

t36\_altcat\_4 (TMRV-  
FYWX4Q6iVsVYVBM7PZoBny5q4MMtGM1)

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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  $k1\_altcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_altcat\_1 X0) \wedge ((v11\_altcat\_1 \\ & \quad X0) \wedge ((v12\_altcat\_1 X0) \wedge (l2\_altcat\_1 X0)))))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v2\_altcat\_1 X1) \wedge ((v3\_altcat\_2 X1 X0) \wedge (m1\_altcat\_2 \\ & \quad X1 X0)))))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X1)) \Rightarrow (\forall X3. \\ & (m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow ((X2 = X3) \Rightarrow (k8\_altcat\_1 X1 X2 = \\ & \quad k8\_altcat\_1 X0 X3)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l2\_altcat\_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2\_struct\_0 X1) \wedge (m1\_altcat\_2 X1 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 \\ & \quad X2 (u1\_struct\_0 X1)) \Rightarrow (m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.(l2\_altcat\_1 X0) \Rightarrow (\forall X1.(l2\_altcat\_1 X1) \Rightarrow (\forall X2. \\ & (l2\_altcat\_1 X2) \Rightarrow (((m1\_altcat\_2 X0 X1) \wedge (m1\_altcat\_2 X1 X2)) \Rightarrow \\ & \quad (m1\_altcat\_2 X0 X2)))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.(l2\_altcat\_1 X0) \Rightarrow (\forall X1.(m1\_altcat\_2 X1 X0) \Rightarrow \\ & \quad (l2\_altcat\_1 X1)) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v12\_altcat\_1 X0) \wedge (l2\_altcat\_1 \\
& X0))) \Rightarrow (\forall X1.(m1\_altcat\_2 X1 X0) \Rightarrow (((\neg v2\_struct\_0 X1) \Rightarrow ( \\
& (v3\_altcat\_2 X1 X0) \Leftrightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\
& X1)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow ((X2 = X3) \Rightarrow \\
& (k8\_altcat\_1 X0 X3 \in k1\_altcat\_1 X1 X2 X2)))))) \wedge ((v2\_struct\_0 X1) \Rightarrow \\
& (v3\_altcat\_2 X1 X0)))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_altcat\_1 X0) \wedge ((v12\_altcat\_1 \\
& X0) \wedge (l2\_altcat\_1 X0)))) \Rightarrow (\forall X1.(m1\_altcat\_2 X1 X0) \Rightarrow ((( \\
& \neg v2\_struct\_0 X1) \wedge ((v2\_altcat\_1 X1) \wedge (v3\_altcat\_2 X1 X0))) \Rightarrow (( \\
& \neg v2\_struct\_0 X1) \wedge (v12\_altcat\_1 X1)))
\end{aligned} \tag{6}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_altcat\_1 X0) \wedge ((v11\_altcat\_1 \\
& X0) \wedge ((v12\_altcat\_1 X0) \wedge (l2\_altcat\_1 X0)))))) \Rightarrow (\forall X1.(( \\
& \neg v2\_struct\_0 X1) \wedge ((v2\_altcat\_1 X1) \wedge ((v3\_altcat\_2 X1 X0) \wedge (m1\_altcat\_2 \\
& X1 X0)))) \Rightarrow (\forall X2.((\neg v2\_struct\_0 X2) \wedge ((v2\_altcat\_1 X2) \wedge \\
& ((v3\_altcat\_2 X2 X1) \wedge (m1\_altcat\_2 X2 X1)))) \Rightarrow ((\neg v2\_struct\_0 X2) \wedge \\
& ((v2\_altcat\_1 X2) \wedge ((v3\_altcat\_2 X2 X0) \wedge (m1\_altcat\_2 X2 X0))))))
\end{aligned}$$