

t78_tdlat_2 (TMH-
mvN41SNdBpACuhcs9pzfRm3sgeTHmD3T)

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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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v2_tops_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_pre_topc : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tops_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_setfam_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $v5_tops_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_setfam_1 : \iota \Rightarrow \iota$ be given. Let $v4_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (\forall X2. (X2 \in X0) \Rightarrow (r1_tarski\ X1\ X2)) \Rightarrow \\ & ((X0 = k1_xboole_0) \vee (r1_tarski\ X1\ (k1_setfam_1\ X0))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1_subset_1\ X1\ (k1_zfmisc_1\ X2))) \Rightarrow (m1_subset_1\ X0\ X2) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (r1_tarski\ (k1_setfam_1\ X1)\ X0) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v2_pre_topc\ X0) \wedge (l1_pre_topc\ X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1\ X1\ (k1_zfmisc_1\ (k1_zfmisc_1\ (u1_struct_0\ X0)))) \Rightarrow \\ & ((v2_tops_2\ X1\ X0) \Rightarrow (v4_pre_topc\ (k6_setfam_1\ (u1_struct_0\ X0) \\ & \quad X1)\ X0))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1_pre_topc\ X0) \Rightarrow (\forall X1. (m1_subset_1\ X1\ (k1_zfmisc_1 \\ & (u1_struct_0\ X0))) \Rightarrow (((v4_pre_topc\ X1\ X0) \Rightarrow (k2_pre_topc\ X0\ X1 = \\ & X1)) \wedge (((v2_pre_topc\ X0) \wedge (k2_pre_topc\ X0\ X1 = X1)) \Rightarrow (v4_pre_topc \\ & \quad X1\ X0)))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((r1_tarski\ X0\ X1) \wedge (r1_tarski\ X1\ X2)) \Rightarrow (r1_tarski\ X0\ X2) \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_pre_topc\ X0) \Rightarrow (\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1 \\ (u1_struct_0\ X0))) \Rightarrow (\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1 \\ (u1_struct_0\ X0))) \Rightarrow ((r1_tarski\ X1\ X2) \Rightarrow (r1_tarski\ (k1_tops_1 \\ X0\ X1)\ (k1_tops_1\ X0\ X2)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_pre_topc\ X0) \Rightarrow (\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1 \\ (u1_struct_0\ X0))) \Rightarrow (\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1 \\ (u1_struct_0\ X0))) \Rightarrow ((r1_tarski\ X1\ X2) \Rightarrow (r1_tarski\ (k2_pre_topc \\ X0\ X1)\ (k2_pre_topc\ X0\ X2)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_pre_topc\ X0) \Rightarrow (\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1 \\ (u1_struct_0\ X0))) \Rightarrow (r1_tarski\ (k1_tops_1\ X0\ X1)\ X1)) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1\ (k1_zfmisc_1 \\ X0))) \Rightarrow (k6_setfam_1\ X0\ X1 = k1_setfam_1\ X1) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1\ (k1_zfmisc_1 \\ X0))) \Rightarrow (m1_subset_1\ (k6_setfam_1\ X0\ X1)\ (k1_zfmisc_1\ X0)) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((l1_pre_topc\ X0) \wedge (m1_subset_1\ X1\ (k1_zfmisc_1 \\ (u1_struct_0\ X0)))) \Rightarrow (m1_subset_1\ (k1_tops_1\ X0\ X1)\ (k1_zfmisc_1 \\ (u1_struct_0\ X0))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_pre_topc\ X0) \Rightarrow (\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1 \\ (u1_struct_0\ X0))) \Rightarrow ((v5_tops_1\ X1\ X0) \Leftrightarrow (X1 = k2_pre_topc\ X0\ (k1_tops_1 \\ X0\ X1)))) \end{aligned} \quad (13)$$

Theorem 1

$$\begin{aligned} \forall X0.((\neg v2_struct_0\ X0) \wedge ((v2_pre_topc\ X0) \wedge (l1_pre_topc \\ X0))) \Rightarrow (\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1\ (k1_zfmisc_1 \\ (u1_struct_0\ X0)))) \Rightarrow (((v2_tops_2\ X1\ X0) \Rightarrow (\forall X2.(m1_subset_1 \\ X2\ (k1_zfmisc_1\ (u1_struct_0\ X0))) \Rightarrow ((X2 \in X1) \Rightarrow (r1_tarski\ (k2_pre_topc \\ X0\ (k1_tops_1\ X0\ (k6_setfam_1\ (u1_struct_0\ X0)\ X1)))\ X2)))) \wedge ((\\ X1 = k1_xboole_0) \vee (\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1\ (u1_struct_0 \\ X0))) \Rightarrow (((v5_tops_1\ X2\ X0) \wedge (\forall X3.(m1_subset_1\ X3\ (k1_zfmisc_1 \\ (u1_struct_0\ X0))) \Rightarrow ((X3 \in X1) \Rightarrow (r1_tarski\ X2\ X3)))) \Rightarrow (r1_tarski \\ X2\ (k2_pre_topc\ X0\ (k1_tops_1\ X0\ (k6_setfam_1\ (u1_struct_0\ X0) \\ X1)))))))))) \end{aligned}$$