.

$$\forall X0.(((\neg v2\_struct\_0 X0)\wedge((v1\_semi\_af1 X0)\wedge(l1\_analoaf X0)))\Rightarrow(\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0))\Rightarrow(((X3 = k2\_semi\_af1 X0 X1 X2)\Leftrightarrow(k1\_semi\_af1 X0 X1 X3 X2 = X2))))))) \quad (6)$$

**Theorem 1**

$$\forall X0.(((\neg v2\_struct\_0 X0)\wedge((v1\_semi\_af1 X0)\wedge(l1\_analoaf X0)))\Rightarrow(\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0))\Rightarrow(r2\_analoaf X0 X1 (k3\_semi\_af1 X0 X2 X3 X1) X3 X2))))))$$