

l4_fuzzy_1 (TMTDAEhe- HHDWT5nYpUJ99D28vjWhQSoftnx)

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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 $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_fuzzy_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $k1_seq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_valued_0 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v1_funct_1 X2) \wedge (m1_subset_1 \\ & \quad X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))) \Rightarrow (\forall X3. ((v1_funct_1 \\ & \quad X3) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))) \Rightarrow (((k1_relset_1 \\ & \quad X0 X2 = k1_relset_1 X0 X3) \wedge (\forall X4. (m1_subset_1 X4 X0) \Rightarrow ((X4 \in \\ & \quad k1_relset_1 X0 X2) \Rightarrow (k1_funct_1 X2 X4 = k1_funct_1 X3 X4)))))) \Rightarrow (X2 = \\ & \quad X3)) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. (v1_xxreal_0 X0) \Rightarrow (\forall X1. (v1_xxreal_0 X1) \Rightarrow ((\\ & \quad (r1_xxreal_0 X0 X1) \wedge (r1_xxreal_0 X1 X0)) \Rightarrow (X0 = X1))) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1_subset_1 X0 X1) \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (((v5_relat_1 \\ & X1 (k1_rcomp_1 k6_numbers np_1)) \wedge ((v1_funct_1 X1) \wedge ((v1_funct_2 \\ & X1 X0 k1_numbers) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 \\ & k1_numbers)))))) \wedge ((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1)) \wedge \\ & ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 k1_numbers) \wedge (m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers))))))))) \Rightarrow ((r2_fuzzy_1 \\ & X0 X1 X2) \Leftrightarrow (r1_fuzzy_1 X1 X2)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X2) \wedge \\ & ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1)))))) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 X1) \wedge (m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \Rightarrow ((r2_funct_2 X0 X1 X2 \\ & X3) \Leftrightarrow (X2 = X3)) \end{aligned} \quad (5)$$

Assume the following.

$$k6_numbers = k1_xboole_0 \quad (6)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v3_valued_0 X0))) \Rightarrow (k1_seq_1 X0 X1 = k1_funct_1 X0 X1) \quad (7)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v2_valued_0 X0))) \Rightarrow (v1_xxreal_0 (k1_funct_1 X0 X1)) \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v5_relat_1 X1 (k1_rcomp_1 \\ & k6_numbers np_1)) \wedge ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 X0 k1_numbers) \wedge \\ & (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow \\ & (\forall X2. ((v5_relat_1 X2 (k1_rcomp_1 k6_numbers np_1)) \wedge \\ & (v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 k1_numbers) \wedge (m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \Rightarrow ((r2_fuzzy_1 \\ & X0 X1 X2) \Leftrightarrow (\forall X3. (m1_subset_1 X3 X0) \Rightarrow (r1_xxreal_0 (k1_seq_1 \\ & X1 X3) (k1_seq_1 X2 X3)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1))) \Rightarrow (((X1 \neq k1_xboole_0) \Rightarrow ((v1_funct_2 X2 X0 \\ & X1) \Leftrightarrow (X0 = k1_relset_1 X0 X2))) \wedge ((X1 = k1_xboole_0) \Rightarrow ((v1_funct_2 \\ & X2 X0 X1) \Leftrightarrow (X2 = k1_xboole_0)))) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge (v3_valued_0 X0)) \Rightarrow ((v1_relat_1 X0) \wedge (v2_valued_0 X0)) \quad (11)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge (v5_relat_1 X0 k1_numbers)) \Rightarrow ((v1_relat_1 X0) \wedge (v3_valued_0 X0)) \quad (12)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow ((v4_relat_1 X2 X0) \wedge (v5_relat_1 X2 X1)) \quad (13)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow (v1_relat_1 X2) \quad (14)$$

Theorem 1

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