

t16_rusub_5

(TMHUAbqtrhX4K6fG6e3pD9GaHEAy7keG4Xc)

October 27, 2020

Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v2_rlvect_1 : \iota \Rightarrow o$ be given. Let $v3_rlvect_1 : \iota \Rightarrow o$ be given. Let $v4_rlvect_1 : \iota \Rightarrow o$ be given. Let $v5_rlvect_1 : \iota \Rightarrow o$ be given. Let $v6_rlvect_1 : \iota \Rightarrow o$ be given. Let $v7_rlvect_1 : \iota \Rightarrow o$ be given. Let $v8_rlvect_1 : \iota \Rightarrow o$ be given. Let $l1_rlvect_1 : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v2_rusub_4 : \iota \Rightarrow \iota \Rightarrow o$ 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 $k1_rusub_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_rusub_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_rusub_4 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $k7_rusub_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_rlvect_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_rusub_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
 & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l2_algstr_0 X0)))))) \Rightarrow \\
 & (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow \\
 & (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow \\
 & (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow ((X1 = k7_rusub_4 \\
 & X0 X2 (k6_domain_1 (u1_struct_0 X0) X3)) \Leftrightarrow (k1_rusub_5 X0 X1 (k6_domain_1 \\
 & (u1_struct_0 X0) X3) = X2))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. \forall X1. \neg (X0 \in X1) \wedge (v1_xboole_0 X1) \tag{2}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X2))) \Rightarrow (m1_subset_1 X0 X2) \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\ & ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge (l1_rlvect_1 \\ & X0)))))))))) \Rightarrow (\forall X1.((v2_rusub_4 X1 X0) \wedge (m1_subset_1 X1 \\ & (k1_zfmisc_1 (u1_struct_0 X0)))) \Rightarrow (\forall X2.((v2_rusub_4 X2 \\ & X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0)))) \Rightarrow (v2_rusub_4 \\ & (k1_rusub_5 X0 X1 X2) X0))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\ & ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge (l1_rlvect_1 \\ & X0)))))))))) \Rightarrow (\forall X1.((\neg v1_xboole_0 X1) \wedge ((v2_rusub_4 X1 \\ & X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))))) \Rightarrow ((k4_struct_0 \\ & X0 \in X1) \Rightarrow ((v3_rusub_4 X1 X0) \wedge (X1 = u1_struct_0 (k1_rlvect_3 X0 X1)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v5_rlvect_1 X0) \wedge ((v6_rlvect_1 \\ & X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge (l1_rlvect_1 X0)))))) \Rightarrow \\ & (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (v2_rusub_4 (k6_domain_1 \\ & (u1_struct_0 X0) X1) X0)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\ & ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge (l1_rlvect_1 \\ & X0)))))))))) \Rightarrow (\forall X1.((\neg v1_xboole_0 X1) \wedge ((v2_rusub_4 X1 \\ & X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))))) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((X2 \in X1) \Rightarrow (k4_struct_0 X0 \in \\ & k1_rusub_5 X0 X1 (k6_domain_1 (u1_struct_0 X0) X2)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge (l2_algstr_0 X0))) \wedge ((m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0))) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0)))))) \Rightarrow (k7_rusub_4 \\ & X0 X1 X2 = k6_rusub_4 X0 X1 X2) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge (m1_subset_1 X1 X0)) \Rightarrow \\ & (k6_domain_1 X0 X1 = k1_tarski X1) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.(l1_rlvect_1 X0) \Rightarrow (l2_algstr_0 X0) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0) \wedge (m1_subset_1 X1 X0)) \Rightarrow (m1_subset_1 (k6_domain_1 X0 X1) (k1_zfmisc_1 X0)) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge (l2_algstr_0 X0)) \wedge ((m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0))))) \Rightarrow (m1_subset_1 (k1_rusub_5 X0 X1 X2) (k1_zfmisc_1 (u1_struct_0 X0))) \quad (12)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge (l1_rlvect_1 X0)) \Rightarrow (\forall X1. ((v2_rusub_4 X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))) \Rightarrow (\forall X2. ((v2_rusub_4 X2 X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0)))) \Rightarrow ((r1_rusub_5 X0 X1 X2) \Leftrightarrow (\exists X3. (m1_subset_1 X3 (u1_struct_0 X0)) \wedge (X1 = k6_rusub_4 X0 X2 (k6_domain_1 (u1_struct_0 X0) X3)))))) \quad (13)$$

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

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge (l1_rlvect_1 X0)))))))))) \Rightarrow (\forall X1.((\neg v1_xboole_0 X1) \wedge ((v2_rusub_4 X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))))) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\neg (X2 \in X1) \wedge (\forall X3. ((\neg v1_xboole_0 X3) \wedge ((v2_rusub_4 X3 X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 X0))))) \Rightarrow (\neg (X3 = k1_rusub_5 X0 X1 (k6_domain_1 (u1_struct_0 X0) X2)) \wedge ((r1_rusub_5 X0 X1 X3) \wedge (v3_rusub_4 X3 X0)))))))$$