

t16_osafree
(TMZNdxKmgdC533bFZ5jtbNLFXpZgyooq7rM)

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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 $l3_osalg_1 : \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v2_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_dtconstr : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_osafree : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_trees_3 : \iota \Rightarrow \iota$ be given. Let $k4_dtconstr : \iota \Rightarrow \iota$ be given. Let $k1_trees_4 : \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_osafree : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $u3_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_osafree : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r3_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_orders_2 : \iota \Rightarrow o$ be given. Let $l1_orders_2 : \iota \Rightarrow o$ be given. Let $l1_osalg_1 : \iota \Rightarrow o$ be given. Let $l2_osalg_1 : \iota \Rightarrow o$ be given. Let $l1_msualg_1 : \iota \Rightarrow o$ be given. Let $v4_orders_2 : \iota \Rightarrow o$ be given. Let $v5_orders_2 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\
& X0) \wedge ((v5_osalg_1 X0) \wedge (l3_osalg_1 X0)))))) \Rightarrow (\forall X1.((v1_relat_1 \\
& X1) \wedge ((v2_relat_1 X1) \wedge ((v4_relat_1 X1 (u1_struct_0 X0)) \wedge ((v1_funct_1 \\
& X1) \wedge (v1_partfun1 X1 (u1_struct_0 X0)))))) \Rightarrow (\forall X2.(m1_subset_1 \\
& X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X4.(X4 \in k1_funct_1 X1 X2) \Rightarrow ((m1_dtconstr (k1_trees_4 \\
& (k4_tarski X4 X2)) (u1_struct_0 (k2_osafree X0 X1)) (k5_trees_3 \\
& (u1_struct_0 (k2_osafree X0 X1))) (k4_dtconstr (k2_osafree X0 \\
& X1))) \wedge ((\forall X5.k4_tarski X5 (u1_struct_0 X0) \neq k1_funct_1 \\
& (k1_trees_4 (k4_tarski X4 X2)) k1_xboole_0) \wedge (((k1_trees_4 (k4_tarski \\
& X4 X2) \in k1_funct_1 (u3_msualg_1 X0 (k8_osafree X0 X1)) X3) \Rightarrow (r3_orders_2 \\
& X0 X2 X3)) \wedge ((r3_orders_2 X0 X2 X3) \Rightarrow (k1_trees_4 (k4_tarski X4 X2) \in \\
& k1_funct_1 (u3_msualg_1 X0 (k8_osafree X0 X1)) X3))))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v3_orders_2 \\
& X0) \wedge (l1_orders_2 X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (\\
& m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow (r3_orders_2 X0 X1 X1)
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.(l3_osalg_1 X0) \Rightarrow ((l1_osalg_1 X0) \wedge (l2_osalg_1 X0)) \quad (3)$$

Assume the following.

$$\forall X0.(l2_osalg_1 X0) \Rightarrow ((l1_msualg_1 X0) \wedge (l1_orders_2 X0)) \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\ X0) \wedge ((v5_osalg_1 X0) \wedge (l3_osalg_1 X0)))))) \Rightarrow (\forall X1.((v1_relat_1 \\ X1) \wedge ((v2_relat_1 X1) \wedge ((v4_relat_1 X1 (u1_struct_0 X0)) \wedge ((v1_funct_1 \\ X1) \wedge (v1_partfun1 X1 (u1_struct_0 X0))))))) \Rightarrow (\forall X2.(m1_dtconstr \\ X2 (u1_struct_0 (k2_osafree X0 X1)) (k5_trees_3 (u1_struct_0 (\\ k2_osafree X0 X1))) (k4_dtconstr (k2_osafree X0 X1))) \Rightarrow (\forall X3. \\ (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow ((X3 = k10_osafree X0 X1 X2) \Leftrightarrow \\ ((X2 \in k1_funct_1 (u3_msualg_1 X0 (k8_osafree X0 X1)) X3) \wedge (\forall X4. \\ (m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow ((X2 \in k1_funct_1 (u3_msualg_1 \\ X0 (k8_osafree X0 X1)) X4) \Rightarrow (r3_orders_2 X0 X3 X4)))))))))) \quad (5) \end{aligned}$$

Assume the following.

$$\forall X0.(l3_osalg_1 X0) \Rightarrow ((v4_osalg_1 X0) \Rightarrow ((v3_orders_2 X0) \wedge \\ ((v4_orders_2 X0) \wedge (v5_orders_2 X0)))) \quad (6)$$

Theorem 1

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\ X0) \wedge ((v5_osalg_1 X0) \wedge (l3_osalg_1 X0)))))) \Rightarrow (\forall X1.((v1_relat_1 \\ X1) \wedge ((v2_relat_1 X1) \wedge ((v4_relat_1 X1 (u1_struct_0 X0)) \wedge ((v1_funct_1 \\ X1) \wedge (v1_partfun1 X1 (u1_struct_0 X0))))))) \Rightarrow (\forall X2.(m1_subset_1 \\ X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(X3 \in k1_funct_1 X1 X2) \Rightarrow (\forall X4. \\ (m1_dtconstr X4 (u1_struct_0 (k2_osafree X0 X1)) (k5_trees_3 (\\ u1_struct_0 (k2_osafree X0 X1))) (k4_dtconstr (k2_osafree X0 X1))) \Rightarrow \\ ((X4 = k1_trees_4 (k4_tarski X3 X2)) \Rightarrow (k10_osafree X0 X1 X4 = X2)))))) \quad (7) \end{aligned}$$