

t19_bcialg_3 (TMS- bbPXfGdWmhE7mVFT68wdyo4T6BEessrG)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l2_bcialg_1 : \iota \Rightarrow o$ 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 $v4_bcialg_3 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_bcialg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow & \\ (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_1 X0 & \\ X1 (k4_struct_0 X0) = X1)) & \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow & \\ ((v4_bcialg_3 X0) \Leftrightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow & \\ (\forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_1 X0 & \\ X1 (k1_bcialg_1 X0 X1 X2) = k1_bcialg_1 X0 X2 (k1_bcialg_1 X0 X2 (k1_bcialg_1 & \\ X0 X1 (k1_bcialg_1 X0 X1 X2))))))) & \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge (l2_bcialg_1 X0)) \Rightarrow (((\neg v2_struct_0 \\ X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 X0) \wedge ((v5_bcialg_1 X0) \wedge & \\ ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Leftrightarrow ((v7_bcialg_1 X0) \wedge & \\ (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. (m1_subset_1 & \\ X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. (m1_subset_1 X3 (u1_struct_0 & \\ X0)) \Rightarrow ((k1_bcialg_1 X0 (k1_bcialg_1 X0 (k1_bcialg_1 X0 X1 X2) (k1_bcialg_1 & \\ X0 X1 X3)) (k1_bcialg_1 X0 X3 X2) = k4_struct_0 X0) \wedge (k1_bcialg_1 & \\ X0 X1 (k4_struct_0 X0) = X1)))))) & \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0. \exists X1. m1_subset_1 X1 X0 \quad (4)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l2_bcialg_1 X0)) \Rightarrow ((v7_bcialg_1 \\
& \quad X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\
& (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (((k1_bcialg_1 X0 X1 X2 = k4_struct_0 \\
& \quad X0) \wedge (k1_bcialg_1 X0 X2 X1 = k4_struct_0 X0)) \Rightarrow (X1 = X2))))))
\end{aligned} \tag{5}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l2_bcialg_1 X0)) \Rightarrow (((\neg v2_struct_0 \\
& \quad X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 X0) \wedge ((v5_bcialg_1 X0) \wedge \\
& \quad ((v7_bcialg_1 X0) \wedge ((v4_bcialg_3 X0) \wedge (l2_bcialg_1 X0))))))) \Leftrightarrow \\
& (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 \\
& \quad X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 \\
& \quad X0)) \Rightarrow ((k1_bcialg_1 X0 (k1_bcialg_1 X0 (k1_bcialg_1 X0 X1 X2) (k1_bcialg_1 \\
& \quad X0 X1 X3)) (k1_bcialg_1 X0 X3 X2) = k4_struct_0 X0) \wedge ((k1_bcialg_1 \\
& \quad X0 X1 (k4_struct_0 X0) = X1) \wedge (k1_bcialg_1 X0 X1 (k1_bcialg_1 X0 X1 \\
& \quad X2) = k1_bcialg_1 X0 X2 (k1_bcialg_1 X0 X2 (k1_bcialg_1 X0 X1 (k1_bcialg_1 \\
& \quad X0 X1 X2))))))))))
\end{aligned}$$