

## t25\_yellow20

(TMNLs1PapJ6GiJoB8jhWQKwymCHmGMaB7fo)

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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  $r1\_yellow20 : \iota \Rightarrow \iota \Rightarrow o$  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  $k2\_yellow20 : \iota \Rightarrow \iota \Rightarrow \iota$  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  $k1\_altcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v12\_altcat\_1 X0) \wedge (l2\_altcat\_1 \\ & X0))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v12\_altcat\_1 X1) \wedge (l2\_altcat\_1 \\ & X1)))) \Rightarrow ((r1\_yellow20 X0 X1) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ & X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X1)) \Rightarrow (\forall X4. \\ & (m1\_subset\_1 X4 (u1\_struct\_0 (k2\_yellow20 X0 X1))) \Rightarrow (((X4 = X2) \wedge \\ & ((X4 = X3) \wedge (k8\_altcat\_1 X0 X2 = k8\_altcat\_1 X1 X3))) \Rightarrow (k8\_altcat\_1 \\ & X0 X2 \in k1\_altcat\_1 (k2\_yellow20 X0 X1) X4 X4)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v2\_altcat\_1 X0) \wedge (l2\_altcat\_1 X0)) \Rightarrow (\forall X1. \\ & ((v2\_altcat\_1 X1) \wedge (l2\_altcat\_1 X1)) \Rightarrow ((r1\_yellow20 X0 X1) \Rightarrow (v2\_altcat\_1 \\ & (k2\_yellow20 X0 X1)))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l2\_altcat\_1 X0) \Rightarrow (\forall X1.(l2\_altcat\_1 X1) \Rightarrow (( \\ & r1\_yellow20 X0 X1) \Rightarrow (m1\_altcat\_2 (k2\_yellow20 X0 X1) X0))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l2\_altcat\_1 X0) \Rightarrow (\forall X1.(l2\_altcat\_1 X1) \Rightarrow (( \\ & r1\_yellow20 X0 X1) \Rightarrow (k2\_yellow20 X0 X1 = k2\_yellow20 X1 X0))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((l2\_altcat\_1 X0)\wedge(l2\_altcat\_1 X1))\Rightarrow( (r1\_yellow20 X0 X1)\Rightarrow(r1\_yellow20 X1 X0)) \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0)\wedge((v12\_altcat\_1 X0)\wedge(l2\_altcat\_1 \\ X0)))\Rightarrow(\forall X1.(m1\_altcat\_2 X1 X0)\Rightarrow(((\neg v2\_struct\_0 X1)\Rightarrow( \\ v3\_altcat\_2 X1 X0)\Leftrightarrow(\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ X1))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0))\Rightarrow((X2 = X3)\Rightarrow \\ (k8\_altcat\_1 X0 X3 \in k1\_altcat\_1 X1 X2 X2))))))\wedge((v2\_struct\_0 X1)\Rightarrow \\ (v3\_altcat\_2 X1 X0)))) \end{aligned} \quad (7)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0)\wedge((v2\_altcat\_1 X0)\wedge((v11\_altcat\_1 \\ X0)\wedge((v12\_altcat\_1 X0)\wedge(l2\_altcat\_1 X0))))))\Rightarrow(\forall X1.(( \\ \neg v2\_struct\_0 X1)\wedge((v2\_altcat\_1 X1)\wedge((v11\_altcat\_1 X1)\wedge((v12\_altcat\_1 \\ X1)\wedge(l2\_altcat\_1 X1))))))\Rightarrow(((r1\_yellow20 X0 X1)\wedge(\forall X2. \\ (m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow(\forall X3.(m1\_subset\_1 X3 \\ (u1\_struct\_0 X1))\Rightarrow((X2 = X3)\Rightarrow(k8\_altcat\_1 X0 X2 = k8\_altcat\_1 X1 \\ X3))))))\Rightarrow((v2\_struct\_0 (k2\_yellow20 X0 X1))\vee((v2\_altcat\_1 (k2\_yellow20 \\ X0 X1))\wedge((v3\_altcat\_2 (k2\_yellow20 X0 X1) X0)\wedge(m1\_altcat\_2 (k2\_yellow20 \\ X0 X1) X0)))))) \end{aligned}$$