

t49_fuzzy_2

(TMKGcr8mFzGywLUCYUc2QBunVZmaBRDpLkt)

October 27, 2020

Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_seq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_fuzzy_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_fuzzy_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_fuzzy_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_membered : \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v3_valued_0 : \iota \Rightarrow o$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v5_relat_1 X1 (k1_rcomp_1 \\
 & k6_numbers np_1)) \wedge ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 X0 k1_numbers) \wedge \\
 & (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow \\
 & (\forall X2. ((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1)) \wedge (\\
 & (v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 k1_numbers) \wedge (m1_subset_1 \\
 & X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow (r2_funct_2 \\
 & X0 k1_numbers (k3_fuzzy_2 X0 X1 X2) (k3_fuzzy_1 X0 (k2_fuzzy_2 X0 \\
 & (k3_fuzzy_1 X0 X1) (k3_fuzzy_1 X0 X2))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X2) \wedge \\
 & ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
 & X0 X1)))) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 X1) \wedge (m1_subset_1 \\
 & X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \Rightarrow ((r2_funct_2 X0 X1 X2 \\
 & X3) \Leftrightarrow (X2 = X3))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((v5_relat_1 X1 (k1_rcomp_1 \\ & k6_numbers np_1))\wedge((v1_funct_1 X1)\wedge((v1_funct_2 X1 X0 k1_numbers)\wedge \\ & (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow \\ & (k3_fuzzy_1 X0 (k3_fuzzy_1 X0 X1) = X1) \end{aligned} \quad (3)$$

Assume the following.

$$v3_membered k1_numbers \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v5_relat_1 \\ & X1 (k1_rcomp_1 k6_numbers np_1))\wedge((v1_funct_1 X1)\wedge((v1_funct_2 \\ & X1 X0 k1_numbers)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 \\ & k1_numbers))))))\wedge((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1))\wedge \\ & ((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 k1_numbers)\wedge(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow((v5_relat_1 \\ & (k3_fuzzy_2 X0 X1 X2) (k1_rcomp_1 k6_numbers np_1))\wedge((v1_funct_1 \\ & (k3_fuzzy_2 X0 X1 X2))\wedge((v1_funct_2 (k3_fuzzy_2 X0 X1 X2) X0 k1_numbers)\wedge \\ & (m1_subset_1 (k3_fuzzy_2 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 \\ & k1_numbers)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((v5_relat_1 X1 (k1_rcomp_1 \\ & k6_numbers np_1))\wedge((v1_funct_1 X1)\wedge((v1_funct_2 X1 X0 k1_numbers)\wedge \\ & (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow \\ & ((v5_relat_1 (k3_fuzzy_1 X0 X1) (k1_rcomp_1 k6_numbers np_1))\wedge \\ & ((v1_funct_1 (k3_fuzzy_1 X0 X1))\wedge((v1_funct_2 (k3_fuzzy_1 X0 \\ & X1) X0 k1_numbers)\wedge(m1_subset_1 (k3_fuzzy_1 X0 X1) (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k1_numbers)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v5_relat_1 \\ & X1 (k1_rcomp_1 k6_numbers np_1))\wedge((v1_funct_1 X1)\wedge((v1_funct_2 \\ & X1 X0 k1_numbers)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 \\ & k1_numbers))))))\wedge((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1))\wedge \\ & ((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 k1_numbers)\wedge(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow((v5_relat_1 \\ & (k2_fuzzy_2 X0 X1 X2) (k1_rcomp_1 k6_numbers np_1))\wedge((v1_funct_1 \\ & (k2_fuzzy_2 X0 X1 X2))\wedge((v1_funct_2 (k2_fuzzy_2 X0 X1 X2) X0 k1_numbers)\wedge \\ & (m1_subset_1 (k2_fuzzy_2 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 \\ & k1_numbers)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X0)\wedge((v1_funct_1 X0)\wedge(v3_valued_0 X0)))\Rightarrow(m1_subset_1 (k1_seq_1 X0 X1) k1_numbers) \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.((v5_relat_1 X1 (k1_rcomp_1 \\ k6_numbers np_1))\wedge((v1_funct_1 X1)\wedge((v1_funct_2 X1 X0 k1_numbers)\wedge \\ (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow \\ (\forall X2.((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1))\wedge \\ (v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 k1_numbers)\wedge(m1_subset_1 \\ X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow((X2 = k3_fuzzy_1 \\ X0 X1)\Leftrightarrow(\forall X3.(m1_subset_1 X3 X0)\Rightarrow(k1_seq_1 X2 X3 = k9_real_1 \\ np_1 (k1_seq_1 X1 X3)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.((v5_relat_1 X1 (k1_rcomp_1 \\ k6_numbers np_1))\wedge((v1_funct_1 X1)\wedge((v1_funct_2 X1 X0 k1_numbers)\wedge \\ (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow \\ (\forall X2.((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1))\wedge \\ (v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 k1_numbers)\wedge(m1_subset_1 \\ X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow(\forall X3. \\ ((v5_relat_1 X3 (k1_rcomp_1 k6_numbers np_1))\wedge((v1_funct_1 \\ X3)\wedge((v1_funct_2 X3 X0 k1_numbers)\wedge(m1_subset_1 X3 (k1_zfmisc_1 \\ (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow((X3 = k2_fuzzy_2 X0 X1 X2)\Leftrightarrow(\\ \forall X4.(m1_subset_1 X4 X0)\Rightarrow(k1_seq_1 X3 X4 = k8_real_1 (k1_seq_1 \\ X1 X4) (k1_seq_1 X2 X4)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k1_numbers)\wedge(v1_xreal_0 X1))\Rightarrow(k8_real_1 X0 X1 = k8_real_1 X1 X0) \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v5_relat_1 \\ X1 (k1_rcomp_1 k6_numbers np_1))\wedge((v1_funct_1 X1)\wedge((v1_funct_2 \\ X1 X0 k1_numbers)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 \\ k1_numbers))))))\wedge((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1))\wedge \\ ((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 k1_numbers)\wedge(m1_subset_1 \\ X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow(k3_fuzzy_2 \\ X0 X1 X2 = k3_fuzzy_2 X0 X2 X1) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v5_relat_1 \\ & X1 (k1_rcomp_1 k6_numbers np_1))\wedge((v1_funct_1 X1)\wedge((v1_funct_2 \\ & X1 X0 k1_numbers)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 \\ & k1_numbers))))))\wedge((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1))\wedge \\ & ((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 k1_numbers)\wedge(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))))\Rightarrow(k2_fuzzy_2 \\ & X0 X1 X2 = k2_fuzzy_2 X0 X2 X1) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1)))\Rightarrow(v1_relat_1 X2) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(v3_membered X1)\Rightarrow(\forall X2.(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow(v3_valued_0 X2)) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v3_membered X0)\Rightarrow(\forall X1.(m1_subset_1 X1 X0)\Rightarrow \\ & (v1_xreal_0 X1)) \end{aligned} \quad (16)$$

Theorem 1

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.(m1_subset_1 X1 X0)\Rightarrow \\ & (\forall X2.((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1))\wedge(\\ & (v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 k1_numbers)\wedge(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow(\forall X3. \\ & ((v5_relat_1 X3 (k1_rcomp_1 k6_numbers np_1))\wedge((v1_funct_1 \\ & X3)\wedge((v1_funct_2 X3 X0 k1_numbers)\wedge(m1_subset_1 X3 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow(k1_seq_1 (k3_fuzzy_2 X0 X2 \\ & X3) X1 = k9_real_1 np_1 (k8_real_1 (k9_real_1 np_1 (k1_seq_1 X2 \\ & X1)) (k9_real_1 np_1 (k1_seq_1 X3 X1)))))) \end{aligned}$$