

t50_bcialg_4

(TMYvuMZ6i7DUiR6fT9Zh3TUi6pQ1kRhgcS1)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_bcialg_4 : \iota \Rightarrow o$ 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 $v8_bcialg_1 : \iota \Rightarrow o$ be given. Let $v2_bcialg_4 : \iota \Rightarrow o$ be given. Let $v4_bcialg_4 : \iota \Rightarrow o$ be given. Let $v5_bcialg_4 : \iota \Rightarrow o$ be given. Let $v6_bcialg_4 : \iota \Rightarrow o$ be given. Let $v7_bcialg_4 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_bcialg_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_bcialg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $u1_bcialg_4 : \iota \Rightarrow \iota$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $l2_bcialg_1 : \iota \Rightarrow o$ be given. Let $l1_bcialg_1 : \iota \Rightarrow o$ be given. Let $l2_struct_0 : \iota \Rightarrow o$ be given. Let $k5_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k2_bcialg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2_struct_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ &X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge ((v2_bcialg_4 X0) \wedge \\ &(l1_bcialg_4 X0))))))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 \\ &X0)) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_4 \\ &X0 X1 X2 = k1_bcialg_4 X0 X2 X1))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ &X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge ((v8_bcialg_1 X0) \wedge \\ &((v2_bcialg_4 X0) \wedge (l1_bcialg_4 X0)))))))) \Rightarrow ((v4_bcialg_4 X0) \Leftrightarrow \\ &(\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. (m1_subset_1 \\ &X2 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_4 X0 X1 X2 = k1_bcialg_4 X0 X1 (k1_bcialg_1 \\ &X0 X2 X1)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge ((v8_bcialg_1 X0) \wedge \\ ((v2_bcialg_4 X0) \wedge (l1_bcialg_4 X0))))))) \Rightarrow ((v4_bcialg_4 X0) \Leftrightarrow \\ (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_4 X0 \\ X1 X1 = X1))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_bcialg_4 X0) \Rightarrow ((v1_funct_1 (u1_bcialg_4 X0)) \wedge \\ ((v1_funct_2 (u1_bcialg_4 X0) (k2_zfmisc_1 (u1_struct_0 X0) (\\ u1_struct_0 X0)) (u1_struct_0 X0)) \wedge (m1_subset_1 (u1_bcialg_4 \\ X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (\\ u1_struct_0 X0)) (u1_struct_0 X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.(l2_bcialg_1 X0) \Rightarrow ((l1_bcialg_1 X0) \wedge (l2_struct_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.(l1_bcialg_4 X0) \Rightarrow ((l2_bcialg_1 X0) \wedge (l2_struct_0 X0)) \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.(((v1_funct_1 X1) \wedge \\ ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))) \wedge ((m1_subset_1 X2 X0) \wedge \\ (m1_subset_1 X3 X0))) \Rightarrow (m1_subset_1 (k5_binop_1 X0 X1 X2 X3) X0)) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0) \Rightarrow (m1_subset_1 (k4_struct_0 X0) (u1_struct_0 X0)) \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge (l2_bcialg_1 X0)) \wedge \\ (m1_subset_1 X1 (u1_struct_0 X0))) \Rightarrow (m1_subset_1 (k2_bcialg_1 \\ X0 X1) (u1_struct_0 X0)) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((l1_bcialg_4 X0) \wedge ((m1_subset_1 \\ X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow (m1_subset_1 \\ (k1_bcialg_4 X0 X1 X2) (u1_struct_0 X0)) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((l1_bcialg_1 X0)\wedge((m1_subset_1 X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 X0))))\Rightarrow(m1_subset_1 (k1_bcialg_1 X0 X1 X2) (u1_struct_0 X0)) \quad (11)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l2_bcialg_1 X0))\Rightarrow((v8_bcialg_1 X0)\Leftrightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(k2_bcialg_1 X0 X1 = k4_struct_0 X0))) \quad (12)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l2_bcialg_1 X0))\Rightarrow((v7_bcialg_1 X0)\Leftrightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow(((k1_bcialg_1 X0 X1 X2 = k4_struct_0 X0)\wedge(k1_bcialg_1 X0 X2 X1 = k4_struct_0 X0))\Rightarrow(X1 = X2)))))) \quad (13)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0)\Rightarrow(k4_struct_0 X0 = u2_struct_0 X0) \quad (14)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l2_bcialg_1 X0))\Rightarrow((v5_bcialg_1 X0)\Leftrightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(k1_bcialg_1 X0 X1 X1 = k4_struct_0 X0))) \quad (15)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l2_bcialg_1 X0))\Rightarrow((v4_bcialg_1 X0)\Leftrightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow(\forall X3.(m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow(k1_bcialg_1 X0 (k1_bcialg_1 X0 (k1_bcialg_1 X0 X1 X2) X3) (k1_bcialg_1 X0 (k1_bcialg_1 X0 X1 X3) X2) = k4_struct_0 X0)))))) \quad (16)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l2_bcialg_1 X0))\Rightarrow((v3_bcialg_1 X0)\Leftrightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow(\forall X3.(m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow(k1_bcialg_1 X0 (k1_bcialg_1 X0 (k1_bcialg_1 X0 X1 X2) (k1_bcialg_1 X0 X3 X2)) (k1_bcialg_1 X0 X1 X3) = k4_struct_0 X0)))))) \quad (17)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l1_bcialg_4 X0)) \Rightarrow ((v2_bcialg_4 \\ X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ (u1_struct_0 X0)) \Rightarrow (k1_bcialg_1 X0 (k1_bcialg_1 X0 X1 X2) X3 = k1_bcialg_1 \\ X0 X1 (k1_bcialg_4 X0 X2 X3)))))) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l2_bcialg_1 X0)) \Rightarrow (\forall X1. \\ (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k2_bcialg_1 X0 X1 = k1_bcialg_1 \\ X0 (k4_struct_0 X0) X1)) \end{aligned} \quad (19)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_bcialg_4 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_4 \\ X0 X1 X2 = k5_binop_1 (u1_struct_0 X0) (u1_bcialg_4 X0) X1 X2))) \end{aligned} \quad (20)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l1_bcialg_4 X0)) \Rightarrow ((v7_bcialg_4 \\ X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_4 X0 (k1_bcialg_1 \\ X0 X1 X2) X2 = k1_bcialg_4 X0 X1 X2)))) \end{aligned} \quad (21)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l1_bcialg_4 X0)) \Rightarrow ((v6_bcialg_4 \\ X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_4 X0 X1 X2 = k1_bcialg_4 \\ X0 X2 X1)))) \end{aligned} \quad (22)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l1_bcialg_4 X0)) \Rightarrow ((v5_bcialg_4 \\ X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_4 \\ X0 X1 X1 = X1))) \end{aligned} \quad (23)$$

Theorem 1

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l1_bcialg_4 X0)) \Rightarrow (((\neg v2_struct_0 \\ X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 X0) \wedge ((v5_bcialg_1 X0) \wedge \\ ((v7_bcialg_1 X0) \wedge ((v8_bcialg_1 X0) \wedge ((v2_bcialg_4 X0) \wedge ((v4_bcialg_4 \\ X0) \wedge (l1_bcialg_4 X0)))))))))) \Leftrightarrow ((\neg v2_struct_0 X0) \wedge ((v5_bcialg_1 \\ X0) \wedge ((v2_bcialg_4 X0) \wedge ((v5_bcialg_4 X0) \wedge ((v6_bcialg_4 X0) \wedge \\ ((v7_bcialg_4 X0) \wedge (l1_bcialg_4 X0)))))))) \end{aligned}$$