

t10\_nattra\_1 (TMSWGqdC-  
tyZY03puMM5BJ2KUgWTrKxk6sq1)

October 27, 2020

Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v11\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_cat\_1 : \iota \Rightarrow o$  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  $m3\_cat\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_graph\_1 : \iota \Rightarrow \iota$  be given. Let  $k5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u2\_graph\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_cat\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_realset1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $g1\_cat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge ((v2\_cat\_1 \\ & X0) \wedge ((v3\_cat\_1 X0) \wedge ((v4\_cat\_1 X0) \wedge ((v5\_cat\_1 X0) \wedge ((v6\_cat\_1 \\ & X0) \wedge (l1\_cat\_1 X0)))))))) \Rightarrow (\forall X1. (m3\_cat\_2 X1 X0) \Rightarrow ((u1\_graph\_1 \\ & X1 = k5\_relat\_1 (u1\_graph\_1 X0) (u4\_struct\_0 X1)) \wedge ((u2\_graph\_1 \\ & X1 = k5\_relat\_1 (u2\_graph\_1 X0) (u4\_struct\_0 X1)) \wedge (u1\_cat\_1 X1 = \\ & k1\_realset1 (u1\_cat\_1 X0) (u4\_struct\_0 X1)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge ((v2\_cat\_1 \\ & X0) \wedge ((v3\_cat\_1 X0) \wedge ((v4\_cat\_1 X0) \wedge ((v5\_cat\_1 X0) \wedge ((v6\_cat\_1 \\ & X0) \wedge (l1\_cat\_1 X0)))))))) \Rightarrow (m3\_cat\_2 X0 X0) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge ((v2\_cat\_1 \\ & X0) \wedge ((v3\_cat\_1 X0) \wedge ((v4\_cat\_1 X0) \wedge ((v5\_cat\_1 X0) \wedge ((v6\_cat\_1 \\ & X0) \wedge (l1\_cat\_1 X0)))))))) \Rightarrow (\forall X1. (m3\_cat\_2 X1 X0) \Rightarrow ((\neg v2\_struct\_0 \\ & X1) \wedge ((\neg v11\_struct\_0 X1) \wedge ((v2\_cat\_1 X1) \wedge ((v3\_cat\_1 X1) \wedge ((v4\_cat\_1 \\ & X1) \wedge ((v5\_cat\_1 X1) \wedge ((v6\_cat\_1 X1) \wedge (l1\_cat\_1 X1)))))))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1\_cat\_1 X0) \Rightarrow ((v1\_cat\_1 X0) \Rightarrow (X0 = g1\_cat\_1 (u1\_struct\_0 \\ & X0) (u4\_struct\_0 X0) (u1\_graph\_1 X0) (u2\_graph\_1 X0) (u1\_cat\_1 \\ & X0))) \end{aligned} \quad (4)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge ((v1\_cat\_1 \\ & X0) \wedge ((v2\_cat\_1 X0) \wedge ((v3\_cat\_1 X0) \wedge ((v4\_cat\_1 X0) \wedge ((v5\_cat\_1 \\ & X0) \wedge ((v6\_cat\_1 X0) \wedge (l1\_cat\_1 X0)))))))))) \Rightarrow (\forall X1.((v1\_cat\_1 \\ & X1) \wedge (m3\_cat\_2 X1 X0)) \Rightarrow (((u1\_struct\_0 X1 = u1\_struct\_0 X0) \wedge (u4\_struct\_0 \\ & X1 = u4\_struct\_0 X0)) \Rightarrow (X1 = X0))) \end{aligned}$$