

# t3\_cat\_4 (TMRB- NFNie1a3g3EX4XLig9fQamqCpRZQozE)

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Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k5\_cat\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. 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  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $g1\_cat\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v11\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v2\_cat\_1 : \iota \Rightarrow o$  be given. Let  $v3\_cat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_cat\_1 : \iota \Rightarrow o$  be given. Let  $v5\_cat\_1 : \iota \Rightarrow o$  be given. Let  $v6\_cat\_1 : \iota \Rightarrow o$  be given. Let  $v2\_cat\_4 : \iota \Rightarrow o$  be given. Let  $l1\_cat\_4 : \iota \Rightarrow o$  be given. Let  $k1\_algstr\_1 : \iota \Rightarrow \iota$  be given. Let  $k18\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k17\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_graph\_1 : \iota \Rightarrow \iota$  be given. Let  $u2\_graph\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_cat\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_cat\_4 : \iota \Rightarrow \iota$  be given. Let  $u2\_cat\_4 : \iota \Rightarrow \iota$  be given. Let  $u3\_cat\_4 : \iota \Rightarrow \iota$  be given. Let  $u4\_cat\_4 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (1)$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\
& \quad \forall X6.\forall X7.\forall X8.(((v1\_funct\_1 X2)\wedge((v1\_funct\_2 \\
& \quad X2 X1 X0)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X1 X0))))))\wedge \\
& \quad (((v1\_funct\_1 X3)\wedge((v1\_funct\_2 X3 X1 X0)\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 \\
& \quad (k2\_zfmisc\_1 X1 X0))))))\wedge(((v1\_funct\_1 X4)\wedge(m1\_subset\_1 X4 (k1\_zfmisc\_1 \\
& \quad (k2\_zfmisc\_1 (k2\_zfmisc\_1 X1 X1) X1))))\wedge((m1\_subset\_1 X5 X0)\wedge \\
& \quad (((v1\_funct\_1 X6)\wedge((v1\_funct\_2 X6 (k2\_zfmisc\_1 X0 X0) X0)\wedge(m1\_subset\_1 \\
& \quad X6 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X0))))))\wedge(((v1\_funct\_1 \\
& \quad X7)\wedge((v1\_funct\_2 X7 (k2\_zfmisc\_1 X0 X0) X1)\wedge(m1\_subset\_1 X7 (k1\_zfmisc\_1 \\
& \quad (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X1))))))\wedge((v1\_funct\_1 X8)\wedge(( \\
& \quad v1\_funct\_2 X8 (k2\_zfmisc\_1 X0 X0) X1)\wedge(m1\_subset\_1 X8 (k1\_zfmisc\_1 \\
& \quad (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X1)))))))))\Rightarrow(\forall X9.\forall X10. \\
& \quad \forall X11.\forall X12.\forall X13.\forall X14.\forall X15. \\
& \quad \forall X16.\forall X17.(g1\_cat\_4 X0 X1 X2 X3 X4 X5 X6 X7 X8 = g1\_cat\_4 \\
& \quad X9 X10 X11 X12 X13 X14 X15 X16 X17)\Rightarrow((X0 = X9)\wedge((X1 = X10)\wedge((X2 = X11)\wedge \\
& \quad ((X3 = X12)\wedge((X4 = X13)\wedge((X5 = X14)\wedge((X6 = X15)\wedge((X7 = X16)\wedge(X8 = X17))))))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.\neg v1\_xboole\_0 (k1\_tarski X0) \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.(\neg v2\_struct\_0 (k5\_cat\_4 X0 X1))\wedge((\neg v11\_struct\_0 \\
& \quad (k5\_cat\_4 X0 X1))\wedge((v2\_cat\_1 (k5\_cat\_4 X0 X1))\wedge((v3\_cat\_1 (k5\_cat\_4 \\
& \quad X0 X1))\wedge((v4\_cat\_1 (k5\_cat\_4 X0 X1))\wedge((v5\_cat\_1 (k5\_cat\_4 X0 X1))\wedge \\
& \quad ((v6\_cat\_1 (k5\_cat\_4 X0 X1))\wedge(v2\_cat\_4 (k5\_cat\_4 X0 X1))))))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.(v2\_cat\_4 (k5\_cat\_4 X0 X1))\wedge(l1\_cat\_4 (k5\_cat\_4 X0 X1)) \tag{5}$$

Assume the following.

$$\forall X0.m1\_subset\_1 (k1\_algstr\_1 X0) (k1\_tarski X0) \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.(v1\_funct\_1 (k18\_funcop\_1 X0 X1))\wedge((v1\_funct\_2 \\
& \quad (k18\_funcop\_1 X0 X1) (k1\_tarski X0) (k1\_tarski X1))\wedge(m1\_subset\_1 \\
& \quad (k18\_funcop\_1 X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k1\_tarski X0) \\
& \quad (k1\_tarski X1))))))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(v1\_funct\_1 (k17\_funcop\_1 X0 \\ & X1 X2))\wedge((v1\_funct\_2 (k17\_funcop\_1 X0 X1 X2) (k2\_zfmisc\_1 (k1\_tarski \\ & X0) (k1\_tarski X1)) (k1\_tarski X2))\wedge(m1\_subset\_1 (k17\_funcop\_1 \\ & X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 (k1\_tarski X0) \\ & (k1\_tarski X1)) (k1\_tarski X2)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.k5\_cat\_4 X0 X1 = g1\_cat\_4 (k1\_tarski X0) ( \\ & k1\_tarski X1) (k18\_funcop\_1 X1 X0) (k18\_funcop\_1 X1 X0) (k17\_funcop\_1 \\ & X1 X1 X1) (k1\_algstr\_1 X0) (k17\_funcop\_1 X0 X0 X0) (k17\_funcop\_1 \\ & X0 X0 X1) (k17\_funcop\_1 X0 X0 X1) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(X1 = k1\_tarski X0)\Leftrightarrow(\forall X2.(X2 \in X1)\Leftrightarrow \\ & (X2 = X0)) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1\_cat\_4 X0)\Rightarrow((v2\_cat\_4 X0)\Rightarrow(X0 = g1\_cat\_4 (u1\_struct\_0 \\ & X0) (u4\_struct\_0 X0) (u1\_graph\_1 X0) (u2\_graph\_1 X0) (u1\_cat\_1 \\ & X0) (u1\_cat\_4 X0) (u2\_cat\_4 X0) (u3\_cat\_4 X0) (u4\_cat\_4 X0))) \end{aligned} \quad (11)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ & (k5\_cat\_4 X0 X1)))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 ( \\ & k5\_cat\_4 X0 X1)))\Rightarrow(X2 = X3)) \end{aligned}$$