

t29_fuzzy_1

(TMXyGEfMH9m9sDb3Sj8qkL5pkfYd4yKCxsF)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_rcomp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_numbers : \iota$ be given. Let $np_1 : \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ 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 $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_fuzzy_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_fuzzy_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_fuzzy_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v5_relat_1 X1 (k1_rcomp_1 \\
 & k6_numbers np_1)) \wedge ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 X0 k1_numbers) \wedge \\
 & (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow \\
 & (\forall X2. ((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1)) \wedge (\\
 & (v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 k1_numbers) \wedge (m1_subset_1 \\
 & X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow (\forall X3. \\
 & ((v5_relat_1 X3 (k1_rcomp_1 k6_numbers np_1)) \wedge ((v1_funct_1 \\
 & X3) \wedge ((v1_funct_2 X3 X0 k1_numbers) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\
 & (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow ((r2_funct_2 X0 k1_numbers \\
 & (k1_fuzzy_1 X0 X1 (k2_fuzzy_1 X0 X2 X3)) (k2_fuzzy_1 X0 (k1_fuzzy_1 \\
 & X0 X1 X2) (k1_fuzzy_1 X0 X1 X3))) \wedge (r2_funct_2 X0 k1_numbers (k2_fuzzy_1 \\
 & X0 X1 (k1_fuzzy_1 X0 X2 X3)) (k1_fuzzy_1 X0 (k2_fuzzy_1 X0 X1 X2) (\\
 & k2_fuzzy_1 X0 X1 X3))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v5_relat_1 X1 (k1_rcomp_1 \\
 & k6_numbers np_1)) \wedge ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 X0 k1_numbers) \wedge \\
 & (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow \\
 & (\forall X2. ((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1)) \wedge (\\
 & (v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 k1_numbers) \wedge (m1_subset_1 \\
 & X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow ((r1_fuzzy_1 \\
 & (k1_fuzzy_1 X0 X1 X2) X1) \wedge (r1_fuzzy_1 X1 (k2_fuzzy_1 X0 X1 X2))))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((v1_funct_1 X2)\wedge \\ & ((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1))))\wedge((v1_funct_1 X3)\wedge((v1_funct_2 X3 X0 X1)\wedge(m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))))\Rightarrow((r2_funct_2 X0 X1 X2 \\ & X3)\Leftrightarrow(X2 = X3)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v5_relat_1 \\ & X1 (k1_rcomp_1 k6_numbers np_1))\wedge((v1_funct_1 X1)\wedge((v1_funct_2 \\ & X1 X0 k1_numbers)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 \\ & k1_numbers))))))\wedge((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1))\wedge \\ & ((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 k1_numbers)\wedge(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow((v5_relat_1 \\ & (k2_fuzzy_1 X0 X1 X2) (k1_rcomp_1 k6_numbers np_1))\wedge((v1_funct_1 \\ & (k2_fuzzy_1 X0 X1 X2))\wedge((v1_funct_2 (k2_fuzzy_1 X0 X1 X2) X0 k1_numbers)\wedge \\ & (m1_subset_1 (k2_fuzzy_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 \\ & k1_numbers)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v5_relat_1 \\ & X1 (k1_rcomp_1 k6_numbers np_1))\wedge((v1_funct_1 X1)\wedge((v1_funct_2 \\ & X1 X0 k1_numbers)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 \\ & k1_numbers))))))\wedge((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1))\wedge \\ & ((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 k1_numbers)\wedge(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow((v5_relat_1 \\ & (k1_fuzzy_1 X0 X1 X2) (k1_rcomp_1 k6_numbers np_1))\wedge((v1_funct_1 \\ & (k1_fuzzy_1 X0 X1 X2))\wedge((v1_funct_2 (k1_fuzzy_1 X0 X1 X2) X0 k1_numbers)\wedge \\ & (m1_subset_1 (k1_fuzzy_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 \\ & k1_numbers)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v5_relat_1 \\ & X1 (k1_rcomp_1 k6_numbers np_1))\wedge((v1_funct_1 X1)\wedge((v1_funct_2 \\ & X1 X0 k1_numbers)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 \\ & k1_numbers))))))\wedge((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1))\wedge \\ & ((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 k1_numbers)\wedge(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow(k1_fuzzy_1 \\ & X0 X1 X2 = k1_fuzzy_1 X0 X2 X1) \end{aligned} \quad (6)$$

Theorem 1

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v5_relat_1 X1 (k1_rcomp_1 \\ & k6_numbers np_1)) \wedge ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 X0 k1_numbers) \wedge \\ & (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow \\ & (\forall X2. ((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1)) \wedge (\\ & (v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 k1_numbers) \wedge (m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow (\forall X3. \\ & ((v5_relat_1 X3 (k1_rcomp_1 k6_numbers np_1)) \wedge ((v1_funct_1 \\ & X3) \wedge ((v1_funct_2 X3 X0 k1_numbers) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow ((r2_funct_2 X0 k1_numbers \\ & (k2_fuzzy_1 X0 (k1_fuzzy_1 X0 X1 X2) (k1_fuzzy_1 X0 X1 X3)) X1) \Rightarrow (\\ & r1_fuzzy_1 X1 (k2_fuzzy_1 X0 X2 X3)))))) \end{aligned}$$