

t23_fuzzy_4

(TMY23Ri9yWCm88CGSU3TzjmgHC8XjoG7KxF)

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 $k4_fuzzy_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_fuzzy_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_fuzzy_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\
 & (\forall X2.((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1)) \wedge (\\
 & (v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X0 X1) k1_numbers) \wedge \\
 & (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X1) \\
 & k1_numbers)))))) \Rightarrow (r2_relset_1 (k2_zfmisc_1 X0 X1) k1_numbers \\
 & (k2_fuzzy_4 X0 X1 (k2_fuzzy_4 X1 X0 X2)) X2)))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\
 & (\forall X2.(\neg v1_xboole_0 X2) \Rightarrow (\forall X3.((v5_relat_1 X3 (k1_rcomp_1 \\
 & k6_numbers np_1)) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (k2_zfmisc_1 \\
 & X0 X1) k1_numbers) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
 & (k2_zfmisc_1 X0 X1) k1_numbers)))))) \Rightarrow (r2_relset_1 (k2_zfmisc_1 \\
 & X2 X1) k1_numbers (k4_fuzzy_4 X2 X0 X1 (k4_fuzzy_2 X2 X0) X3) (k4_fuzzy_2 \\
 & X2 X1))))))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\
& (\forall X2.(\neg v1_xboole_0 X2) \Rightarrow (\forall X3.((v5_relat_1 X3 (k1_rcomp_1 \\
& k6_numbers np_1)) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (k2_zfmisc_1 \\
& X0 X1) k1_numbers) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 X0 X1) k1_numbers)))))) \Rightarrow (\forall X4.((v5_relat_1 \\
& X4 (k1_rcomp_1 k6_numbers np_1)) \wedge ((v1_funct_1 X4) \wedge ((v1_funct_2 \\
& X4 (k2_zfmisc_1 X1 X2) k1_numbers) \wedge (m1_subset_1 X4 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (k2_zfmisc_1 X1 X2) k1_numbers)))))) \Rightarrow (r2_relset_1 \\
& (k2_zfmisc_1 X2 X0) k1_numbers (k2_fuzzy_4 X2 X0 (k4_fuzzy_4 X0 \\
& X1 X2 X3 X4)) (k4_fuzzy_4 X2 X1 X0 (k2_fuzzy_4 X2 X1 X4) (k2_fuzzy_4 \\
& X1 X0 X3))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.((m1_subset_1 X2 \\
& (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 X1)))) \Rightarrow ((r2_relset_1 X0 X1 X2 X3) \Leftrightarrow (X2 = X3))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1_xboole_0 \\
& X0) \wedge ((\neg v1_xboole_0 X1) \wedge ((\neg v1_xboole_0 X2) \wedge (((v5_relat_1 X3 \\
& (k1_rcomp_1 k6_numbers np_1)) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 \\
& X3 (k2_zfmisc_1 X0 X1) k1_numbers) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (k2_zfmisc_1 X0 X1) k1_numbers)))))) \wedge ((v5_relat_1 \\
& X4 (k1_rcomp_1 k6_numbers np_1)) \wedge ((v1_funct_1 X4) \wedge ((v1_funct_2 \\
& X4 (k2_zfmisc_1 X1 X2) k1_numbers) \wedge (m1_subset_1 X4 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (k2_zfmisc_1 X1 X2) k1_numbers))))))))) \Rightarrow ((v5_relat_1 \\
& (k4_fuzzy_4 X0 X1 X2 X3 X4) (k1_rcomp_1 k6_numbers np_1)) \wedge ((v1_funct_1 \\
& (k4_fuzzy_4 X0 X1 X2 X3 X4)) \wedge ((v1_funct_2 (k4_fuzzy_4 X0 X1 X2 X3 \\
& X4) (k2_zfmisc_1 X0 X2) k1_numbers) \wedge (m1_subset_1 (k4_fuzzy_4 \\
& X0 X1 X2 X3 X4) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X2) k1_numbers))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((\neg v1_xboole_0 X0) \wedge (\neg v1_xboole_0 X1)) \Rightarrow \\
& ((v5_relat_1 (k4_fuzzy_2 X0 X1) (k1_rcomp_1 k6_numbers np_1)) \wedge \\
& ((v1_funct_1 (k4_fuzzy_2 X0 X1)) \wedge ((v1_funct_2 (k4_fuzzy_2 X0 \\
& X1) (k2_zfmisc_1 X0 X1) k1_numbers) \wedge (m1_subset_1 (k4_fuzzy_2 \\
& X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X1) k1_numbers))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 \\
& X1) \wedge ((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1)) \wedge ((v1_funct_1 \\
& X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X1 X0) k1_numbers) \wedge (m1_subset_1 \\
& X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X1 X0) k1_numbers)))))) \Rightarrow \\
& ((v5_relat_1 (k2_fuzzy_4 X0 X1 X2) (k1_rcomp_1 k6_numbers np_1)) \wedge \\
& ((v1_funct_1 (k2_fuzzy_4 X0 X1 X2)) \wedge ((v1_funct_2 (k2_fuzzy_4 \\
& X0 X1 X2) (k2_zfmisc_1 X0 X1) k1_numbers) \wedge (m1_subset_1 (k2_fuzzy_4 \\
& X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X1) k1_numbers)))))) \\
& (7)
\end{aligned}$$

Theorem 1

$$\begin{aligned}
& \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. (\neg v1_xboole_0 X1) \Rightarrow \\
& (\forall X2. (\neg v1_xboole_0 X2) \Rightarrow (\forall X3. ((v5_relat_1 X3 (k1_rcomp_1 \\
& k6_numbers np_1)) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (k2_zfmisc_1 \\
& X0 X1) k1_numbers) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 X0 X1) k1_numbers)))))) \Rightarrow (r2_relset_1 (k2_zfmisc_1 \\
& X0 X2) k1_numbers (k4_fuzzy_4 X0 X1 X2 X3 (k4_fuzzy_2 X1 X2)) (k4_fuzzy_2 \\
& X0 X2))))))
\end{aligned}$$