

t122\_funct\_4 (TMb-  
wAG5acVHDxkH2TXUNYPwpxJGsqa7NbFK)

October 27, 2020

Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1.(( \\ v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (\forall X2.((v1\_relat\_1 X2) \wedge \\ (v1\_funct\_1 X2)) \Rightarrow (((r1\_tarski X0 X2) \wedge (r1\_tarski X1 X2)) \Rightarrow (r1\_tarski \\ (k1\_funct\_4 X0 X1 X2)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1.(( \\ v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (r1\_tarski X0 (k1\_funct\_4 X1 \\ X0))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. ((r1\_tarski X0 X1) \wedge (r1\_tarski \\ X1 X2)) \Rightarrow (r1\_tarski X0 X2) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1.(( \\ v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (\forall X2.((v1\_relat\_1 X2) \wedge \\ (v1\_funct\_1 X2)) \Rightarrow (((r1\_xboole\_0 (k9\_xtuple\_0 X0) (k9\_xtuple\_0 \\ X1)) \wedge (r1\_tarski X0 X2)) \Rightarrow (r1\_tarski X0 (k1\_funct\_4 X2 X1)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. (((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \wedge (( \\ v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1))) \Rightarrow ((v1\_relat\_1 (k1\_funct\_4 X0 \\ X1)) \wedge (v1\_funct\_1 (k1\_funct\_4 X0 X1))) \end{aligned} \quad (5)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1.(( \\ & \quad v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (\forall X2.((v1\_relat\_1 X2) \wedge \\ & \quad (v1\_funct\_1 X2)) \Rightarrow (\forall X3.((v1\_relat\_1 X3) \wedge (v1\_funct\_1 X3)) \Rightarrow \\ & \quad ((r1\_tarski X0 X2) \wedge ((r1\_tarski X1 X3) \wedge (r1\_xboole\_0 (k9\_xtuple\_0 \\ & \quad X0) (k9\_xtuple\_0 X3)))) \Rightarrow (r1\_tarski (k1\_funct\_4 X0 X1) (k1\_funct\_4 \\ & \quad X2 X3)))))) \end{aligned}$$