

t26\_funct\_1  
(TMHruicS6WtN<sub>x</sub>kRApUqGSu9UBWkocXCNQ<sub>xs</sub>)

October 27, 2020

Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v2\_funct\_1 : \iota \Rightarrow o$  be given. Let  $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.(v1\_relat\_1 X1) \Rightarrow ((r1\_tarski (k10\_xtuple\_0 X0) (k9\_xtuple\_0 X1)) \Rightarrow (k9\_xtuple\_0 (k3\_relat\_1 X0 X1) = k9\_xtuple\_0 X0))) \quad (1)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1.((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (((v2\_funct\_1 (k3\_relat\_1 X1 X0)) \wedge (r1\_tarski (k10\_xtuple\_0 X1) (k9\_xtuple\_0 X0))) \Rightarrow (v2\_funct\_1 X1))) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (\forall X2.((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow ((X0 \in k9\_xtuple\_0 X1) \Rightarrow (k1\_funct\_1 (k3\_relat\_1 X1 X2) X0 = k1\_funct\_1 X2 (k1\_funct\_1 X1 X0)))) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.r1\_tarski X0 X0 \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \wedge ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1))) \Rightarrow ((v1\_relat\_1 (k3\_relat\_1 X0 X1)) \wedge (v1\_funct\_1 (k3\_relat\_1 X0 X1))) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.v1\_relat\_1 (k3\_relat\_1 X0 X1) \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow ((v2\_funct\_1 X0) \Leftrightarrow \\ (\forall X1. \forall X2. ((X1 \in k9\_xtuple\_0 X0) \wedge ((X2 \in k9\_xtuple\_0 \\ X0) \wedge (k1\_funct\_1 X0 X1 = k1\_funct\_1 X0 X2))) \Rightarrow (X1 = X2))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1. (X1 = \\ k10\_xtuple\_0 X0) \Leftrightarrow (\forall X2. (X2 \in X1) \Leftrightarrow (\exists X3. (X3 \in k9\_xtuple\_0 \\ X0) \wedge (X2 = k1\_funct\_1 X0 X3)))) \end{aligned} \quad (8)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1. (( \\ v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (((v2\_funct\_1 (k3\_relat\_1 X1 \\ X0)) \wedge (k10\_xtuple\_0 X1 = k9\_xtuple\_0 X0)) \Rightarrow ((v2\_funct\_1 X1) \wedge (v2\_funct\_1 \\ X0)))) \end{aligned}$$