

t20_osalg_2 (TMFXGEMHyxXGvVK-
mYxkeuT4mdqkVDbyjpt8)

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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 $v12_osalg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l3_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_osalg_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_osalg_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_msualg_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $l1_msualg_1 : \iota \Rightarrow o$ be given. Let $m3_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $u3_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_msualg_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_osalg_1 : \iota \Rightarrow o$ be given. Let $l2_osalg_1 : \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v11_osalg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1_subset_1 X0 X1) \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ & X0))) \Rightarrow (\forall X1. (l3_msualg_1 X1 X0) \Rightarrow (\forall X2. (m3_pboole \\ X2 (u1_struct_0 X0) (u3_msualg_1 X0 X1)) \Rightarrow ((X2 \in k6_msualg_2 X0 X1) \Leftrightarrow \\ & (v3_msualg_2 X2 X0 X1)))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge \\ (l1_msualg_1 X0))) \wedge (l3_msualg_1 X1 X0)) \Rightarrow (\neg v1_xboole_0 (k6_msualg_2 \\ X0 X1)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge \\ & ((v4_osalg_1 X0) \wedge (v5_osalg_1 X0) \wedge (l3_osalg_1 X0)))) \wedge ((v12_osalg_1 \\ & X1 X0) \wedge (l3_msualg_1 X1 X0)) \Rightarrow (\forall X2. (m2_osalg_2 X2 X0 X1) \Rightarrow \\ & (m3_pboole X2 (u1_struct_0 X0) (u3_msualg_1 X0 X1))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0. (l3_osalg_1 X0) \Rightarrow ((l1_osalg_1 X0) \wedge (l2_osalg_1 X0)) \quad (6)$$

Assume the following.

$$\forall X0. (l1_osalg_1 X0) \Rightarrow (l1_msualg_1 X0) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\ & X0) \wedge (v5_osalg_1 X0) \wedge (l3_osalg_1 X0)))) \Rightarrow (\forall X1. ((v12_osalg_1 \\ & X1 X0) \wedge (l3_msualg_1 X1 X0)) \Rightarrow (k6_osalg_2 X0 X1 = \text{ReplSep} (\text{toset} (\\ & \lambda X2 : \iota. m1_subset_1 X2 (k6_msualg_2 X0 X1))) (\lambda X2 : \iota. \\ & (v1_relat_1 X2) \wedge ((v4_relat_1 X2 (u1_struct_0 X0)) \wedge ((v1_funct_1 \\ & X2) \wedge ((v1_partfun1 X2 (u1_struct_0 X0)) \wedge (v11_osalg_1 X2 X0)))))) \\ & (\lambda X2 : \iota. X2))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\ & X0) \wedge (v5_osalg_1 X0) \wedge (l3_osalg_1 X0)))) \Rightarrow (\forall X1. ((v12_osalg_1 \\ & X1 X0) \wedge (l3_msualg_1 X1 X0)) \Rightarrow (\forall X2. (m3_pboole X2 (u1_struct_0 \\ & X0) (u3_msualg_1 X0 X1)) \Rightarrow ((m2_osalg_2 X2 X0 X1) \Leftrightarrow ((v1_relat_1 X2) \wedge \\ & ((v4_relat_1 X2 (u1_struct_0 X0)) \wedge ((v1_funct_1 X2) \wedge ((v1_partfun1 \\ & X2 (u1_struct_0 X0)) \wedge (v11_osalg_1 X2 X0)))))))) \end{aligned} \quad (9)$$

Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\ & X0) \wedge (v5_osalg_1 X0) \wedge (l3_osalg_1 X0)))) \Rightarrow (\forall X1. ((v12_osalg_1 \\ & X1 X0) \wedge (l3_msualg_1 X1 X0)) \Rightarrow (\forall X2. (m2_osalg_2 X2 X0 X1) \Rightarrow \\ & ((X2 \in k6_osalg_2 X0 X1) \Leftrightarrow (v3_msualg_2 X2 X0 X1)))) \end{aligned}$$