

t27_tsep_1

(TMJomEV3ZjHDQVs9JnKjkTV1a49LD42sV5y)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_pre_topc : \iota \Rightarrow o$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $m1_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_tsep_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_tsep_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_pre_topc : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((v2_pre_topc X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\ & (m1_pre_topc X1 X0) \Rightarrow (\forall X2.(m1_pre_topc X2 X0) \Rightarrow ((r1_tarski \\ & (u1_struct_0 X1) (u1_struct_0 X2)) \Leftrightarrow (m1_pre_topc X1 X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. r1_tarski (k3_xboole_0 X0 X1) X0 \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge (l1_pre_topc \\ & X0)) \wedge (((\neg v2_struct_0 X1) \wedge (m1_pre_topc X1 X0)) \wedge ((\neg v2_struct_0 \\ & X2) \wedge (m1_pre_topc X2 X0)))) \Rightarrow ((\neg v2_struct_0 (k2_tsep_1 X0 X1 X2)) \wedge \\ & ((v1_pre_topc (k2_tsep_1 X0 X1 X2)) \wedge (m1_pre_topc (k2_tsep_1 X0 \\ & X1 X2) X0))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (m1_pre_topc X1 X0)) \Rightarrow (\forall X2. ((\neg v2_struct_0 \\ & X2) \wedge (m1_pre_topc X2 X0)) \Rightarrow ((\neg r1_tsep_1 X1 X2) \Rightarrow (\forall X3. ((\neg \\ & v2_struct_0 X3) \wedge (v1_pre_topc X3) \wedge (m1_pre_topc X3 X0))) \Rightarrow ((X3 = \\ & k2_tsep_1 X0 X1 X2) \Leftrightarrow (u1_struct_0 X3 = k3_xboole_0 (u1_struct_0 \\ & X1) (u1_struct_0 X2)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. k3_xboole_0 X0 X1 = k3_xboole_0 X1 X0 \quad (5)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (v2_pre_topc X0) \wedge (l1_pre_topc \\ & X0)) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge (m1_pre_topc X1 X0)) \Rightarrow (\\ & \forall X2.((\neg v2_struct_0 X2) \wedge (m1_pre_topc X2 X0)) \Rightarrow ((\neg r1_tsep_1 \\ & X1 X2) \Rightarrow ((m1_pre_topc (k2_tsep_1 X0 X1 X2) X1) \wedge (m1_pre_topc (k2_tsep_1 \\ & X0 X1 X2) X2)))))) \end{aligned}$$