

t4_normform (TM-
JAKYgk1jeFq9yZhJNPJWQNBGNyQFDWCBp)

October 27, 2020

Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v4_finsub_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_normform : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_finsub_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k2_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. k3_xboole_0 (k3_xboole_0 X0 X1) X2 = k3_xboole_0 X0 (k3_xboole_0 X1 X2) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (((\neg v1_xboole_0 X0) \wedge (v4_finsub_1 X0)) \wedge ((m1_subset_1 X1 X0) \wedge (m1_subset_1 X2 X0))) \Rightarrow (k3_finsub_1 X0 X1 X2 = k3_xboole_0 X1 X2) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge (m1_subset_1 X2 (k2_zfmisc_1 X0 X1)))) \Rightarrow (k3_domain_1 X0 X1 X2 = k2_xtuple_0 X2)) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge (m1_subset_1 X2 (k2_zfmisc_1 X0 X1)))) \Rightarrow (k2_domain_1 X0 X1 X2 = k1_xtuple_0 X2)) \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. (((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge ((m1_subset_1 X2 X0) \wedge (m1_subset_1 X3 X1)))) \Rightarrow (k1_domain_1 X0 X1 X2 X3 = k4_tarski X2 X3)) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.k2_xtuple_0 (k4_tarski X0 X1) = X1 \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.k1_xtuple_0 (k4_tarski X0 X1) = X0 \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v1_xboole_0 X0)\wedge(v4_finsub_1 X0))\wedge((m1_subset_1 X1 X0)\wedge(m1_subset_1 X2 X0)))\Rightarrow(k3_finsub_1 X0 X1 X1 = X1) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v1_xboole_0 X0)\wedge(v4_finsub_1 X0))\wedge((m1_subset_1 X1 X0)\wedge(m1_subset_1 X2 X0)))\Rightarrow(m1_subset_1 (k3_finsub_1 X0 X1 X2) X0) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge(m1_subset_1 X2 (k2_zfmisc_1 X0 X1))))\Rightarrow(m1_subset_1 (k3_domain_1 X0 X1 X2) X1) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(((\neg v1_xboole_0 X0)\wedge(v4_finsub_1 X0))\wedge(((\neg v1_xboole_0 X1)\wedge(v4_finsub_1 X1))\wedge((m1_subset_1 X2 (k2_zfmisc_1 X0 X1))\wedge(m1_subset_1 X3 (k2_zfmisc_1 X0 X1)))))\Rightarrow(m1_subset_1 (k2_normform X0 X1 X2 X3) (k2_zfmisc_1 X0 X1)) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge(m1_subset_1 X2 (k2_zfmisc_1 X0 X1))))\Rightarrow(m1_subset_1 (k2_domain_1 X0 X1 X2) X0) \quad (12)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0)\wedge(v4_finsub_1 X0))\Rightarrow(\forall X1.((\neg v1_xboole_0 X1)\wedge(v4_finsub_1 X1))\Rightarrow(\forall X2.(m1_subset_1 X2 (k2_zfmisc_1 X0 X1))\Rightarrow(\forall X3.(m1_subset_1 X3 (k2_zfmisc_1 X0 X1))\Rightarrow(k2_normform X0 X1 X2 X3 = k1_domain_1 X0 X1 (k3_finsub_1 X0 (k2_domain_1 X0 X1 X2) (k2_domain_1 X0 X1 X3)) (k3_finsub_1 X1 (k3_domain_1 X0 X1 X2) (k3_domain_1 X0 X1 X3)))))) \quad (13)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((\neg v1_xboole_0 X0)\wedge(v4_finsub_1 \\ X0))\wedge((m1_subset_1 X1 X0)\wedge(m1_subset_1 X2 X0)))\Rightarrow(k3_finsub_1 \\ X0 X1 X2 = k3_finsub_1 X0 X2 X1) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v1_xboole_0 \\ X0)\wedge(v4_finsub_1 X0))\wedge(((\neg v1_xboole_0 X1)\wedge(v4_finsub_1 X1))\wedge \\ ((m1_subset_1 X2 (k2_zfmisc_1 X0 X1))\wedge(m1_subset_1 X3 (k2_zfmisc_1 \\ X0 X1))))))\Rightarrow(k2_normform X0 X1 X2 X3 = k2_normform X0 X1 X3 X2) \end{aligned} \quad (15)$$

Theorem 1

$$\begin{aligned} \forall X0.((\neg v1_xboole_0 X0)\wedge(v4_finsub_1 X0))\Rightarrow(\forall X1. \\ ((\neg v1_xboole_0 X1)\wedge(v4_finsub_1 X1))\Rightarrow(\forall X2.(m1_subset_1 \\ X2 (k2_zfmisc_1 X0 X1))\Rightarrow(\forall X3.(m1_subset_1 X3 (k2_zfmisc_1 \\ X0 X1))\Rightarrow(\forall X4.(m1_subset_1 X4 (k2_zfmisc_1 X0 X1))\Rightarrow(k2_normform \\ X0 X1 (k2_normform X0 X1 X2 X3) X4 = k2_normform X0 X1 X2 (k2_normform \\ X0 X1 X3 X4)))))) \end{aligned}$$