

t40_bcialg_4

(TMTVuv1RXskvYcLi2JAGVVmxqynLZYboKin)

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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 $v8_bcialg_1 : \iota \Rightarrow o$ 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 $r1_bcialg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $l2_bcialg_1 : \iota \Rightarrow o$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $l1_bcialg_1 : \iota \Rightarrow o$ be given. Let $l2_struct_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\
 & X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge ((v2_bcialg_4 X0) \wedge \\
 & (l1_bcialg_4 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\
 & X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\
 & (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow ((r1_bcialg_1 X0 X1 X2) \Rightarrow ((r1_bcialg_1 \\
 & X0 (k1_bcialg_4 X0 X1 X3) (k1_bcialg_4 X0 X2 X3)) \wedge (r1_bcialg_1 X0 \\
 & (k1_bcialg_4 X0 X3 X1) (k1_bcialg_4 X0 X3 X2))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\
 & X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\
 & (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 \\
 & X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 \\
 & X0)) \Rightarrow ((r1_bcialg_1 X0 X1 X2) \Rightarrow ((r1_bcialg_1 X0 (k1_bcialg_1 X0 \\
 & X1 X3) (k1_bcialg_1 X0 X2 X3)) \wedge (r1_bcialg_1 X0 (k1_bcialg_1 X0 X3 \\
 & X2) (k1_bcialg_1 X0 X3 X1))))))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l1_bcialg_4 X0)) \Rightarrow (((\neg v2_struct_0 \\
& X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 X0) \wedge ((v5_bcialg_1 X0) \wedge \\
& ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \wedge (\forall X1.(m1_subset_1 \\
& X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\
& X0)) \Rightarrow ((r1_bcialg_1 X0 (k1_bcialg_1 X0 (k1_bcialg_4 X0 X1 X2) X1) \\
& X2) \wedge (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow ((r1_bcialg_1 \\
& X0 (k1_bcialg_1 X0 X3 X1) X2) \Rightarrow (r1_bcialg_1 X0 X3 (k1_bcialg_4 X0 \\
& X1 X2)))))) \Leftrightarrow ((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\
& X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge ((v2_bcialg_4 X0) \wedge \\
& (l1_bcialg_4 X0)))))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\
& X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\
& (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 \\
& X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 \\
& X0)) \Rightarrow (((k1_bcialg_1 X0 X1 X2 = k4_struct_0 X0) \wedge (k1_bcialg_1 X0 \\
& X2 X3 = k4_struct_0 X0)) \Rightarrow (k1_bcialg_1 X0 X1 X3 = k4_struct_0 X0))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\
& X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge ((v8_bcialg_1 X0) \wedge \\
& ((v2_bcialg_4 X0) \wedge (l1_bcialg_4 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\
& X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\
& X0)) \Rightarrow ((r1_bcialg_1 X0 X1 (k1_bcialg_4 X0 X1 X2)) \wedge (r1_bcialg_1 \\
& X0 X2 (k1_bcialg_4 X0 X1 X2))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\
& X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge ((v2_bcialg_4 X0) \wedge \\
& (l1_bcialg_4 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\
& (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow ((r1_bcialg_1 X0 (k1_bcialg_1 \\
& X0 X1 X2) X3) \Leftrightarrow (r1_bcialg_1 X0 X1 (k1_bcialg_4 X0 X2 X3))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\forall X0.(l2_bcialg_1 X0) \Rightarrow ((l1_bcialg_1 X0) \wedge (l2_struct_0 X0)) \tag{7}$$

Assume the following.

$$\forall X0.(l1_bcialg_4 X0) \Rightarrow ((l2_bcialg_1 X0) \wedge (l2_struct_0 X0)) \tag{8}$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((l1_bcialg_4 X0)\wedge((m1_subset_1 \\ X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 X0))))\Rightarrow(m1_subset_1 \\ (k1_bcialg_4 X0 X1 X2) (u1_struct_0 X0)) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((l1_bcialg_1 X0)\wedge((m1_subset_1 \\ X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 X0))))\Rightarrow(m1_subset_1 \\ (k1_bcialg_1 X0 X1 X2) (u1_struct_0 X0)) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0)\wedge(l2_bcialg_1 X0))\Rightarrow(\forall X1. \\ (m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 \\ (u1_struct_0 X0))\Rightarrow((r1_bcialg_1 X0 X1 X2)\Leftrightarrow(k1_bcialg_1 X0 X1 X2 = \\ k4_struct_0 X0)))) \end{aligned} \quad (11)$$

Theorem 1

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0)\wedge((v3_bcialg_1 X0)\wedge((v4_bcialg_1 \\ X0)\wedge((v5_bcialg_1 X0)\wedge((v7_bcialg_1 X0)\wedge((v8_bcialg_1 X0)\wedge \\ ((v2_bcialg_4 X0)\wedge(l1_bcialg_4 X0))))))))\Rightarrow(\forall X1.(m1_subset_1 \\ X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 \\ X0))\Rightarrow(r1_bcialg_1 X0 (k1_bcialg_4 X0 (k1_bcialg_1 X0 X1 X2) (k1_bcialg_1 \\ X0 X2 X1)) (k1_bcialg_4 X0 X1 X2)))) \end{aligned}$$