

t4_modcat_1 (TM-
MVRoP8eF9tAz83CdPNBKXURx1HNc83fn2)

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 $v3_group_1 : \iota \Rightarrow o$ be given. Let $v4_vectsp_1 : \iota \Rightarrow o$ be given. Let $v5_vectsp_1 : \iota \Rightarrow o$ be given. Let $l6_algstr_0 : \iota \Rightarrow o$ be given. Let $r1_modcat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $g2_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l2_struct_0 : \iota \Rightarrow o$ be given. Let $u2_struct_0 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $l1_algstr_0 : \iota \Rightarrow o$ be given. Let $u1_algstr_0 : \iota \Rightarrow \iota$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $l5_algstr_0 : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $l1_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v7_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v8_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v9_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v10_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v11_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_vectsp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $g1_vectsp_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(k4_tarski\ X0\ X1 = k4_tarski\ X2\ X3) \Rightarrow ((X0 = X2) \wedge (X1 = X3)) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v1_funct_1\ X1) \wedge (v1_funct_2 \\ & X1\ (k2_zfmisc_1\ X0\ X0)\ X0) \wedge (m1_subset_1\ X1\ (k1_zfmisc_1\ (k2_zfmisc_1 \\ & (k2_zfmisc_1\ X0\ X0)\ X0)))) \wedge (m1_subset_1\ X2\ X0)) \Rightarrow (\forall X3. \\ & \forall X4.\forall X5.(g2_algstr_0\ X0\ X1\ X2 = g2_algstr_0\ X3\ X4\ X5) \Rightarrow \\ & ((X0 = X3) \wedge ((X1 = X4) \wedge (X2 = X5)))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.(l2_struct_0\ X0) \Rightarrow (m1_subset_1\ (u2_struct_0\ X0)\ (u1_struct_0\ X0)) \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_algstr_0 X0) \Rightarrow & ((v1_funct_1 (u1_algstr_0 X0)) \wedge \\ & ((v1_funct_2 (u1_algstr_0 X0) (k2_zfmisc_1 (u1_struct_0 X0) (\\ & u1_struct_0 X0)) (u1_struct_0 X0)) \wedge (m1_subset_1 (u1_algstr_0 \\ & X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (\\ & u1_struct_0 X0)) (u1_struct_0 X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.(l6_algstr_0 X0) \Rightarrow ((l2_algstr_0 X0) \wedge (l5_algstr_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0) \Rightarrow (l1_struct_0 X0) \quad (6)$$

Assume the following.

$$\forall X0.(l2_algstr_0 X0) \Rightarrow ((l2_struct_0 X0) \wedge (l1_algstr_0 X0)) \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_struct_0 X0) \Rightarrow & (\forall X1.(l1_vectsp_1 X1 X0) \Rightarrow \\ & (l2_algstr_0 X1)) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2. & ((\neg v2_struct_0 X2) \wedge ((v13_algstr_0 \\ & X2) \wedge ((v2_rlvect_1 X2) \wedge ((v3_rlvect_1 X2) \wedge ((v4_rlvect_1 X2) \wedge \\ & ((v3_group_1 X2) \wedge ((v4_vectsp_1 X2) \wedge ((v5_vectsp_1 X2) \wedge (l6_algstr_0 \\ & X2)))))))))) \Rightarrow ((r1_modcat_1 X0 X1 X2) \Leftrightarrow (\exists X3.\exists X4.(\\ & X0 = k4_tarski X3 X4) \wedge (\exists X5.((\neg v2_struct_0 X5) \wedge ((v13_algstr_0 \\ & X5) \wedge ((v2_rlvect_1 X5) \wedge ((v3_rlvect_1 X5) \wedge ((v4_rlvect_1 X5) \wedge \\ & ((v7_vectsp_1 X5 X2) \wedge ((v8_vectsp_1 X5 X2) \wedge ((v9_vectsp_1 X5 X2) \wedge \\ & ((v10_vectsp_1 X5 X2) \wedge ((v11_vectsp_1 X5 X2) \wedge (l1_vectsp_1 X5 X2)))))))))) \wedge \\ & ((X1 = X5) \wedge ((X3 = g2_algstr_0 (u1_struct_0 X5) (u1_algstr_0 X5) \\ & (u2_struct_0 X5)) \wedge (X4 = u1_vectsp_1 X2 X5)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1. & ((l1_struct_0 X0) \wedge (l1_vectsp_1 X1 X0)) \Rightarrow \\ & ((v7_vectsp_1 X1 X0) \Rightarrow (X1 = g1_vectsp_1 X0 (u1_struct_0 X1) (u1_algstr_0 \\ & X1) (u2_struct_0 X1) (u1_vectsp_1 X0 X1))) \end{aligned} \quad (10)$$

Theorem 1

$$\begin{aligned} \forall X0. & ((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v3_group_1 X0) \wedge (\\ & (v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\ & (\forall X1.\forall X2.\forall X3.((r1_modcat_1 X1 X2 X0) \wedge (r1_modcat_1 \\ & X1 X3 X0)) \Rightarrow (X2 = X3)) \end{aligned}$$