

l47_nagata_1
(TMWuQKtt3zvTpih3yfhJwFj9VeiYeVXgH1o)

October 27, 2020

Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k1_metric_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_nagata_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_xxreal_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. (((v1_funct_1 \\ & X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 \\ & X1) k1_numbers)))) \wedge ((m1_subset_1 X3 X0) \wedge (m1_subset_1 X4 X1))) \Rightarrow \\ & (k1_metric_1 X0 X1 X2 X3 X4 = k1_binop_1 X2 X3 X4) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1_xboole_0 X0) \wedge \\ & ((\neg v1_xboole_0 X1) \wedge ((m1_subset_1 X2 X0) \wedge (m1_subset_1 X3 X1)))) \Rightarrow \\ & (k1_domain_1 X0 X1 X2 X3 = k4_tarski X2 X3) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge (\neg v1_xboole_0 X1)) \Rightarrow (\neg v1_xboole_0 (k2_zfmisc_1 X0 X1)) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1_subset_1 X1 k1_numbers)\wedge \\ & ((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 k1_numbers)\wedge(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow((v1_funct_1 \\ & (k5_nagata_1 X0 X1 X2))\wedge((v1_funct_2 (k5_nagata_1 X0 X1 X2) X0 k1_numbers)\wedge \\ & (m1_subset_1 (k5_nagata_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 k1_numbers)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\ & ((\neg v1_xboole_0 X1)\wedge((m1_subset_1 X2 X0)\wedge(m1_subset_1 X3 X1))))\Rightarrow \\ & (m1_subset_1 (k1_domain_1 X0 X1 X2 X3) (k2_zfmisc_1 X0 X1)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(m1_subset_1 X1 k1_numbers)\Rightarrow(\forall X2. \\ & ((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 k1_numbers)\wedge(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow(\forall X3. \\ & ((v1_funct_1 X3)\wedge((v1_funct_2 X3 X0 k1_numbers)\wedge(m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow((X3 = k5_nagata_1 \\ & X0 X1 X2)\Leftrightarrow(\forall X4.(X4 \in X0)\Rightarrow(k1_funct_1 X3 X4 = k3_xxreal_0 X1 \\ & (k1_funct_1 X2 X4)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.k4_tarski X0 X1 = k2_tarski (k2_tarski X0 X1) (k1_tarski X0) \quad (8)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0)\wedge(v1_funct_1 X0))\Rightarrow(\forall X1.\forall X2. \\ k1_binop_1 X0 X1 X2 = k1_funct_1 X0 (k4_tarski X1 X2)) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\ (k2_zfmisc_1 X0 X1)))\Rightarrow(v1_relat_1 X2) \quad (10)$$

Theorem 1

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k1_numbers)\Rightarrow(\forall X1.(\neg v1_xboole_0 \\ & X1)\Rightarrow(\forall X2.((v1_funct_1 X2)\wedge((v1_funct_2 X2 (k2_zfmisc_1 \\ & X1 X1) k1_numbers)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X1 X1) k1_numbers))))))\Rightarrow(\forall X3.(m1_subset_1 \\ & X3 X1)\Rightarrow(\forall X4.(m1_subset_1 X4 X1)\Rightarrow(k1_metric_1 X1 X1 (k5_nagata_1 \\ & (k2_zfmisc_1 X1 X1) X0 X2) X3 X4 = k3_xxreal_0 X0 (k1_metric_1 X1 X1 \\ & X2 X3 X4)))))) \end{aligned}$$