

l4_bcialg_4

(TMaS4azVxCoQRRw1TTL9WwZxU8fbD42wNpM)

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Let $v3_bcialg_1 : \iota \Rightarrow o$ be given. Let $k2_bcialg_4 : \iota$ 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 $l2_struct_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v9_struct_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v13_struct_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $np_1 : \iota$ be given. Let $v1_bcialg_4 : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $l2_bcialg_1 : \iota \Rightarrow o$ be given. Let $l1_bcialg_1 : \iota \Rightarrow o$ be given. Let $l1_bcialg_4 : \iota \Rightarrow o$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $k2_bcialg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $v7_struct_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(l2_struct_0 X0) \Rightarrow (\exists X1.(m1_subset_1 X1 (u1_struct_0 X0)) \wedge (v9_struct_0 X1 X0)) \quad (1)$$

Assume the following.

$$(v13_struct_0 k2_bcialg_4 np_1) \wedge (v1_bcialg_4 k2_bcialg_4) \quad (2)$$

Assume the following.

$$\forall X0.\exists X1.m1_subset_1 X1 X0 \quad (3)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0) \Rightarrow (l1_struct_0 X0) \quad (4)$$

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.

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

Assume the following.

$$l1_bcialg_4 k2_bcialg_4 \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge (l2_bcialg_1 X0)) \wedge (m1_subset_1 X1 (u1_struct_0 X0))) \Rightarrow (m1_subset_1 (k2_bcialg_1 X0 X1) (u1_struct_0 X0)) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((l1_bcialg_4 X0) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow (m1_subset_1 (k1_bcialg_4 X0 X1 X2) (u1_struct_0 X0)) \quad (10)$$

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.

$$\forall X0.((\neg v2_struct_0 X0) \wedge (l2_bcialg_1 X0)) \Rightarrow ((v5_bcialg_1 X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_1 X0 X1 X1 = k4_struct_0 X0))) \quad (14)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge (l2_bcialg_1 X0)) \Rightarrow ((v4_bcialg_1 X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_1 X0 (k1_bcialg_1 X0 (k1_bcialg_1 X0 X1 X2) X3) (k1_bcialg_1 X0 (k1_bcialg_1 X0 X1 X3) X2) = k4_struct_0 X0)))))) \quad (15)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l2_bialg_1 X0)) \Rightarrow ((v3_bialg_1 \\ X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ (u1_struct_0 X0)) \Rightarrow (k1_bialg_1 X0 (k1_bialg_1 X0 (k1_bialg_1 \\ X0 X1 X2) (k1_bialg_1 X0 X3 X2)) (k1_bialg_1 X0 X1 X3) = k4_struct_0 \\ X0)))))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l1_bialg_4 X0)) \Rightarrow ((v2_bialg_4 \\ X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ (u1_struct_0 X0)) \Rightarrow (k1_bialg_1 X0 (k1_bialg_1 X0 X1 X2) X3 = k1_bialg_1 \\ X0 X1 (k1_bialg_4 X0 X2 X3)))))) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l2_bialg_1 X0)) \Rightarrow (\forall X1. \\ (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k2_bialg_1 X0 X1 = k1_bialg_1 \\ X0 (k4_struct_0 X0) X1)) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_struct_0 X0) \Rightarrow ((v7_struct_0 X0) \Leftrightarrow (\forall X1.(\\ m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\ (u1_struct_0 X0)) \Rightarrow (X1 = X2)))) \end{aligned} \quad (19)$$

Assume the following.

$$\forall X0.(l1_struct_0 X0) \Rightarrow ((v13_struct_0 X0 np_1) \Rightarrow ((\neg v2_struct_0 \\ X0) \wedge (v7_struct_0 X0))) \quad (20)$$

Theorem 1

$$\begin{aligned} (v3_bialg_1 k2_bialg_4) \wedge ((v4_bialg_1 k2_bialg_4) \wedge ((v5_bialg_1 \\ k2_bialg_4) \wedge ((v7_bialg_1 k2_bialg_4) \wedge ((v8_bialg_1 k2_bialg_4) \wedge \\ (v2_bialg_4 k2_bialg_4)))))) \end{aligned}$$