

t6_fuzzy_4 (TM- REDP7BCgMHZV6CENqYuEyqWs1dfSyitP1)

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 $r2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_fuzzy_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_fuzzy_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_funct_4 : \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v3_valued_0 : \iota \Rightarrow o$ be given. Let $k1_seq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_fuzzy_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $k9_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ 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.

$$\forall X0.\forall X1.(X0 \in X1) \Rightarrow (m1_subset_1\ X0\ X1) \quad (2)$$

Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0\ X0) \wedge ((\neg v1_xboole_0\ X1) \wedge ((v5_relat_1\ X2\ (k1_rcomp_1\ k6_numbers\ np_1)) \wedge ((v1_funct_1\ X2) \wedge ((v1_funct_2\ X2\ (k2_zfmisc_1\ X1\ X0)\ k1_numbers) \wedge (m1_subset_1\ X2\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k2_zfmisc_1\ X1\ X0)\ k1_numbers)))))))) \Rightarrow (k2_fuzzy_4\ X0\ X1\ X2 = k2_funct_4\ X2) \quad (4)$$

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.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge(\neg v1_xboole_0 X1))\Rightarrow (\neg v1_xboole_0 (k2_zfmisc_1 X0 X1)) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((v5_relat_1 X1 (k1_rcomp_1 \\ & k6_numbers np_1))\wedge((v1_funct_1 X1)\wedge((v1_funct_2 X1 X0 k1_numbers)\wedge \\ & (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))))\Rightarrow \\ & ((v5_relat_1 (k3_fuzzy_1 X0 X1) (k1_rcomp_1 k6_numbers np_1))\wedge \\ & ((v1_funct_1 (k3_fuzzy_1 X0 X1))\wedge((v1_funct_2 (k3_fuzzy_1 X0 \\ & X1) X0 k1_numbers)\wedge(m1_subset_1 (k3_fuzzy_1 X0 X1) (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k1_numbers))))))) \end{aligned} \quad (8)$$

Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.k4_tarski X0 X1 = k2_tarski (k2_tarski X0 X1) (k1_tarski X0) \quad (10)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v5_relat_1 X1 (k1_rcomp_1 \\
& k6_numbers np_1)) \wedge ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 X0 k1_numbers) \wedge \\
& (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow \\
& (\forall X2.((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1)) \wedge (\\
& (v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 k1_numbers) \wedge (m1_subset_1 \\
& X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow ((X2 = k3_fuzzy_1 \\
& X0 X1) \Leftrightarrow (\forall X3.(m1_subset_1 X3 X0) \Rightarrow (k1_seq_1 X2 X3 = k9_real_1 \\
& np_1 (k1_seq_1 X1 X3))))))
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(X2 = k2_zfmisc_1 X0 X1) \Leftrightarrow (\forall X3. \\
& (X3 \in X2) \Leftrightarrow (\exists X4.\exists X5.(X4 \in X0) \wedge ((X5 \in X1) \wedge (X3 = k4_tarski \\
& X4 X5))))
\end{aligned} \tag{12}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\
& (\forall X2.((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1)) \wedge (\\
& (v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X1 X0) k1_numbers) \wedge \\
& (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X1 X0) \\
& k1_numbers)))))) \Rightarrow (\forall X3.((v5_relat_1 X3 (k1_rcomp_1 k6_numbers \\
& np_1)) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (k2_zfmisc_1 X0 X1) \\
& k1_numbers) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
& X0 X1) k1_numbers)))))) \Rightarrow ((X3 = k2_fuzzy_4 X0 X1 X2) \Leftrightarrow (\forall X4. \\
& \forall X5.(k4_tarski X4 X5 \in k2_zfmisc_1 X0 X1) \Rightarrow (k1_fuzzy_4 X0 \\
& X1 X3 X4 X5 = k1_fuzzy_4 X1 X0 X2 X5 X4))))))
\end{aligned} \tag{13}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1.\forall X2. \\
& k1_binop_1 X0 X1 X2 = k1_funct_1 X0 (k4_tarski X1 X2))
\end{aligned} \tag{14}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1_relat_1 X0) \wedge (v5_relat_1 X0 k1_numbers)) \Rightarrow ((v1_relat_1 \\
& X0) \wedge (v3_valued_0 X0))
\end{aligned} \tag{15}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 X1))) \Rightarrow ((v4_relat_1 X2 X0) \wedge (v5_relat_1 X2 X1))
\end{aligned} \tag{16}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 X1))) \Rightarrow (v1_relat_1 X2)
\end{aligned} \tag{17}$$

Theorem 1

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\ & (\forall X2.((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1)) \wedge \\ & (v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X0 X1) k1_numbers) \wedge \\ & (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X1) \\ & k1_numbers)))))) \Rightarrow (r2_relset_1 (k2_zfmisc_1 X1 X0) k1_numbers \\ & (k3_fuzzy_1 (k2_zfmisc_1 X1 X0) (k2_fuzzy_4 X1 X0 X2)) (k2_fuzzy_4 \\ & X1 X0 (k3_fuzzy_1 (k2_zfmisc_1 X0 X1) X2)))))) \end{aligned}$$