

t19_funcsdm
(TMZGEd8Uq1xBSsXwRAetoxYubGu5A2oVGAD)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $k9_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funcsdom : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_funcsdom : \iota \Rightarrow \iota$ be given. Let $k2_funcsdom : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_funcsdom : \iota \Rightarrow \iota$ be given. Let $k1_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_funcsdom : \iota \Rightarrow \iota$ be given. Let $k6_numbers : \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (\neg v1_xboole_0 X2) \Rightarrow (\forall X3. \\
& (m2_funct_2 X3 X2 k1_numbers (k9_funct_2 X2 k1_numbers)) \Rightarrow (\forall X4. \\
& (m2_funct_2 X4 X2 k1_numbers (k9_funct_2 X2 k1_numbers)) \Rightarrow (((X0 \in \\
& X2) \wedge ((X1 \in X2) \wedge (\forall X5. (X5 \in X2) \Rightarrow (((X5 = X0) \Rightarrow (k1_funct_1 X3 \\
& X5 = np_1)) \wedge ((X5 \neq X0) \Rightarrow (k1_funct_1 X3 X5 = k6_numbers)))))) \wedge (\forall X5. \\
& (X5 \in X2) \Rightarrow (((X5 = X0) \Rightarrow (k1_funct_1 X4 X5 = k6_numbers)) \wedge ((X5 \neq X0) \Rightarrow \\
& (k1_funct_1 X4 X5 = np_1)))))) \Rightarrow ((X0 = X1) \vee (\forall X5. (m1_subset_1 \\
& X5 k1_numbers) \Rightarrow (\forall X6. (m1_subset_1 X6 k1_numbers) \Rightarrow ((r2_funct_2 \\
& X2 k1_numbers (k1_funcsdom X2 k1_numbers (k5_funcsdom X2) (k2_funcsdom \\
& X2 k1_numbers k1_numbers (k9_funct_2 X2 k1_numbers) (k7_funcsdom \\
& X2) (k1_domain_1 k1_numbers (k9_funct_2 X2 k1_numbers) X5 X3)) \\
& (k2_funcsdom X2 k1_numbers k1_numbers (k9_funct_2 X2 k1_numbers) \\
& (k7_funcsdom X2) (k1_domain_1 k1_numbers (k9_funct_2 X2 k1_numbers) \\
& X6 X4))) (k8_funcsdom X2) \Rightarrow ((X5 = k6_numbers) \wedge (X6 = k6_numbers))))))))) \\
& \tag{1}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (\neg v1_xboole_0 X1) \Rightarrow (\exists X2. (m2_funct_2 \\
& X2 X1 k1_numbers (k9_funct_2 X1 k1_numbers)) \wedge (\exists X3. (m2_funct_2 \\
& X3 X1 k1_numbers (k9_funct_2 X1 k1_numbers)) \wedge ((\forall X4. (X4 \in \\
& X1) \Rightarrow (((X4 = X0) \Rightarrow (k1_funct_1 X2 X4 = np_1)) \wedge ((X4 \neq X0) \Rightarrow (k1_funct_1 \\
& X2 X4 = k6_numbers)))))) \wedge (\forall X4. (X4 \in X1) \Rightarrow (((X4 = X0) \Rightarrow (k1_funct_1 \\
& X3 X4 = k6_numbers)) \wedge ((X4 \neq X0) \Rightarrow (k1_funct_1 X3 X4 = np_1)))))) \\
& \tag{2}
\end{aligned}$$

Theorem 1

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(\neg v1_xboole_0 X2)\Rightarrow(\neg(X0 \in X2)\wedge \\ & ((X1 \in X2)\wedge((X0\neq X1)\wedge(\forall X3.(m2_funct_2 X3 X2 k1_numbers (\\ & k9_funct_2 X2 k1_numbers))\Rightarrow(\forall X4.(m2_funct_2 X4 X2 k1_numbers \\ & (k9_funct_2 X2 k1_numbers))\Rightarrow(\exists X5.(m1_subset_1 X5 k1_numbers)\wedge \\ & (\exists X6.(m1_subset_1 X6 k1_numbers)\wedge((r2_funct_2 X2 k1_numbers \\ & (k1_funcsdom X2 k1_numbers (k5_funcsdom X2) (k2_funcsdom X2 k1_numbers \\ & k1_numbers (k9_funct_2 X2 k1_numbers) (k7_funcsdom X2) (k1_domain_1 \\ & k1_numbers (k9_funct_2 X2 k1_numbers) X5 X3)) (k2_funcsdom X2 k1_numbers \\ & k1_numbers (k9_funct_2 X2 k1_numbers) (k7_funcsdom X2) (k1_domain_1 \\ & k1_numbers (k9_funct_2 X2 k1_numbers) X6 X4))) (k8_funcsdom X2))\wedge \\ & (\neg(X5 = k6_numbers)\wedge(X6 = k6_numbers))))))))) \end{aligned}$$