

t20_fcont_2 (TMGAJRYsrtEBoDQCZwL- heX5ghgQwboincX6)

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Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v2_funct_1 : \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_rcomp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_fcont_1 : \iota \Rightarrow o$ be given. Let $k2_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_partfun2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_seq_4 : \iota \Rightarrow \iota$ be given. Let $k7_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_seq_4 : \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $k5_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v6_valued_0 : \iota \Rightarrow o$ be given. Let $v5_valued_0 : \iota \Rightarrow o$ be given. Let $v1_rfunct_2 : \iota \Rightarrow o$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k2_funct_1 : \iota \Rightarrow \iota$ be given. Let $k7_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_membered : \iota \Rightarrow o$ be given. Let $v3_valued_0 : \iota \Rightarrow o$ be given. Let $v2_valued_0 : \iota \Rightarrow o$ be given. Let $v7_valued_0 : \iota \Rightarrow o$ be given. Let $v8_valued_0 : \iota \Rightarrow o$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. (v1_relat_1 X1) \Rightarrow (k5_relat_1 (k5_relat_1 X1 X0) X0 = k5_relat_1 X1 X0) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (v1_relat_1 X1) \Rightarrow (k9_xtuple_0 (k5_relat_1 X1 X0) = k3_xboole_0 (k9_xtuple_0 X1) X0) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. (m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1. (m1_subset_1 X1 k1_numbers) \Rightarrow (\forall X2. ((v1_funct_1 X2) \wedge ((v2_funct_1 X2) \wedge \\ & (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))))) \Rightarrow \\ & ((v6_valued_0 (k2_partfun1 k1_numbers k1_numbers X2 (k1_rcomp_1 X0 X1))) \Rightarrow (v6_valued_0 (k2_partfun1 k1_numbers k1_numbers (k2_partfun2 \\ & k1_numbers k1_numbers (k2_partfun1 k1_numbers k1_numbers X2 (k1_rcomp_1 X0 X1))) (k7_relset_1 k1_numbers k1_numbers X2 (k1_rcomp_1 X0 X1)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.(m1_subset_1 \\
& \quad X1 k1_numbers) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge ((v2_funct_1 X2) \wedge \\
& (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))))) \Rightarrow \\
& \quad ((v5_valued_0 (k2_partfun1 k1_numbers k1_numbers X2 (k1_rcomp_1 \\
& X0 X1))) \Rightarrow (v5_valued_0 (k2_partfun1 k1_numbers k1_numbers (k2_partfun2 \\
& \quad k1_numbers k1_numbers (k2_partfun1 k1_numbers k1_numbers X2 (\\
& \quad k1_rcomp_1 X0 X1))) (k7_relset_1 k1_numbers k1_numbers X2 (k1_rcomp_1 \\
& \quad \quad X0 X1))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((v1_funct_1 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\
& (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow ((v1_rfunct_2 (k2_partfun1 \\
& \quad k1_numbers k1_numbers X1 X0)) \Rightarrow ((\forall X2.(v1_xreal_0 X2) \Rightarrow (\\
& \quad \forall X3.(v1_xreal_0 X3) \Rightarrow (\neg(r1_xxreal_0 X2 X3) \wedge (k7_relset_1 \\
& \quad k1_numbers k1_numbers X1 X0 = k1_rcomp_1 X2 X3)))) \vee (v1_fcont_1 \\
& \quad (k2_partfun1 k1_numbers k1_numbers X1 X0))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow ((v2_funct_1 X0) \Rightarrow \\
& ((k10_xtuple_0 X0 = k9_xtuple_0 (k2_funct_1 X0)) \wedge (k9_xtuple_0 \\
& \quad X0 = k10_xtuple_0 (k2_funct_1 X0)))
\end{aligned} \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.(r1_tarski X0 X1) \Rightarrow (k3_xboole_0 X0 X1 = X0) \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.(m1_subset_1 \\
& \quad X1 k1_numbers) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge (m1_subset_1 X2 \\
& (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow (((r1_xxreal_0 \\
& \quad X0 X1) \wedge ((r1_tarski (k1_rcomp_1 X0 X1) (k1_relset_1 k1_numbers \\
& \quad X2)) \wedge (v1_fcont_1 (k2_partfun1 k1_numbers k1_numbers X2 (k1_rcomp_1 \\
& \quad X0 X1)))))) \Rightarrow (k7_relset_1 k1_numbers k1_numbers X2 (k1_rcomp_1 \\
& \quad X0 X1) = k1_rcomp_1 (k5_seq_4 (k7_relset_1 k1_numbers k1_numbers \\
& \quad X2 (k1_rcomp_1 X0 X1))) (k4_seq_4 (k7_relset_1 k1_numbers k1_numbers \\
& \quad \quad X2 (k1_rcomp_1 X0 X1))))))
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v2_funct_1 \\
& X1))) \Rightarrow (k2_funct_1 (k5_relat_1 X1 X0) = k5_relat_1 (k2_funct_1 \\
& \quad X1) (k7_relat_1 X1 X0))
\end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.(m1_subset_1 \\ & X1 k1_numbers) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge (m1_subset_1 X2 \\ & (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow (\neg(v2_funct_1 \\ & X2) \wedge ((r1_tarski (k1_rcomp_1 X0 X1) (k1_relset_1 k1_numbers X2)) \wedge \\ & ((r1_xxreal_0 X0 X1) \wedge ((v1_fcont_1 (k2_partfun1 k1_numbers k1_numbers \\ & X2 (k1_rcomp_1 X0 X1))) \wedge ((\neg v5_valued_0 (k2_partfun1 k1_numbers \\ & k1_numbers X2 (k1_rcomp_1 X0 X1))) \wedge (\neg v6_valued_0 (k2_partfun1 \\ & k1_numbers k1_numbers X2 (k1_rcomp_1 X0 X1)))))))))) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.(v1_relat_1 X1) \Rightarrow (k10_xtuple_0 (k5_relat_1 X1 X0) = k7_relat_1 X1 X0) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(m1_subset_1 X2 (\\ & k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow (k7_relset_1 X0 X1 X2 X3 = k7_relat_1 \\ & X2 X3) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((v1_funct_1 X2) \wedge ((v2_funct_1 \\ & X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))) \Rightarrow (k2_partfun2 \\ & X0 X1 X2 = k2_funct_1 X2) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((v1_funct_1 X2) \wedge \\ & (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))) \Rightarrow (k2_partfun1 \\ & X0 X1 X2 X3 = k5_relat_1 X2 X3) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1) \wedge (v4_relat_1 X1 X0)) \Rightarrow (k1_relset_1 X0 X1 = k9_xtuple_0 X1) \quad (15)$$

Assume the following.

$$v3_membered k1_numbers \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v2_funct_1 \\ & X1))) \Rightarrow ((v1_relat_1 (k5_relat_1 X1 X0)) \wedge (v2_funct_1 (k5_relat_1 \\ & X1 X0))) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((v1_funct_1 X2)\wedge((v2_funct_1 \\ & X2)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))\Rightarrow((v1_funct_1 \\ & (k2_partfun2 X0 X1 X2))\wedge(m1_subset_1 (k2_partfun2 X0 X1 X2) (k1_zfmisc_1 \\ & (k2_zfmisc_1 X1 X0)))) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((v1_funct_1 X2)\wedge \\ & (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))\Rightarrow((v1_funct_1 \\ & (k2_partfun1 X0 X1 X2 X3))\wedge(m1_subset_1 (k2_partfun1 X0 X1 X2 X3) \\ & (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))) \end{aligned} \quad (19)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0)\wedge(v1_funct_1 X0))\Rightarrow((v1_relat_1 (k2_funct_1 X0))\wedge(v1_funct_1 (k2_funct_1 X0))) \quad (20)$$

Assume the following.

$$\forall X0.\forall X1.k3_xboole_0 X0 X1 = k3_xboole_0 X1 X0 \quad (21)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0)\wedge(v3_valued_0 X0))\Rightarrow((v1_relat_1 X0)\wedge(v2_valued_0 X0)) \quad (22)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers \\ & k1_numbers)))\Rightarrow(((v1_funct_1 X0)\wedge(\neg v1_rfunct_2 X0))\Rightarrow((v1_funct_1 \\ & X0)\wedge((\neg v7_valued_0 X0)\wedge(\neg v8_valued_0 X0)))) \end{aligned} \quad (23)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow((v4_relat_1 X2 X0)\wedge(v5_relat_1 X2 X1)) \quad (24)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0)\wedge((v1_funct_1 X0)\wedge((v2_valued_0 \\ & X0)\wedge(v6_valued_0 X0))))\Rightarrow((v1_relat_1 X0)\wedge((v1_funct_1 X0)\wedge \\ & ((v2_valued_0 X0)\wedge(v8_valued_0 X0)))) \end{aligned} \quad (25)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0)\wedge((v1_funct_1 X0)\wedge((v2_valued_0 \\ & X0)\wedge(v5_valued_0 X0))))\Rightarrow((v1_relat_1 X0)\wedge((v1_funct_1 X0)\wedge \\ & ((v2_valued_0 X0)\wedge(v7_valued_0 X0)))) \end{aligned} \quad (26)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (v1_xreal_0 X0) \quad (27)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow (v1_relat_1 X2) \quad (28)$$

Assume the following.

$$\forall X0.\forall X1.(v3_membered X1) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow (v3_valued_0 X2)) \quad (29)$$

Theorem 1

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.(m1_subset_1 \\ & X1 k1_numbers) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge ((v2_funct_1 X2) \wedge \\ & (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))))) \Rightarrow \\ & (((r1_xxreal_0 X0 X1) \wedge ((r1_tarski (k1_rcomp_1 X0 X1) (k1_relset_1 \\ & k1_numbers X2)) \wedge (v1_fcont_1 (k2_partfun1 k1_numbers k1_numbers \\ & X2 (k1_rcomp_1 X0 X1)))))) \Rightarrow (v1_fcont_1 (k2_partfun1 k1_numbers \\ & k1_numbers (k2_partfun2 k1_numbers k1_numbers X2) (k1_rcomp_1 \\ & (k5_seq_4 (k7_relset_1 k1_numbers k1_numbers X2 (k1_rcomp_1 X0 \\ & X1))) (k4_seq_4 (k7_relset_1 k1_numbers k1_numbers X2 (k1_rcomp_1 \\ & X0 X1)))))))))) \end{aligned}$$