

t7_bcialg_4
(TMHtT1GFzXGGu5pL9p6n4d4pHy6NGFV8x5Y)

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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 $v2_bcialg_4 : \iota \Rightarrow o$ be given. Let $l1_bcialg_4 : \iota \Rightarrow o$ 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 $l2_bcialg_1 : \iota \Rightarrow o$ 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 $k4_struct_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ & X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\ & (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 \\ & X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 \\ & X0)) \Rightarrow (k1_bcialg_1 X0 (k1_bcialg_1 X0 X1 X2) X3 = k1_bcialg_1 X0 (\\ & k1_bcialg_1 X0 X1 X3) X2)))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0.(l1_bcialg_4 X0) \Rightarrow ((l2_bcialg_1 X0) \wedge (l2_struct_0 X0)) \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((l1_bcialg_4 X0) \wedge ((m1_subset_1 \\ & X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow (m1_subset_1 \\ & (k1_bcialg_4 X0 X1 X2) (u1_struct_0 X0)) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l2_bcialg_1 X0)) \Rightarrow ((v7_bcialg_1 \\ & X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (((k1_bcialg_1 X0 X1 X2 = k4_struct_0 \\ & X0) \wedge (k1_bcialg_1 X0 X2 X1 = k4_struct_0 X0)) \Rightarrow (X1 = X2)))))) \end{aligned} \tag{4}$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge (l2_bialg_1 X0)) \Rightarrow ((v5_bialg_1 X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k1_bialg_1 X0 X1 X1 = k4_struct_0 X0))) \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l1_bialg_4 X0)) \Rightarrow ((v2_bialg_4 X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (k1_bialg_1 X0 (k1_bialg_1 X0 X1 X2) X3 = k1_bialg_1 \\ X0 X1 (k1_bialg_4 X0 X2 X3)))))) \quad (6) \end{aligned}$$

Theorem 1

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v3_bialg_1 X0) \wedge ((v4_bialg_1 X0) \wedge ((v5_bialg_1 X0) \wedge ((v7_bialg_1 X0) \wedge ((v2_bialg_4 X0) \wedge (l1_bialg_4 X0))))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k1_bialg_4 X0 X1 X2 = k1_bialg_4 X0 X2 X1)))$$