

t62_bcialg_1
(TMF55TC5x14TqZY6w6evBh4UdQUAh5C6G9K)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v3_bcialg_1 : \iota \Rightarrow o$ be given. Let $v4_bcialg_1 : \iota \Rightarrow o$ be given. Let $v5_bcialg_1 : \iota \Rightarrow o$ be given. Let $v7_bcialg_1 : \iota \Rightarrow o$ be given. Let $l2_bcialg_1 : \iota \Rightarrow o$ be given. Let $v19_bcialg_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k2_bcialg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_bcialg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l2_struct_0 : \iota \Rightarrow o$ be given. Let $u2_struct_0 : \iota \Rightarrow \iota$ be given. Let $l1_bcialg_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ & X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\ & (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. (m1_subset_1 \\ & X2 (u1_struct_0 X0)) \Rightarrow (k2_bcialg_1 X0 (k1_bcialg_1 X0 X1 X2) = k1_bcialg_1 \\ & X0 (k2_bcialg_1 X0 X1) (k2_bcialg_1 X0 X2)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ & X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\ & ((v19_bcialg_1 X0) \Leftrightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (k2_bcialg_1 X0 (k2_bcialg_1 X0 X1) = X1))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l2_bcialg_1 X0)) \Rightarrow (((\neg v2_struct_0 \\ & X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 X0) \wedge ((v5_bcialg_1 X0) \wedge \\ & ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Leftrightarrow ((v5_bcialg_1 X0) \wedge \\ & ((v7_bcialg_1 X0) \wedge (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow \\ & (\forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. (m1_subset_1 \\ & X3 (u1_struct_0 X0)) \Rightarrow ((k1_bcialg_1 X0 (k1_bcialg_1 X0 (k1_bcialg_1 \\ & X0 X1 X2) (k1_bcialg_1 X0 X1 X3)) (k1_bcialg_1 X0 X3 X2) = k4_struct_0 \\ & X0) \wedge (k1_bcialg_1 X0 (k1_bcialg_1 X0 X1 (k1_bcialg_1 X0 X1 X2)) X2 = \\ & k4_struct_0 X0)))))))) \end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.\exists X1.m1_subset_1 X1 X0 \quad (4)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0)\Rightarrow(m1_subset_1 (u2_struct_0 X0) (u1_struct_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.(l2_bcialg_1 X0)\Rightarrow((l1_bcialg_1 X0)\wedge(l2_struct_0 X0)) \quad (6)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0)\Rightarrow(m1_subset_1 (k4_struct_0 X0) (u1_struct_0 X0)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(l2_bcialg_1 X0))\wedge(m1_subset_1 X1 (u1_struct_0 X0)))\Rightarrow(m1_subset_1 (k2_bcialg_1 X0 X1) (u1_struct_0 X0)) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((l1_bcialg_1 X0)\wedge((m1_subset_1 X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 X0))))\Rightarrow(m1_subset_1 (k1_bcialg_1 X0 X1 X2) (u1_struct_0 X0)) \quad (9)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l2_bcialg_1 X0))\Rightarrow((v7_bcialg_1 X0)\Leftrightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow(((k1_bcialg_1 X0 X1 X2 = k4_struct_0 X0)\wedge(k1_bcialg_1 X0 X2 X1 = k4_struct_0 X0))\Rightarrow(X1 = X2)))))) \quad (10)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0)\Rightarrow(k4_struct_0 X0 = u2_struct_0 X0) \quad (11)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l2_bcialg_1 X0))\Rightarrow((v5_bcialg_1 X0)\Leftrightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(k1_bcialg_1 X0 X1 X1 = k4_struct_0 X0))) \quad (12)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l2_bcialg_1 X0))\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(k2_bcialg_1 X0 X1 = k1_bcialg_1 X0 (k4_struct_0 X0) X1)) \quad (13)$$

Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ & X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\ & ((v19_bcialg_1 X0) \Leftrightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow ((k2_bcialg_1 X0 X1 = k4_struct_0 X0) \Rightarrow (X1 = k4_struct_0 X0)))) \end{aligned}$$