

t2_isocat_2 (TMYMwr- shejY7HZUkH1GeSZnSq6CYNvYinUD)

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Let $v1_xboole_0 : \iota \Rightarrow o$ 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 $k9_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k2_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_isocat_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_funct_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k13_funct_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_funct_5 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\ & (\forall X2.(\neg v1_xboole_0 X2) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge \\ & ((v1_funct_2 X3 X0 (k9_funct_2 X1 X2)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 (k9_funct_2 X1 X2)))))) \Rightarrow (\forall X4.(m1_subset_1 \\ & X4 X0) \Rightarrow (\forall X5.(m1_subset_1 X5 X1) \Rightarrow (k2_binop_1 X0 X1 X2 (k13_funct_5 \\ & X0 X1 X2 X3) X4 X5 = k3_funct_2 X1 X2 (k10_funct_5 X0 X1 X2 (k9_funct_2 \\ & X1 X2) X3 X4) X5)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0) \wedge \\ & ((\neg v1_xboole_0 X1) \wedge ((\neg v1_xboole_0 X2) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 \\ & X3 X0 (k9_funct_2 X1 X2)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 (k9_funct_2 X1 X2)))))))) \Rightarrow (k1_isocat_2 X0 X1 X2 X3 = k2_funct_5 \\ & X3) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0) \wedge \\ & ((\neg v1_xboole_0 X1) \wedge ((\neg v1_xboole_0 X2) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 \\ & X3 X0 (k9_funct_2 X1 X2)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 (k9_funct_2 X1 X2)))))))) \Rightarrow (k13_funct_5 X0 X1 X2 X3 = k2_funct_5 \\ & X3) \end{aligned} \tag{3}$$

Theorem 1

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\ & \quad (\forall X2.(\neg v1_xboole_0 X2) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge \\ & \quad ((v1_funct_2 X3 X0 (k9_funct_2 X1 X2)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\ & \quad (k2_zfmisc_1 X0 (k9_funct_2 X1 X2)))))) \Rightarrow (\forall X4.(m1_subset_1 \\ & \quad X4 X0) \Rightarrow (\forall X5.(m1_subset_1 X5 X1) \Rightarrow (k2_binop_1 X0 X1 X2 (k1_isocat_2 \\ & \quad X0 X1 X2 X3) X4 X5 = k3_funct_2 X1 X2 (k10_funct_5 X0 X1 X2 (k9_funct_2 \\ & \quad X1 X2) X3 X4) X5)))))) \end{aligned}$$