

t27_closure2

(TMPaJN29pwfzs1MDkW5dKfJy12U8JAYaNiw)

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Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_partfun1 : \iota \Rightarrow \iota$ be given. Let $k6_closure2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v8_closure2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_relat_1 : \iota \Rightarrow \iota$ be given. Let $k1_closure2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_closure2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_closure2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_funct_1 : \iota \Rightarrow o$ be given. Let $v2_card_3 : \iota \Rightarrow o$ be given. Let $v1_closure2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_closure2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_closure2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_closure2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_closure2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v6_closure2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (k1_funct_1 (k4_relat_1 X1) X0 = X0) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_relat_1 X1) \wedge (v4_relat_1 \\ & X1 X0) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 X0)))) \wedge ((\neg v1_xboole_0 \\ & X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k1_closure2 X0 X1)))) \Rightarrow (\forall X3. \\ & (m1_closure2 X3 X0 X1 X2) \Leftrightarrow (m1_subset_1 X3 X2)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1_relat_1 X1) \wedge \\ & ((v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 X0)))) \wedge \\ & (((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k6_closure2 X0 X1) (k6_closure2 \\ & X0 X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k6_closure2 \\ & X0 X1) (k6_closure2 X0 X1)))))) \wedge (m1_subset_1 X3 (k6_closure2 X0 \\ & X1)))) \Rightarrow (k7_closure2 X0 X1 X2 X3 = k1_funct_1 X2 X3) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.k6_partfun1\ X0 = k4_relat_1\ X0 \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1\ X1)\wedge((v4_relat_1\ X1\ X0)\wedge(v1_funct_1\ X1)\wedge(v1_partfun1\ X1\ X0)))\Rightarrow(k6_closure2\ X0\ X1 = k1_closure2\ X0\ X1) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1\ X1)\wedge((v4_relat_1\ X1\ X0)\wedge(v1_funct_1\ X1)\wedge(v1_partfun1\ X1\ X0)))\Rightarrow((\neg v1_xboole_0\ (k1_closure2\ X0\ X1))\wedge((v4_funct_1\ (k1_closure2\ X0\ X1))\wedge(v2_card_3\ (k1_closure2\ X0\ X1)))) \quad (7)$$

Assume the following.

$$\forall X0.(v1_relat_1\ (k4_relat_1\ X0))\wedge((v4_relat_1\ (k4_relat_1\ X0)\ X0)\wedge((v1_funct_1\ (k4_relat_1\ X0))\wedge(v1_partfun1\ (k4_relat_1\ X0)\ X0))) \quad (8)$$

Assume the following.

$$\forall X0.(v1_partfun1\ (k6_partfun1\ X0)\ X0)\wedge(m1_subset_1\ (k6_partfun1\ X0)\ (k1_zfmisc_1\ (k2_zfmisc_1\ X0\ X0))) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1\ X1)\wedge((v4_relat_1\ X1\ X0)\wedge(v1_funct_1\ X1)\wedge(v1_partfun1\ X1\ X0)))\Rightarrow((v1_closure2\ (k6_closure2\ X0\ X1)\ X0\ X1)\wedge((v2_closure2\ (k6_closure2\ X0\ X1)\ X0\ X1)\wedge((v3_closure2\ (k6_closure2\ X0\ X1)\ X0\ X1)\wedge((v4_closure2\ (k6_closure2\ X0\ X1)\ X0\ X1)\wedge((v5_closure2\ (k6_closure2\ X0\ X1)\ X0\ X1)\wedge((v6_closure2\ (k6_closure2\ X0\ X1)\ X0\ X1)\wedge(m1_subset_1\ (k6_closure2\ X0\ X1)\ (k1_zfmisc_1\ (k1_closure2\ X0\ X1)))))))))) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1\ X1)\wedge((v4_relat_1\ X1\ X0)\wedge(v1_funct_1\ X1)\wedge(v1_partfun1\ X1\ X0)))\Rightarrow(\forall X2.((v1_funct_1\ X2)\wedge((v1_funct_2\ X2\ (k6_closure2\ X0\ X1)\ (k6_closure2\ X0\ X1))\wedge(m1_subset_1\ X2\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k6_closure2\ X0\ X1)\ (k6_closure2\ X0\ X1))))))\Rightarrow((v8_closure2\ X2\ X0\ X1)\Leftrightarrow(\forall X3.(m1_closure2\ X3\ X0\ X1\ (k6_closure2\ X0\ X1))\Rightarrow(\forall X4.(m1_closure2\ X4\ X0\ X1\ (k6_closure2\ X0\ X1))\Rightarrow((r2_pboole\ X0\ X3\ X4)\Rightarrow(r2_pboole\ X0\ (k7_closure2\ X0\ X1\ X2\ X3)\ (k7_closure2\ X0\ X1\ X2\ X4)))))) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1))) \Rightarrow ((v1_partfun1 X2 X0) \Rightarrow (v1_funct_2 X2 X0 X1)) \end{aligned} \quad (12)$$

Theorem 1

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge \\ & (v1_funct_1 X1) \wedge (v1_partfun1 X1 X0))) \Rightarrow ((v1_funct_1 (k6_partfun1 \\ & (k6_closure2 X0 X1))) \wedge ((v1_funct_2 (k6_partfun1 (k6_closure2 \\ & X0 X1)) (k6_closure2 X0 X1) (k6_closure2 X0 X1)) \wedge ((v8_closure2 \\ & (k6_partfun1 (k6_closure2 X0 X1)) X0 X1) \wedge (m1_subset_1 (k6_partfun1 \\ & (k6_closure2 X0 X1)) (k1_zfmisc_1 (k2_zfmisc_1 (k6_closure2 X0 \\ & X1) (k6_closure2 X0 X1)))))) \end{aligned}$$