

t18_vectsp11 (TMT- fwkP1cmfS3WprXNyVrgFoyngwGQXYkSi)

October 27, 2020

Let $l1_struct_0 : \iota \Rightarrow o$ 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 $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_vectsp11 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k3_struct_0 : \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v1_group_1 : \iota \Rightarrow o$ be given. Let $l3_algstr_0 : \iota \Rightarrow o$ be given. Let $k3_group_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_finseq_1 : \iota \Rightarrow \iota$ be given. Let $k1_group_1 : \iota \Rightarrow \iota$ be given. Let $k4_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k15_monoid_0 : \iota \Rightarrow \iota$ be given. Let $u2_algstr_0 : \iota \Rightarrow \iota$ be given. Let $k6_partfun1 : \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k4_ordinal1 : \iota$ be given. Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $k5_finseq_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_finseq_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v3_card_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_finseq_1 : \iota \Rightarrow o$ be given. Let $v15_algstr_0 : \iota \Rightarrow o$ be given. Let $m2_monoid_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k12_monoid_0 : \iota \Rightarrow \iota$ be given. Let $v1_monoid_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge ((v1_group_1 X0) \wedge (l3_algstr_0 X0))) \Rightarrow (k3_group_4 X0 (k6_finseq_1 (u1_struct_0 X0)) = k1_group_1 X0) \quad (1)$$

Assume the following.

$$\forall X0. k4_binop_1 (u1_struct_0 (k15_monoid_0 X0)) (u2_algstr_0 (k15_monoid_0 X0)) = k6_partfun1 X0 \quad (2)$$

Assume the following.

$$\forall X0. (v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \quad (3)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge ((v1_group_1 X0) \wedge (l3_algstr_0 X0))) \Rightarrow (k4_binop_1 (u1_struct_0 X0) (u2_algstr_0 X0) = k1_group_1 X0) \quad (4)$$

Assume the following.

$$m1_subset_1 \ k1_xboole_0 \ k4_ordinal1 \tag{5}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 \ X2) \wedge \\ & ((v1_funct_2 \ X2 \ X0 \ X1) \wedge (m1_subset_1 \ X2 \ (k1_zfmisc_1 \ (k2_zfmisc_1 \\ & X0 \ X1)))))) \wedge ((v1_funct_1 \ X3) \wedge ((v1_funct_2 \ X3 \ X0 \ X1) \wedge (m1_subset_1 \\ & X3 \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ X0 \ X1)))))) \Rightarrow ((r2_funct_2 \ X0 \ X1 \ X2 \\ & X3) \Leftrightarrow (X2 = X3)) \end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 \ X0) \wedge ((v7_ordinal1 \\ & X1) \wedge (m1_subset_1 \ X2 \ X0))) \Rightarrow (k5_finseq_2 \ X0 \ X1 \ X2 = k2_finseq_2 \ X1 \\ & X2) \end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (v7_ordinal1 \ X0) \Rightarrow ((v1_relat_1 \ (k2_finseq_2 \\ & X0 \ X1)) \wedge ((v1_funct_1 \ (k2_finseq_2 \ X0 \ X1)) \wedge ((v3_card_1 \ (k2_finseq_2 \\ & X0 \ X1) \ X0) \wedge (v1_finseq_1 \ (k2_finseq_2 \ X0 \ X1)))))) \end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v2_struct_0 \ (k15_monoid_0 \ X0)) \wedge ((v15_algstr_0 \\ & (k15_monoid_0 \ X0)) \wedge (v1_group_1 \ (k15_monoid_0 \ X0))) \end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 \ X0) \wedge (l1_struct_0 \ X0)) \Rightarrow (\neg v1_xboole_0 \\ & (u1_struct_0 \ X0)) \end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned} & \forall X0. (l3_algstr_0 \ X0) \Rightarrow (\forall X1. (m2_monoid_0 \ X1 \ X0) \Rightarrow \\ & (l3_algstr_0 \ X1)) \end{aligned} \tag{11}$$

Assume the following.

$$\forall X0. (l3_algstr_0 \ X0) \Rightarrow (l1_struct_0 \ X0) \tag{12}$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1_struct_0 \ X0) \Rightarrow ((v1_funct_1 \ (k3_struct_0 \ X0)) \wedge \\ & ((v1_funct_2 \ (k3_struct_0 \ X0) \ (u1_struct_0 \ X0) \ (u1_struct_0 \ X0)) \wedge \\ & (m1_subset_1 \ (k3_struct_0 \ X0) \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ (u1_struct_0 \\ & X0) \ (u1_struct_0 \ X0)))))) \end{aligned} \tag{13}$$

Assume the following.

$$\forall X0.(v15_algstr_0 (k15_monoid_0 X0)) \wedge (m2_monoid_0 (k15_monoid_0 X0) (k12_monoid_0 X0)) \quad (14)$$

Assume the following.

$$\forall X0.(v15_algstr_0 (k12_monoid_0 X0)) \wedge ((v1_monoid_0 (k12_monoid_0 X0)) \wedge (l3_algstr_0 (k12_monoid_0 X0))) \quad (15)$$

Assume the following.

$$\forall X0.k6_finseq_1 X0 = k1_xboole_0 \quad (16)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_struct_0 X0) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge ((\\ v1_funct_2 X1 (u1_struct_0 X0) (u1_struct_0 X0)) \wedge (m1_subset_1 \\ X1 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)))))) \Rightarrow \\ (\forall X2.(v7_ordinal1 X2) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge (\\ v1_funct_2 X3 (u1_struct_0 X0) (u1_struct_0 X0)) \wedge (m1_subset_1 \\ X3 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)))))) \Rightarrow \\ ((X3 = k1_vectsp11 X0 X1 X2) \Leftrightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 \\ (k15_monoid_0 (u1_struct_0 X0)))) \Rightarrow ((X4 = X1) \Rightarrow (X3 = k3_group_4 \\ (k15_monoid_0 (u1_struct_0 X0)) (k5_finseq_2 (u1_struct_0 (k15_monoid_0 \\ (u1_struct_0 X0))) X2 X4)))))) \quad (17) \end{aligned}$$

Assume the following.

$$\forall X0.(l1_struct_0 X0) \Rightarrow (k3_struct_0 X0 = k6_partfun1 (u1_struct_0 X0)) \quad (18)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k4_ordinal1) \Rightarrow (v7_ordinal1 X0) \quad (19)$$

Assume the following.

$$\forall X0.(v3_card_1 X0 k1_xboole_0) \Rightarrow (v1_xboole_0 X0) \quad (20)$$

Theorem 1

$$\begin{aligned} \forall X0.(l1_struct_0 X0) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge ((\\ v1_funct_2 X1 (u1_struct_0 X0) (u1_struct_0 X0)) \wedge (m1_subset_1 \\ X1 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)))))) \Rightarrow \\ (r2_funct_2 (u1_struct_0 X0) (u1_struct_0 X0) (k1_vectsp11 X0 \\ X1 k1_xboole_0) (k3_struct_0 X0))) \end{aligned}$$