

t11_osalg_1
(TMd7rZvcmuKiKrrz1uTAxkPpWab76Zb3Vfj)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v11_struct_0 : \iota \Rightarrow o$ be given. Let $v4_osalg_1 : \iota \Rightarrow o$ be given. Let $v5_osalg_1 : \iota \Rightarrow o$ be given. Let $v8_osalg_1 : \iota \Rightarrow o$ be given. Let $l3_osalg_1 : \iota \Rightarrow o$ be given. Let $v10_osalg_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $m2_finseq_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k3_finseq_2 : \iota \Rightarrow \iota$ be given. Let $r2_osalg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r5_osalg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_osalg_1 : \iota \Rightarrow o$ be given. Let $r1_osalg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l2_osalg_1 : \iota \Rightarrow o$ be given. Let $r3_osalg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v7_osalg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v9_osalg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r4_osalg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_osalg_1 \\ & \quad X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u4_struct_0 X0)) \Rightarrow (\forall X2. \\ & \quad (m1_subset_1 X2 (u4_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ & \quad (u4_struct_0 X0)) \Rightarrow (((r1_osalg_1 X0 X1 X2) \wedge (r1_osalg_1 X0 X2 X3)) \Rightarrow \\ & \quad (r1_osalg_1 X0 X1 X3)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 \\ & \quad X0) \wedge (l1_osalg_1 X0))) \wedge ((m1_subset_1 X1 (u4_struct_0 X0)) \wedge (m1_subset_1 \\ & \quad X2 (u4_struct_0 X0)))) \Rightarrow ((r1_osalg_1 X0 X1 X2) \Rightarrow (r1_osalg_1 X0 X2 \\ & \quad X1)) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.(l3_osalg_1 X0) \Rightarrow ((l1_osalg_1 X0) \wedge (l2_osalg_1 X0)) \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\
& X0) \wedge ((v5_osalg_1 X0) \wedge (l3_osalg_1 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\
& X1 (u4_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u4_struct_0 \\
& X0)) \Rightarrow (\forall X3.(m2_finseq_2 X3 (u1_struct_0 X0) (k3_finseq_2 \\
& (u1_struct_0 X0))) \Rightarrow ((r3_osalg_1 X0 X1 X2 X3) \Leftrightarrow ((r1_osalg_1 X0 X1 \\
& X2) \wedge ((r2_osalg_1 X0 X3 (k1_msualg_1 X0 X2)) \wedge (\forall X4.(m1_subset_1 \\
& X4 (u4_struct_0 X0)) \Rightarrow ((r1_osalg_1 X0 X1 X4) \wedge (r2_osalg_1 X0 X3 \\
& (k1_msualg_1 X0 X4)))))) \Rightarrow (r2_osalg_1 X0 (k1_msualg_1 X0 X2) (k1_msualg_1 \\
& X0 X4)))))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\
& X0) \wedge ((v5_osalg_1 X0) \wedge (l3_osalg_1 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\
& X1 (u4_struct_0 X0)) \Rightarrow ((v7_osalg_1 X1 X0) \Leftrightarrow (\forall X2.(m1_subset_1 \\
& X2 (u4_struct_0 X0)) \Rightarrow (((r1_osalg_1 X0 X1 X2) \wedge (r2_osalg_1 X0 (k1_msualg_1 \\
& X0 X1) (k1_msualg_1 X0 X2))) \Rightarrow (r3_orders_2 X0 (k2_msualg_1 X0 X1) \\
& (k2_msualg_1 X0 X2))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\
& X0) \wedge ((v5_osalg_1 X0) \wedge ((v8_osalg_1 X0) \wedge (l3_osalg_1 X0)))))) \Rightarrow \\
& ((v10_osalg_1 X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u4_struct_0 X0)) \Rightarrow \\
& (v9_osalg_1 X1 X0)))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\
& X0) \wedge ((v5_osalg_1 X0) \wedge (l3_osalg_1 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\
& X1 (u4_struct_0 X0)) \Rightarrow ((v9_osalg_1 X1 X0) \Leftrightarrow ((v7_osalg_1 X1 X0) \wedge \\
& (\forall X2.(m2_finseq_2 X2 (u1_struct_0 X0) (k3_finseq_2 (u1_struct_0 \\
& X0))) \Rightarrow (\neg (r2_osalg_1 X0 X2 (k1_msualg_1 X0 X1)) \wedge (\forall X3.(m1_subset_1 \\
& X3 (u4_struct_0 X0)) \Rightarrow (\neg r3_osalg_1 X0 X1 X3 X2))))))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\
& X0) \wedge ((v5_osalg_1 X0) \wedge (l3_osalg_1 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\
& X1 (u4_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u4_struct_0 \\
& X0)) \Rightarrow (\forall X3.(m2_finseq_2 X3 (u1_struct_0 X0) (k3_finseq_2 \\
& (u1_struct_0 X0))) \Rightarrow ((r5_osalg_1 X0 X1 X2 X3) \Leftrightarrow ((r3_osalg_1 X0 X1 \\
& X2 X3) \wedge (r4_osalg_1 X0 X1 X2 X3))))))
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\
& X0) \wedge ((v5_osalg_1 X0) \wedge (l3_osalg_1 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\
& X1 (u4_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u4_struct_0 \\
& X0)) \Rightarrow (\forall X3.(m2_finseq_2 X3 (u1_struct_0 X0) (k3_finseq_2 \\
& (u1_struct_0 X0))) \Rightarrow ((r4_osalg_1 X0 X1 X2 X3) \Leftrightarrow ((r1_osalg_1 X0 X1 \\
& X2) \wedge ((r2_osalg_1 X0 X3 (k1_msualg_1 X0 X2)) \wedge (\forall X4.(m1_subset_1 \\
& X4 (u4_struct_0 X0)) \Rightarrow (((r1_osalg_1 X0 X1 X4) \wedge (r2_osalg_1 X0 X3 \\
& (k1_msualg_1 X0 X4))) \Rightarrow (r3_orders_2 X0 (k2_msualg_1 X0 X2) (k2_msualg_1 \\
& X0 X4))))))))))
\end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\
& X0) \wedge ((v5_osalg_1 X0) \wedge ((v8_osalg_1 X0) \wedge (l3_osalg_1 X0)))))) \Rightarrow \\
& (\forall X1.(m1_subset_1 X1 (u4_struct_0 X0)) \Rightarrow (v7_osalg_1 X1 \\
& X0))
\end{aligned} \tag{10}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\
& X0) \wedge ((v5_osalg_1 X0) \wedge ((v8_osalg_1 X0) \wedge (l3_osalg_1 X0)))))) \Rightarrow \\
& ((v10_osalg_1 X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u4_struct_0 X0)) \Rightarrow \\
& (\forall X2.(m2_finseq_2 X2 (u1_struct_0 X0) (k3_finseq_2 (u1_struct_0 \\
& X0)) \Rightarrow (\neg (r2_osalg_1 X0 X2 (k1_msualg_1 X0 X1)) \wedge (\forall X3.(m1_subset_1 \\
& X3 (u4_struct_0 X0)) \Rightarrow (\neg r5_osalg_1 X0 X1 X3 X2))))))
\end{aligned}$$