

t34_altcat_2

(TMJshFt4HbinxczCi4GMRYjNgRs9U4DHeTW)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_altcat_1 : \iota \Rightarrow o$ be given. Let $v11_altcat_1 : \iota \Rightarrow o$ be given. Let $v12_altcat_1 : \iota \Rightarrow o$ be given. Let $l2_altcat_1 : \iota \Rightarrow o$ be given. Let $v3_altcat_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_altcat_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k8_altcat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_altcat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k5_altcat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X2))) \Rightarrow (m1_subset_1 X0 X2) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 (k1_zfmisc_1 X1)) \Leftrightarrow (r1_tarski X0 X1) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l2_altcat_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (m1_altcat_2 X1 X0)) \Rightarrow (\forall X2. (m1_subset_1 \\ & X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. (m1_subset_1 X3 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X4. (m1_subset_1 X4 (u1_struct_0 X1)) \Rightarrow (\forall X5. \\ & (m1_subset_1 X5 (u1_struct_0 X1)) \Rightarrow (((X2 = X4) \wedge (X3 = X5)) \Rightarrow ((k1_altcat_1 \\ & X1 X4 X5 = k1_xboole_0) \vee (\forall X6. (m1_subset_1 X6 (k1_altcat_1 \\ & X1 X4 X5)) \Rightarrow (m1_subset_1 X6 (k1_altcat_1 X0 X2 X3)))))))))) \quad (3) \end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge (l2_altcat_1 \\
& X0))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge (m1_altcat_2 \\
& X1 X0))) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X1))) \Rightarrow (\forall X3. \\
& (m1_subset_1 X3 (u1_struct_0 X1))) \Rightarrow (\forall X4.(m1_subset_1 X4 \\
& (u1_struct_0 X1))) \Rightarrow (\neg(k1_altcat_1 X1 X2 X3 \neq k1_xboole_0) \wedge ((k1_altcat_1 \\
& X1 X3 X4 \neq k1_xboole_0) \wedge (\exists X5.(m1_subset_1 X5 (u1_struct_0 \\
& X0)) \wedge (\exists X6.(m1_subset_1 X6 (u1_struct_0 X0)) \wedge (\exists X7. \\
& (m1_subset_1 X7 (u1_struct_0 X0)) \wedge ((X5 = X2) \wedge ((X6 = X3) \wedge ((X7 = X4) \wedge \\
& (\exists X8.(m1_subset_1 X8 (k1_altcat_1 X0 X5 X6)) \wedge (\exists X9. \\
& (m1_subset_1 X9 (k1_altcat_1 X0 X6 X7)) \wedge (\exists X10.(m1_subset_1 \\
& X10 (k1_altcat_1 X1 X2 X3)) \wedge (\exists X11.(m1_subset_1 X11 (k1_altcat_1 \\
& X1 X3 X4)) \wedge ((X8 = X10) \wedge ((X9 = X11) \wedge (k5_altcat_1 X0 X5 X6 X7 X8 X9 \neq k5_altcat_1 \\
& X1 X2 X3 X4 X10 X11)))))))))))))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l2_altcat_1 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge (m1_altcat_2 X1 X0)) \Rightarrow (\forall X2.(m1_subset_1 \\
& X2 (u1_struct_0 X1)) \Rightarrow (m1_subset_1 X2 (u1_struct_0 X0)))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 \\
& X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\
& (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((k1_altcat_1 X0 X1 X2 \neq k1_xboole_0) \Rightarrow \\
& (\forall X3.(m1_subset_1 X3 (k1_altcat_1 X0 X1 X2)) \Rightarrow (k5_altcat_1 \\
& X0 X1 X2 X2 X3 (k8_altcat_1 X0 X2) = X3))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 \\
& X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k1_altcat_1 \\
& X0 X1 X1 \neq k1_xboole_0))
\end{aligned} \tag{7}$$

Assume the following.

$$\forall X0. \forall X1. r1_tarski X0 X0 \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l2_altcat_1 X0) \Rightarrow (\forall X1.(m1_altcat_2 X1 X0) \Rightarrow \\
& (l2_altcat_1 X1))
\end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v12_altcat_1 X0) \wedge \\
& (l2_altcat_1 X0))) \wedge (m1_subset_1 X1 (u1_struct_0 X0))) \Rightarrow (m1_subset_1 \\
& (k8_altcat_1 X0 X1) (k1_altcat_1 X0 X1 X1))
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 \\
& X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\
& (m1_subset_1 X2 (k1_altcat_1 X0 X1 X1)) \Rightarrow ((X2 = k8_altcat_1 X0 X1) \Leftrightarrow \\
& (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow ((k1_altcat_1 \\
& X0 X1 X3 \neq k1_xboole_0) \Rightarrow (\forall X4.(m1_subset_1 X4 (k1_altcat_1 \\
& X0 X1 X3)) \Rightarrow (k5_altcat_1 X0 X1 X1 X3 X2 X4 = X4))))))
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 \\
& X0))) \Rightarrow (\forall X1.(m1_altcat_2 X1 X0) \Rightarrow (((\neg v2_struct_0 X1) \Rightarrow (\\
& (v3_altcat_2 X1 X0) \Leftrightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\
& X1)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow ((X2 = X3) \Rightarrow \\
& (k8_altcat_1 X0 X3 \in k1_altcat_1 X1 X2 X2)))))) \wedge ((v2_struct_0 X1) \Rightarrow \\
& (v3_altcat_2 X1 X0)))
\end{aligned} \tag{12}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 \\
& X0) \wedge (l2_altcat_1 X0)))) \Rightarrow (\forall X1.(m1_altcat_2 X1 X0) \Rightarrow (((\\
& \neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge (v3_altcat_2 X1 X0))) \Rightarrow ((\\
& \neg v2_struct_0 X1) \wedge (v12_altcat_1 X1)))
\end{aligned} \tag{13}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v11_altcat_1 \\
& X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))))) \Rightarrow (\forall X1.((\\
& \neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v3_altcat_2 X1 X0) \wedge (m1_altcat_2 \\
& X1 X0)))) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X1)) \Rightarrow (\forall X3. \\
& (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow ((X2 = X3) \Rightarrow (k8_altcat_1 X1 X2 = \\
& k8_altcat_1 X0 X3))))))
\end{aligned}$$