

# t22\_funct\_5 (TMGbc- FUUV3WbWaTi7rhkRsrYLgGxNgUqpTkM)

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_funct\_5 : \iota \Rightarrow \iota$  be given. Let  $k1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_funct\_4 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_5 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow ((k4\_tarski X0 X1 \in k9\_xtuple\_0 X2) \Leftrightarrow (k4\_tarski X1 X0 \in k9\_xtuple\_0 (k2\_funct\_4 X2))) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow (\forall X3. ((v1\_relat\_1 X3) \wedge (v1\_funct\_1 X3)) \Rightarrow (((k4\_tarski X0 X1 \in k9\_xtuple\_0 X2) \wedge (X3 = k1\_funct\_1 (k1\_funct\_5 X2) X0)) \Rightarrow ((X1 \in k9\_xtuple\_0 X3) \wedge (k1\_funct\_1 X3 X1 = k1\_binop\_1 X2 X0 X1)))) \quad (2)$$

Assume the following.

$$\forall X0. ((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow ((v1\_relat\_1 (k2\_funct\_4 X0)) \wedge (v1\_funct\_1 (k2\_funct\_4 X0))) \quad (3)$$

Assume the following.

$$\forall X0. ((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (k3\_funct\_5 X0 = k1\_funct\_5 (k2\_funct\_4 X0)) \quad (4)$$

Assume the following.

$$\forall X0. ((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1. ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow ((X1 = k2\_funct\_4 X0) \Leftrightarrow ((\forall X2. (X2 \in k9\_xtuple\_0 X1) \Leftrightarrow (\exists X3. \exists X4. (X2 = k4\_tarski X4 X3) \wedge (k4\_tarski X3 X4 \in k9\_xtuple\_0 X0))) \wedge (\forall X2. \forall X3. (k4\_tarski X2 X3 \in k9\_xtuple\_0 X0) \Rightarrow (k1\_binop\_1 X1 X3 X2 = k1\_binop\_1 X0 X2 X3)))))) \quad (5)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 \\ & X2)) \Rightarrow (\forall X3. ((v1\_relat\_1 X3) \wedge (v1\_funct\_1 X3)) \Rightarrow (((k4\_tarski \\ & X0 X1 \in k9\_xtuple\_0 X2) \wedge (X3 = k1\_funct\_1 (k3\_funct\_5 X2) X1)) \Rightarrow (( \\ & X0 \in k9\_xtuple\_0 X3) \wedge (k1\_funct\_1 X3 X0 = k1\_binop\_1 X2 X0 X1)))) \end{aligned}$$