

l5_finsop_1 (TMVqeVvMM- MviB1V56TvDsbEuHRqCpm56jaK)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m2_finseq_1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k3_finseq_1 : \iota \Rightarrow \iota$ be given. Let $k6_numbers : \iota$ be given. Let $v1_setwiseo : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_binop_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_binop_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_finsop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_numbers : \iota$ be given. Let $k3_finsop_1 : \iota \Rightarrow \iota$ be given. Let $k2_finsop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k1_setwiseo : \iota \Rightarrow \iota$ be given. Let $m1_finseq_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_ordinal1 : \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_finseq_1 : \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_card_1 : \iota \Rightarrow \iota$ be given. Let $v3_ordinal1 : \iota \Rightarrow o$ be given. Let $v1_card_1 : \iota \Rightarrow o$ be given. Let $v3_card_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_finsub_1 : \iota \Rightarrow \iota$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $np_1 : \iota$ be given. Let $k8_nat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_nat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\ & (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X0 \\ & X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ & X0 X0) X0)))))) \Rightarrow (((v1_binop_1 X2 X0) \wedge ((v2_binop_1 X2 X0) \wedge (v1_setwiseo \\ & X2 X0))) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X1 X0) \wedge \\ & (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 X1 X0)))))) \Rightarrow (k7_setwiseo \\ & X1 X0 X2 (k1_setwiseo X1) X3 = k4_binop_1 X0 X2)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.(m2_finseq_1 X1 X0) \Leftrightarrow (m1_finseq_1 X1 X0) \quad (3)$$

Assume the following.

$$k6_numbers = k1_xboole_0 \quad (4)$$

Assume the following.

$$k5_numbers = k4_ordinal1 \quad (5)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_finseq_1 X0))) \Rightarrow (k3_finsop_1 X0 = k9_xtuple_0 X0) \quad (6)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_finseq_1 X0))) \Rightarrow (k3_finseq_1 X0 = k1_card_1 X0) \quad (7)$$

Assume the following.

$$(\neg v1_xboole_0 k4_ordinal1) \wedge (v3_ordinal1 k4_ordinal1) \quad (8)$$

Assume the following.

$$\forall X0.(\neg v1_xboole_0 X0) \Rightarrow ((\neg v1_xboole_0 (k1_card_1 X0)) \wedge (v1_card_1 (k1_card_1 X0))) \quad (9)$$

Assume the following.

$$v1_xboole_0 k1_xboole_0 \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.((v1_card_1 X0) \wedge ((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v3_card_1 X1 X0)))) \Rightarrow (v3_card_1 (k9_xtuple_0 X1) X0) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.(m1_finseq_1 X1 X0) \Rightarrow ((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v1_finseq_1 X1))) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0) \wedge (m1_subset_1 X2 X0)) \Rightarrow ((v1_funct_1 (k8_funcop_1 X0 X1 X2)) \wedge ((v1_funct_2 (k8_funcop_1 X0 X1 X2) X1 X0) \wedge (m1_subset_1 (k8_funcop_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X1 X0)))))) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))))) \Rightarrow (m1_subset_1 (k4_binop_1 X0 X1) X0) \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v1_funct_1 \\ & X1)\wedge((v1_funct_2 X1 k5_numbers X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 k5_numbers X0))))))\wedge(m1_finseq_1 X2 X0))\Rightarrow((v1_funct_1 \\ & (k2_finsop_1 X0 X1 X2))\wedge((v1_funct_2 (k2_finsop_1 X0 X1 X2) k5_numbers \\ & X0)\wedge(m1_subset_1 (k2_finsop_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 \\ & k5_numbers X0)))))) \end{aligned} \quad (15)$$

Assume the following.

$$\forall X0.(v1_xboole_0 (k1_setwiseo X0)\wedge(m1_subset_1 (k1_setwiseo X0) (k5_finsub_1 X0)) \quad (16)$$

Assume the following.

$$\forall X0.v1_card_1 (k1_card_1 X0) \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.(m2_finseq_1 X1 X0)\Rightarrow \\ & (\forall X2.((v1_funct_1 X2)\wedge((v1_funct_2 X2 (k2_zfmisc_1 X0 \\ & X0) X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ & X0 X0) X0))))))\Rightarrow(((v1_setwiseo X2 X0)\vee(r1_xxreal_0 np_1 (k3_finseq_1 \\ & X1)))\Rightarrow(\forall X3.(m1_subset_1 X3 X0)\Rightarrow((((v1_setwiseo X2 X0)\wedge \\ & (k3_finseq_1 X1 = k6_numbers))\Rightarrow((X3 = k1_finsop_1 X0 X1 X2)\Leftrightarrow(X3 = \\ & k4_binop_1 X0 X2)))\wedge((\neg(v1_setwiseo X2 X0)\wedge(k3_finseq_1 X1 = k6_numbers))\Rightarrow \\ & ((X3 = k1_finsop_1 X0 X1 X2)\Leftrightarrow(\exists X4.((v1_funct_1 X4)\wedge((v1_funct_2 \\ & X4 k5_numbers X0)\wedge(m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers \\ & X0))))))\wedge((k8_nat_1 X0 X4 np_1 = k1_funct_1 X1 np_1)\wedge((\forall X5. \\ & (m1_subset_1 X5 k5_numbers)\Rightarrow(\neg(k6_numbers\neq X5)\wedge((\neg r1_xxreal_0 \\ & (k3_finseq_1 X1) X5)\wedge(k8_nat_1 X0 X4 (k2_nat_1 X5 np_1)\neq k1_binop_1 \\ & X2 (k8_nat_1 X0 X4 X5) (k1_funct_1 X1 (k2_nat_1 X5 np_1))))))\wedge(\\ & X3 = k8_nat_1 X0 X4 (k3_finseq_1 X1))))))))) \end{aligned} \quad (18)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0)\Rightarrow(v3_card_1 X0 k1_xboole_0) \quad (19)$$

Assume the following.

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

Theorem 1

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.(m2_finseq_1 X1 X0)\Rightarrow \\ & (\forall X2.((v1_funct_1 X2)\wedge((v1_funct_2 X2 (k2_zfmisc_1 X0 \\ & X0) X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ & X0 X0) X0))))))\Rightarrow(((k3_finseq_1 X1 = k6_numbers)\wedge((v1_setwiseo \\ & X2 X0)\wedge((v2_binop_1 X2 X0)\wedge(v1_binop_1 X2 X0))))\Rightarrow(k1_finsop_1 \\ & X0 X1 X2 = k7_setwiseo k5_numbers X0 X2 (k3_finsop_1 X1) (k2_finsop_1 \\ & X0 (k8_funcop_1 X0 k5_numbers (k4_binop_1 X0 X2)) X1)))) \end{aligned}$$