

t65_bcialg_1
(TMbPqgRYvv2fBsdCfysXzTtsJieP35QdiLT)

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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 $k1_bcialg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_bcialg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_bcialg_1 : \iota \Rightarrow o$ be given. Let $l2_struct_0 : \iota \Rightarrow o$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ & X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\ & ((v19_bcialg_1 X0) \Leftrightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_1 \\ & X0 (k2_bcialg_1 X0 X2) (k2_bcialg_1 X0 X1) = k1_bcialg_1 X0 X1 X2)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ & X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\ & ((v19_bcialg_1 X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\ & (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_1 X0 (k1_bcialg_1 \\ & X0 X1 X2) (k1_bcialg_1 X0 X3 X2) = k1_bcialg_1 X0 X1 X3)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0. (l2_bcialg_1 X0) \Rightarrow ((l1_bcialg_1 X0) \wedge (l2_struct_0 X0)) \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((l1_bialg_1 X0)\wedge((m1_subset_1 \\ X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 X0))))\Rightarrow(m1_subset_1 \\ (k1_bialg_1 X0 X1 X2) (u1_struct_0 X0)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0)\wedge(l2_bialg_1 X0))\Rightarrow((v5_bialg_1 \\ X0)\Leftrightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(k1_bialg_1 \\ X0 X1 X1 = k4_struct_0 X0))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0)\wedge(l2_bialg_1 X0))\Rightarrow(\forall X1. \\ (m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(k2_bialg_1 X0 X1 = k1_bialg_1 \\ X0 (k4_struct_0 X0) X1)) \end{aligned} \quad (7)$$

Theorem 1

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0)\wedge((v3_bialg_1 X0)\wedge((v4_bialg_1 \\ X0)\wedge((v5_bialg_1 X0)\wedge((v7_bialg_1 X0)\wedge(l2_bialg_1 X0))))))\Rightarrow \\ ((v19_bialg_1 X0)\Leftrightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow(\forall X3. \\ (m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow(k1_bialg_1 X0 (k1_bialg_1 \\ X0 X1 X2) (k1_bialg_1 X0 X3 X2) = k1_bialg_1 X0 X1 X3)))))) \end{aligned}$$