

t21_closure2

(TMb2BQPRAvSMUQZtPLWwo2CeABWVHjGweWm)

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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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k1_closure2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_closure2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_closure2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_closure2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_closure2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. \neg (X0 \in X1) \wedge (v1_xboole_0 X1) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \neg (X0 \in X1) \wedge ((m1_subset_1 X1 (k1_zfmisc_1 X2)) \wedge (v1_xboole_0 X2)) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X2))) \Rightarrow (m1_subset_1 X0 X2) \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge (\\ (v1_funct_1 X1) \wedge (v1_partfun1 X1 X0)))) \Rightarrow (\forall X2. (m1_subset_1 \\ X2 (k1_zfmisc_1 (k1_closure2 X0 X1))) \Rightarrow ((\neg v1_xboole_0 X2) \Rightarrow (\forall X3. \\ (X3 \in X0) \Rightarrow (k1_funct_1 (k4_closure2 X0 X1 X2) X3 = ReplSep (toset (\\ \lambda X4 : \iota. m1_closure2 X4 X0 X1 (k2_closure2 X0 X1))) (\lambda X4 : \\ \iota. X4 \in X2) (\lambda X4 : \iota. k1_funct_1 X4 X3)))))) \quad (4) \end{aligned}$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. (((v1_relat_1 X1) \wedge ((v4_relat_1 \\ X1 X0) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 X0)))) \wedge ((\neg v1_xboole_0 \\ X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k1_closure2 X0 X1)))))) \Rightarrow (\forall X3. \\ (m1_closure2 X3 X0 X1 X2) \Leftrightarrow (m1_subset_1 X3 X2)) \quad (5) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v1_relat_1 X1)\wedge((v4_relat_1 \\ & X1 X0)\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 X0))))\wedge(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k1_closure2 X0 X1))))\Rightarrow(k5_closure2 X0 X1 X2 = k4_closure2 \\ & X0 X1 X2) \end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge \\ & (v1_funct_1 X1)\wedge(v1_partfun1 X1 X0)))\Rightarrow(k2_closure2 X0 X1 = k1_closure2 \\ & X0 X1) \end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v1_relat_1 X1)\wedge((v4_relat_1 \\ & X1 X0)\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 X0))))\wedge(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k1_closure2 X0 X1))))\Rightarrow((v1_relat_1 (k4_closure2 \\ & X0 X1 X2))\wedge((v4_relat_1 (k4_closure2 X0 X1 X2) X0)\wedge((v1_funct_1 \\ & (k4_closure2 X0 X1 X2))\wedge(v1_partfun1 (k4_closure2 X0 X1 X2) X0)))) \end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge \\ & (v1_funct_1 X1)\wedge(v1_partfun1 X1 X0)))\Rightarrow(m1_subset_1 (k2_closure2 \\ & X0 X1) (k1_zfmisc_1 (k1_closure2 X0 X1))) \end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge \\ & (v1_funct_1 X1)\wedge(v1_partfun1 X1 X0)))\Rightarrow(\forall X2.((v1_relat_1 \\ & X2)\wedge((v4_relat_1 X2 X0)\wedge((v1_funct_1 X2)\wedge(v1_partfun1 X2 X0))))\Rightarrow \\ & ((r1_pboole X0 X1 X2)\Leftrightarrow(\forall X3.(X3 \in X0)\Rightarrow(k1_funct_1 X1 X3 \in k1_funct_1 \\ & X2 X3)))) \end{aligned} \tag{10}$$

Theorem 1

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge \\ & (v1_funct_1 X1)\wedge(v1_partfun1 X1 X0)))\Rightarrow(\forall X2.((v1_relat_1 \\ & X2)\wedge((v4_relat_1 X2 X0)\wedge((v1_funct_1 X2)\wedge(v1_partfun1 X2 X0))))\Rightarrow \\ & (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (k1_closure2 X0 X1)))\Rightarrow \\ & ((X2 \in X3)\Rightarrow(r1_pboole X0 X2 (k5_closure2 X0 X1 X3)))) \end{aligned}$$