

t29\_funct\_4  
(TMPZ7tAVCKyBe85eSUEyZycSopcyRXjC726)

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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  $k1\_funct\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  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. Assume the following.

$$\forall X0. \forall X1. \forall X2. ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow ((k4\_tarski X0 X1 \in X2) \Leftrightarrow ((X0 \in k9\_xtuple\_0 X2) \wedge (X1 = k1\_funct\_1 X2 X0))) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (\forall X2. ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow ((X0 \in k9\_xtuple\_0 X1) \Rightarrow (k1\_funct\_1 (k1\_funct\_4 X2 X1) X0 = k1\_funct\_1 X1 X0))) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (\forall X2. ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow ((X0 \in k9\_xtuple\_0 (k1\_funct\_4 X1 X2)) \Leftrightarrow ((X0 \in k9\_xtuple\_0 X1) \vee (X0 \in k9\_xtuple\_0 X2)))) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (\forall X2. ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow ((\neg X0 \in k9\_xtuple\_0 X1) \Rightarrow (k1\_funct\_1 (k1\_funct\_4 X2 X1) X0 = k1\_funct\_1 X2 X0))) \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. (((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \wedge ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1))) \Rightarrow ((v1\_relat\_1 (k1\_funct\_4 X0 X1)) \wedge (v1\_funct\_1 (k1\_funct\_4 X0 X1))) \quad (5)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (X2 = k2\_xboole\_0 X0 X1) \Leftrightarrow (\forall X3. (X3 \in X2) \Leftrightarrow ((X3 \in X0) \vee (X3 \in X1))) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(r1\_tarski\ X0\ X1)\Leftrightarrow(\forall X2.(X2 \in X0)\Rightarrow (X2 \in X1)) \quad (7)$$

Assume the following.

$$\forall X0.(v1\_relat\_1\ X0)\Leftrightarrow(\forall X1.\neg(X1 \in X0)\wedge(\forall X2.\forall X3.X1\neq k4\_tarski\ X2\ X3)) \quad (8)$$

**Theorem 1**

$$\forall X0.((v1\_relat\_1\ X0)\wedge(v1\_funct\_1\ X0))\Rightarrow(\forall X1.((v1\_relat\_1\ X1)\wedge(v1\_funct\_1\ X1))\Rightarrow(r1\_tarski\ (k1\_funct\_4\ X0\ X1)\ (k2\_xboole\_0\ X0\ X1)))$$