

t9_fuzzy_4

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October 27, 2020

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 $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_seq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_fuzzy_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v3_valued_0 : \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_fuzzy_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_membered : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(k4_tarski\ X0\ X1 \in k2_zfmisc_1\ X2\ X3) \Leftrightarrow ((X0 \in X2) \wedge (X1 \in X3)) \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0\ X0) \Rightarrow (\forall X1.(\neg v1_xboole_0\ X1) \Rightarrow \\ (\forall X2.((v5_relat_1\ X2\ (k1_rcomp_1\ k6_numbers\ np_1)) \wedge \\ (v1_funct_1\ X2) \wedge ((v1_funct_2\ X2\ (k2_zfmisc_1\ X0\ X1)\ k1_numbers) \wedge \\ (m1_subset_1\ X2\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k2_zfmisc_1\ X0\ X1) \\ k1_numbers)))))) \Rightarrow (r2_relset_1\ (k2_zfmisc_1\ X0\ X1)\ k1_numbers \\ (k2_fuzzy_4\ X0\ X1\ (k2_fuzzy_4\ X1\ X0\ X2))\ X2))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.((m1_subset_1\ X2 \\ (k1_zfmisc_1\ (k2_zfmisc_1\ X0\ X1))) \wedge (m1_subset_1\ X3\ (k1_zfmisc_1 \\ (k2_zfmisc_1\ X0\ X1)))) \Rightarrow ((r2_relset_1\ X0\ X1\ X2\ X3) \Leftrightarrow (X2 = X3)) \end{aligned} \quad (3)$$

Assume the following.

$$k6_numbers = k1_xboole_0 \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X0)\wedge((v1_funct_1 X0)\wedge(v3_valued_0 X0)))\Rightarrow(k1_seq_1 X0 X1 = k1_funct_1 X0 X1) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1_xboole_0 \\ & X0)\wedge((\neg v1_xboole_0 X1)\wedge((v5_relat_1 X2 (k1_rcomp_1 k6_numbers \\ & np_1))\wedge((v1_funct_1 X2)\wedge((v1_funct_2 X2 (k2_zfmisc_1 X0 X1) \\ & k1_numbers)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1) k1_numbers))))))))\Rightarrow(k1_fuzzy_4 X0 X1 X2 X3 X4 = k1_binop_1 \\ & X2 X3 X4) \end{aligned} \quad (6)$$

Assume the following.

$$v3_membered k1_numbers \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 \\ & X1)\wedge((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1))\wedge((v1_funct_1 \\ & X2)\wedge((v1_funct_2 X2 (k2_zfmisc_1 X1 X0) k1_numbers)\wedge(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X1 X0) k1_numbers))))))))\Rightarrow \\ & ((v5_relat_1 (k2_fuzzy_4 X0 X1 X2) (k1_rcomp_1 k6_numbers np_1))\wedge \\ & ((v1_funct_1 (k2_fuzzy_4 X0 X1 X2))\wedge((v1_funct_2 (k2_fuzzy_4 \\ & X0 X1 X2) (k2_zfmisc_1 X0 X1) k1_numbers)\wedge(m1_subset_1 (k2_fuzzy_4 \\ & X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X1) k1_numbers)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.(\neg v1_xboole_0 X1)\Rightarrow \\ & (\forall X2.((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1))\wedge(\\ & (v1_funct_1 X2)\wedge((v1_funct_2 X2 (k2_zfmisc_1 X1 X0) k1_numbers)\wedge \\ & (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X1 X0) \\ & k1_numbers))))))))\Rightarrow(\forall X3.((v5_relat_1 X3 (k1_rcomp_1 k6_numbers \\ & np_1))\wedge((v1_funct_1 X3)\wedge((v1_funct_2 X3 (k2_zfmisc_1 X0 X1) \\ & k1_numbers)\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1) k1_numbers))))))))\Rightarrow((X3 = k2_fuzzy_4 X0 X1 X2)\Leftrightarrow(\forall X4. \\ & \forall X5.(k4_tarski X4 X5 \in k2_zfmisc_1 X0 X1)\Rightarrow(k1_fuzzy_4 X0 \\ & X1 X3 X4 X5 = k1_fuzzy_4 X1 X0 X2 X5 X4)))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0)\wedge(v1_funct_1 X0))\Rightarrow(\forall X1.\forall X2. k1_binop_1 X0 X1 X2 = k1_funct_1 X0 (k4_tarski X1 X2)) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow(v1_relat_1 X2) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.(v3_membered\ X1)\Rightarrow(\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1\ (k2_zfmisc_1\ X0\ X1)))\Rightarrow(v3_valued_0\ X2)) \quad (12)$$

Theorem 1

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0\ X0)\Rightarrow(\forall X1.(\neg v1_xboole_0\ X1)\Rightarrow \\ & (\forall X2.((v5_relat_1\ X2\ (k1_rcomp_1\ k6_numbers\ np_1))\wedge \\ & (v1_funct_1\ X2)\wedge((v1_funct_2\ X2\ (k2_zfmisc_1\ X0\ X1)\ k1_numbers)\wedge \\ & (m1_subset_1\ X2\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k2_zfmisc_1\ X0\ X1) \\ & k1_numbers))))))\Rightarrow(\forall X3.((v5_relat_1\ X3\ (k1_rcomp_1\ k6_numbers \\ & np_1))\wedge((v1_funct_1\ X3)\wedge((v1_funct_2\ X3\ (k2_zfmisc_1\ X0\ X1) \\ & k1_numbers)\wedge(m1_subset_1\ X3\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k2_zfmisc_1 \\ & X0\ X1)\ k1_numbers))))))\Rightarrow(\forall X4.\forall X5.((X4 \in X0)\wedge((X5 \in \\ & X1)\wedge(r1_xreal_0\ (k1_seq_1\ X2\ (k4_tarski\ X4\ X5))\ (k1_seq_1\ X3\ (\\ & k4_tarski\ X4\ X5))))))\Rightarrow(r1_xreal_0\ (k1_seq_1\ (k2_fuzzy_4\ X1\ X0 \\ & X2)\ (k4_tarski\ X5\ X4))\ (k1_seq_1\ (k2_fuzzy_4\ X1\ X0\ X3)\ (k4_tarski \\ & X5\ X4)))))) \end{aligned}$$