

## t26\_cat\_5

(TMRz2vGh5ui9eHppyfG6eWEX3tydXVqQhg7)

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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  $l1\_cat\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k10\_cat\_5 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_graph\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_cat\_5 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_graph\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $l1\_graph\_1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge ((v2\_cat\_1 \\ & X0) \wedge ((v3\_cat\_1 X0) \wedge ((v4\_cat\_1 X0) \wedge ((v5\_cat\_1 X0) \wedge ((v6\_cat\_1 \\ & X0) \wedge (l1\_cat\_1 X0)))))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 \\ & X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u4\_struct\_0 X0)) \Rightarrow ((X2 \in k10\_cat\_5 \\ & X0 X1) \Leftrightarrow (k3\_graph\_1 X0 X2 = X1)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge ((v2\_cat\_1 \\ & X0) \wedge ((v3\_cat\_1 X0) \wedge ((v4\_cat\_1 X0) \wedge ((v5\_cat\_1 X0) \wedge ((v6\_cat\_1 \\ & X0) \wedge (l1\_cat\_1 X0)))))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 \\ & X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u4\_struct\_0 X0)) \Rightarrow ((X2 \in k9\_cat\_5 \\ & X0 X1) \Leftrightarrow (k4\_graph\_1 X0 X2 = X1)))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.(l1\_cat\_1 X0) \Rightarrow (l1\_graph\_1 X0) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge \\ & (l1\_graph\_1 X0))) \wedge (m1\_subset\_1 X1 (u4\_struct\_0 X0))) \Rightarrow (m1\_subset\_1 \\ & (k4\_graph\_1 X0 X1) (u1\_struct\_0 X0)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge (\neg v11\_struct\_0 X0) \wedge \\ & (l1\_graph\_1 X0))) \wedge (m1\_subset\_1 X1 (u4\_struct\_0 X0)) \Rightarrow (m1\_subset\_1 \\ & (k3\_graph\_1 X0 X1) (u1\_struct\_0 X0)) \end{aligned} \tag{5}$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge (\neg v11\_struct\_0 X0) \wedge (v2\_cat\_1 \\ & X0) \wedge (v3\_cat\_1 X0) \wedge (v4\_cat\_1 X0) \wedge (v5\_cat\_1 X0) \wedge (v6\_cat\_1 \\ & X0) \wedge (l1\_cat\_1 X0)))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u4\_struct\_0 \\ & X0)) \Rightarrow ((X1 \in k10\_cat\_5 X0 (k3\_graph\_1 X0 X1)) \wedge (X1 \in k9\_cat\_5 X0 (k4\_graph\_1 \\ & X0 X1)))) \end{aligned}$$