

t22_tsep_1 (TMVKreEp- yQsP5WRgNkzGtH6RDfeqdtDa4Vm)

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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 $k1_tsep_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v1_pre_topc : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. r1_tarski\ X0\ (k2_xboole_0\ X0\ X1) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v2_pre_topc\ X0) \wedge (l1_pre_topc\ X0)) \Rightarrow (\forall X1. \\ & (m1_pre_topc\ X1\ X0) \Rightarrow (\forall X2. (m1_pre_topc\ X2\ X0) \Rightarrow ((r1_tarski \\ & (u1_struct_0\ X1)\ (u1_struct_0\ X2)) \Leftrightarrow (m1_pre_topc\ X1\ X2)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0\ X0) \wedge (l1_pre_topc \\ & X0)) \wedge (((\neg v2_struct_0\ X1) \wedge (m1_pre_topc\ X1\ X0)) \wedge ((\neg v2_struct_0 \\ & X2) \wedge (m1_pre_topc\ X2\ X0)))) \Rightarrow ((\neg v2_struct_0\ (k1_tsep_1\ X0\ X1\ X2)) \wedge \\ & ((v1_pre_topc\ (k1_tsep_1\ X0\ X1\ X2)) \wedge (m1_pre_topc\ (k1_tsep_1\ X0 \\ & X1\ X2)\ X0))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0\ X0) \wedge (l1_pre_topc\ X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0\ X1) \wedge (m1_pre_topc\ X1\ X0)) \Rightarrow (\forall X2. ((\neg v2_struct_0 \\ & X2) \wedge (m1_pre_topc\ X2\ X0)) \Rightarrow (\forall X3. ((\neg v2_struct_0\ X3) \wedge ((v1_pre_topc \\ & X3) \wedge (m1_pre_topc\ X3\ X0)) \Rightarrow ((X3 = k1_tsep_1\ X0\ X1\ X2) \Leftrightarrow (u1_struct_0 \\ & X3 = k2_xboole_0\ (u1_struct_0\ X1)\ (u1_struct_0\ X2)))))) \end{aligned} \quad (4)$$

Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0\ X0) \wedge ((v2_pre_topc\ X0) \wedge (l1_pre_topc \\ & X0))) \Rightarrow (\forall X1. ((\neg v2_struct_0\ X1) \wedge (m1_pre_topc\ X1\ X0)) \Rightarrow (\\ & \forall X2. ((\neg v2_struct_0\ X2) \wedge (m1_pre_topc\ X2\ X0)) \Rightarrow (m1_pre_topc \\ & X1\ (k1_tsep_1\ X0\ X1\ X2)))) \end{aligned}$$