

t66\_funct\_4 (TM-  
bxJCRvRVbuwh39zXn5NK8bBNpthD1m25Q)

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k2\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_funct\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((X0 \neq X1) \Rightarrow (k1\_funct\_1 \\ & (k4\_funct\_4 X0 X1 X2 X3) X0 = X2)) \wedge (k1\_funct\_1 (k4\_funct\_4 X0 X1 X2 \\ & X3) X1 = X3) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (k9\_xtuple\_0 (k4\_funct\_4 \\ & X0 X1 X2 X3) = k2\_tarski X0 X1) \wedge (r1\_tarski (k10\_xtuple\_0 (k4\_funct\_4 \\ & X0 X1 X2 X3)) (k2\_tarski X2 X3)) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (v1\_relat\_1 (k4\_funct\_4 \\ & X0 X1 X2 X3)) \wedge (v1\_funct\_1 (k4\_funct\_4 X0 X1 X2 X3)) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (X2 = k2\_tarski X0 X1) \Leftrightarrow (\forall X3. \\ & (X3 \in X2) \Leftrightarrow ((X3 = X0) \vee (X3 = X1))) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1. (( \\ & v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow ((X0 = X1) \Leftrightarrow ((k9\_xtuple\_0 X0 = \\ & k9\_xtuple\_0 X1) \wedge (\forall X2. (X2 \in k9\_xtuple\_0 X0) \Rightarrow (k1\_funct\_1 \\ & X0 X2 = k1\_funct\_1 X1 X2)))))) \end{aligned} \tag{5}$$

**Theorem 1**

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. ((v1\_relat\_1 \\ & X4) \wedge (v1\_funct\_1 X4)) \Rightarrow (((k9\_xtuple\_0 X4 = k2\_tarski X0 X1) \wedge ((k1\_funct\_1 \\ & X4 X0 = X2) \wedge (k1\_funct\_1 X4 X1 = X3))) \Rightarrow (X4 = k4\_funct\_4 X0 X1 X2 X3)) \end{aligned}$$