

t35_fuzzy_1 (TM-
SnKKD4wRQtgCrnCdJ2bh1D26r9U9Cu1mo)

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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 $r1_fuzzy_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_fuzzy_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_fuzzy_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_fuzzy_1 : \iota \Rightarrow \iota$ 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.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v5_relat_1 X1 (k1_rcomp_1 \\
& k6_numbers np_1)) \wedge ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 X0 k1_numbers) \wedge \\
& (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow \\
& (\forall X2.((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1)) \wedge (\\
& (v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 k1_numbers) \wedge (m1_subset_1 \\
& X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow (\forall X3. \\
& ((v5_relat_1 X3 (k1_rcomp_1 k6_numbers np_1)) \wedge ((v1_funct_1 \\
& X3) \wedge ((v1_funct_2 X3 X0 k1_numbers) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow ((r2_funct_2 X0 k1_numbers \\
& X1 (k1_fuzzy_1 X0 X2 X3)) \Leftrightarrow ((r1_fuzzy_1 X1 X2) \wedge ((r1_fuzzy_1 X1 X3) \wedge \\
& (\forall X4.((v5_relat_1 X4 (k1_rcomp_1 k6_numbers np_1)) \wedge (\\
& (v1_funct_1 X4) \wedge ((v1_funct_2 X4 X0 k1_numbers) \wedge (m1_subset_1 \\
& X4 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow (((r1_fuzzy_1 \\
& X4 X2) \wedge (r1_fuzzy_1 X4 X3)) \Rightarrow (r1_fuzzy_1 X4 X1)))))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v5_relat_1 X1 (k1_rcomp_1 \\
& k6_numbers np_1)) \wedge ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 X0 k1_numbers) \wedge \\
& (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow \\
& ((r1_fuzzy_1 X1 (k4_fuzzy_1 X0)) \Rightarrow (r2_funct_2 X0 k1_numbers X1 \\
& (k4_fuzzy_1 X0)))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v5_relat_1 X1 (k1_rcomp_1 \\
& k6_numbers np_1)) \wedge ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 X0 k1_numbers) \wedge \\
& (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow \\
& (\forall X2.((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1)) \wedge (\\
& (v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 k1_numbers) \wedge (m1_subset_1 \\
& X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow ((r1_fuzzy_1 \\
& X1 X2) \Rightarrow (r2_funct_2 X0 k1_numbers (k2_fuzzy_1 X0 X1 X2) X2)))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v5_relat_1 X1 (k1_rcomp_1 \\
& k6_numbers np_1)) \wedge ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 X0 k1_numbers) \wedge \\
& (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow \\
& (\forall X2.((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1)) \wedge (\\
& (v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 k1_numbers) \wedge (m1_subset_1 \\
& X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow ((r1_fuzzy_1 \\
& (k1_fuzzy_1 X0 X1 X2) X1) \wedge (r1_fuzzy_1 X1 (k2_fuzzy_1 X0 X1 X2))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((v1_funct_1 X2)\wedge \\ & ((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1)))))\wedge((v1_funct_1 X3)\wedge((v1_funct_2 X3 X0 X1)\wedge(m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))))\Rightarrow((r2_funct_2 X0 X1 X2 \\ & X3)\Leftrightarrow(X2 = X3)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0)\Rightarrow((v5_relat_1 (k4_fuzzy_1 X0) (k1_rcomp_1 \\ & k6_numbers np_1))\wedge((v1_funct_1 (k4_fuzzy_1 X0))\wedge((v1_funct_2 \\ & (k4_fuzzy_1 X0) X0 k1_numbers)\wedge(m1_subset_1 (k4_fuzzy_1 X0) (\\ & k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v5_relat_1 \\ & X1 (k1_rcomp_1 k6_numbers np_1))\wedge((v1_funct_1 X1)\wedge((v1_funct_2 \\ & X1 X0 k1_numbers)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 \\ & k1_numbers))))))\wedge((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1))\wedge \\ & ((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 k1_numbers)\wedge(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow((v5_relat_1 \\ & (k2_fuzzy_1 X0 X1 X2) (k1_rcomp_1 k6_numbers np_1))\wedge((v1_funct_1 \\ & (k2_fuzzy_1 X0 X1 X2))\wedge((v1_funct_2 (k2_fuzzy_1 X0 X1 X2) X0 k1_numbers)\wedge \\ & (m1_subset_1 (k2_fuzzy_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 \\ & k1_numbers)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v5_relat_1 \\ & X1 (k1_rcomp_1 k6_numbers np_1))\wedge((v1_funct_1 X1)\wedge((v1_funct_2 \\ & X1 X0 k1_numbers)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 \\ & k1_numbers))))))\wedge((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1))\wedge \\ & ((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 k1_numbers)\wedge(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))\Rightarrow((v5_relat_1 \\ & (k1_fuzzy_1 X0 X1 X2) (k1_rcomp_1 k6_numbers np_1))\wedge((v1_funct_1 \\ & (k1_fuzzy_1 X0 X1 X2))\wedge((v1_funct_2 (k1_fuzzy_1 X0 X1 X2) X0 k1_numbers)\wedge \\ & (m1_subset_1 (k1_fuzzy_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 \\ & k1_numbers)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (((v5_relat_1 \\
& X1 (k1_rcomp_1 k6_numbers np_1)) \wedge ((v1_funct_1 X1) \wedge ((v1_funct_2 \\
& X1 X0 k1_numbers) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 \\
& k1_numbers)))))) \wedge ((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1)) \wedge \\
& ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 k1_numbers) \wedge (m1_subset_1 \\
& X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))))) \Rightarrow (k2_fuzzy_1 \\
& X0 X1 X2 = k2_fuzzy_1 X0 X2 X1)
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (((v5_relat_1 \\
& X1 (k1_rcomp_1 k6_numbers np_1)) \wedge ((v1_funct_1 X1) \wedge ((v1_funct_2 \\
& X1 X0 k1_numbers) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 \\
& k1_numbers)))))) \wedge ((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1)) \wedge \\
& ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 k1_numbers) \wedge (m1_subset_1 \\
& X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))))) \Rightarrow (k1_fuzzy_1 \\
& X0 X1 X2 = k1_fuzzy_1 X0 X2 X1)
\end{aligned} \tag{11}$$

Theorem 1

$$\begin{aligned}
& \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v5_relat_1 X1 (k1_rcomp_1 \\
& k6_numbers np_1)) \wedge ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 X0 k1_numbers) \wedge \\
& (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow \\
& (\forall X2. ((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1)) \wedge (\\
& (v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 k1_numbers) \wedge (m1_subset_1 \\
& X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow (\forall X3. \\
& ((v5_relat_1 X3 (k1_rcomp_1 k6_numbers np_1)) \wedge ((v1_funct_1 \\
& X3) \wedge ((v1_funct_2 X3 X0 k1_numbers) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow (((r1_fuzzy_1 X1 (k2_fuzzy_1 \\
& X0 X2 X3)) \wedge (r2_funct_2 X0 k1_numbers (k1_fuzzy_1 X0 X1 X3) (k4_fuzzy_1 \\
& X0))) \Rightarrow (r1_fuzzy_1 X1 X2))))))
\end{aligned}$$