

t99\_funct\_4 (TMLjmC-  
cxb9pFWyuyFLTYTV5BHYmuYzLurBh)

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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  $k6\_funct\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k16\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.(r1\_tarski X0 X1) \Rightarrow (k2\_xboole\_0 X0 X1 = X1) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow ((v1\_relat\_1 (k6\_funct\_4 X0 X1 X2)) \wedge (v1\_funct\_1 (k6\_funct\_4 X0 X1 X2))) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.(((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \wedge ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1))) \Rightarrow ((v1\_relat\_1 (k3\_relat\_1 X0 X1)) \wedge (v1\_funct\_1 (k3\_relat\_1 X0 X1))) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(v1\_relat\_1 (k16\_funcop\_1 X0 X1)) \wedge (v1\_funct\_1 (k16\_funcop\_1 X0 X1)) \quad (5)$$

Assume the following.

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

Assume the following.

$$\forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1. \forall X2. k6\_funct\_4 X0 X1 X2 = k1\_funct\_4 X0 (k3\_relat\_1 X0 (k16\_funcop\_1 X1 X2))) \quad (7)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1. ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (\forall X2. ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow ((X2 = k1\_funct\_4 X0 X1) \Leftrightarrow ((k9\_xtuple\_0 X2 = k2\_xboole\_0 (k9\_xtuple\_0 X0) (k9\_xtuple\_0 X1)) \wedge (\forall X3. (X3 \in k2\_xboole\_0 (k9\_xtuple\_0 X0) (k9\_xtuple\_0 X1)) \Rightarrow ((X3 \in k9\_xtuple\_0 X1) \Rightarrow (k1\_funct\_1 X2 X3 = k1\_funct\_1 X1 X3)) \wedge ((\neg X3 \in k9\_xtuple\_0 X1) \Rightarrow (k1\_funct\_1 X2 X3 = k1\_funct\_1 X0 X3)))))))))) \quad (8)$$

Assume the following.

$$\forall X0. \forall X1. k2\_xboole\_0 X0 X1 = k2\_xboole\_0 X1 X0 \quad (9)$$

**Theorem 1**

$$\forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1. \forall X2. k9\_xtuple\_0 (k6\_funct\_4 X0 X1 X2) = k9\_xtuple\_0 X0)$$