

t20_urysohn1
(TMJJQaBctevL5ZmxcLUQhak7QMCupZ2fYkS)

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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 $v10_pre_topc : \iota \Rightarrow o$ be given. Let $v3_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ 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 $k1_xboole_0 : \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_pre_topc : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_tops_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_struct_0 : \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((v2_pre_topc X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (((v3_pre_topc \\ & X1 X0) \wedge (v4_pre_topc X1 X0)) \Leftrightarrow (k2_pre_topc X0 X1 = k1_tops_1 X0 X1))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 (k1_zfmisc_1 X1)) \Leftrightarrow (r1_tarski X0 X1) \quad (2)$$

Assume the following.

$$\forall X0. (l1_pre_topc X0) \Rightarrow (k2_pre_topc X0 (k2_struct_0 X0) = k2_struct_0 X0) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v2_pre_topc X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\ & (l1_pre_topc X1) \Rightarrow (\forall X2. (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 \\ & X0))) \Rightarrow (\forall X3. (m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 \\ & X1))) \Rightarrow (((v3_pre_topc X3 X1) \Rightarrow (k1_tops_1 X1 X3 = X3)) \wedge ((k1_tops_1 \\ & X0 X2 = X2) \Rightarrow (v3_pre_topc X2 X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\ & X0))) \Rightarrow ((v10_pre_topc X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 \\ & (u1_struct_0 X0))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\ & (u1_struct_0 X0))) \Rightarrow (\neg(X1 \neq k1_xboole_0) \wedge ((X2 \neq k2_struct_0 X0) \wedge \\ & ((r1_tarski X1 X2) \wedge ((v4_pre_topc X1 X0) \wedge ((v3_pre_topc X2 X0) \wedge \\ & (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow \\ & (\neg(v3_pre_topc X3 X0) \wedge ((r1_tarski X1 X3) \wedge (r1_tarski (k2_pre_topc \\ & X0 X3) X2)))))))))) \end{aligned} \quad (5)$$

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.

$$\forall X0. (l1_pre_topc X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (r1_tarski X1 (k2_pre_topc X0 X1))) \quad (7)$$

Assume the following.

$$\forall X0. (l1_pre_topc X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (r1_tarski (k1_tops_1 X0 X1) X1)) \quad (8)$$

Assume the following.

$$v1_xboole_0 \quad k1_xboole_0 \quad (9)$$

Assume the following.

$$\forall X0. \forall X1. (((v2_pre_topc X0) \wedge (l1_pre_topc X0)) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))) \Rightarrow (v4_pre_topc (k2_pre_topc X0 X1) X0) \quad (10)$$

Assume the following.

$$\forall X0. \forall X1. ((l1_pre_topc X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))) \Rightarrow (m1_subset_1 (k2_pre_topc X0 X1) (k1_zfmisc_1 (u1_struct_0 X0))) \quad (11)$$

Assume the following.

$$\forall X0. \forall X1. (X0 = X1) \Leftrightarrow ((r1_tarski X0 X1) \wedge (r1_tarski X1 X0)) \quad (12)$$

Assume the following.

$$\forall X0. ((v2_pre_topc X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow ((v1_xboole_0 X1) \Rightarrow (v4_pre_topc X1 X0))) \quad (13)$$

Assume the following.

$$\forall X0. (v1_xboole_0 X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow (v1_xboole_0 X1)) \quad (14)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\ & X0))) \Rightarrow ((v10_pre_topc X0) \Rightarrow (\forall X1.((v3_pre_topc X1 X0) \wedge (\\ & m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))) \Rightarrow (\forall X2. \\ & ((v3_pre_topc X2 X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 \\ & X0)))) \Rightarrow (\neg(X1 \neq k1_xboole_0) \wedge ((r1_tarski (k2_pre_topc X0 X1) X2) \wedge \\ & (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow \\ & (\neg(X3 \neq k1_xboole_0) \wedge ((v3_pre_topc X3 X0) \wedge ((r1_tarski (k2_pre_topc \\ & X0 X1) X3) \wedge (r1_tarski (k2_pre_topc X0 X3) X2)))))))))) \end{aligned}$$