# t38_funct_5 (TMTwwxmKN-jfJLFP332y7UyuAuPsmg5ZTz18)

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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 $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_funct\_5 : \iota \Rightarrow \iota$ be given. Let $k1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $k2\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $k1\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.k2\_xtuple\_0\ (k4\_tarski\ X0\ X1) = X1 \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.k1\_xtuple\_0\ (k4\_tarski\ X0\ X1) = X0 \tag{2}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0) \wedge (v1\_funct\_1\ X0)) \Rightarrow ((v1\_relat\_1\ (k2\_funct\_5\ X0)) \wedge (v1\_funct\_1\ (k2\_funct\_5\ X0))) \tag{3}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0) \wedge (v1\_funct\_1\ X0)) \Rightarrow (\forall X1.(X1 = k10\_xtuple\_0\ X0) \Leftrightarrow (\forall X2.(X2 \in X1) \Leftrightarrow (\exists X3.(X3 \in k9\_xtuple\_0\ X0) \wedge (X2 = k1\_funct\_1\ X0\ X3)))) \tag{4}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0) \wedge (v1\_funct\_1\ X0)) \Rightarrow (\forall X1.((v1\_relat\_1\ X1) \wedge (v1\_funct\_1\ X1)) \Rightarrow ((X1 = k2\_funct\_5\ X0) \Leftrightarrow ((\forall X2.(X2 \in k9\_xtuple\_0\ X1) \Leftrightarrow (\exists X3.\exists X4.((v1\_relat\_1\ X4) \wedge (v1\_funct\_1\ X4)) \wedge (\exists X5.(X2 = k4\_tarski\ X3\ X5) \wedge ((X3 \in k9\_xtuple\_0\ X0) \wedge ((X4 = k1\_funct\_1\ X0\ X3) \wedge (X5 \in k9\_xtuple\_0\ X4)))))) \wedge (\forall X2.\forall X3.((v1\_relat\_1\ X3) \wedge (v1\_funct\_1\ X3)) \Rightarrow (((X2 \in k9\_xtuple\_0\ X1) \wedge (X3 = k1\_funct\_1\ X0\ (k1\_xtuple\_0\ X2))) \Rightarrow (k1\_funct\_1\ X1\ X2 = k1\_funct\_1\ X3\ (k2\_xtuple\_0\ X2))))))) \tag{5}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0) \wedge (v1\_funct\_1\ X0)) \Rightarrow (\forall X1.\forall X2.\ k1\_binop\_1\ X0\ X1\ X2 = k1\_funct\_1\ X0\ (k4\_tarski\ X1\ X2)) \tag{6}$$

**Theorem 1**

$$\forall X0.\forall X1.\forall X2.((v1\_relat\_1\ X2)\wedge(v1\_funct\_1\ X2))\Rightarrow(\forall X3.((v1\_relat\_1\ X3)\wedge(v1\_funct\_1\ X3))\Rightarrow(((X0\in k9\_xtuple\_0\ X2)\wedge((X3=k1\_funct\_1\ X2\ X0)\wedge(X1\in k9\_xtuple\_0\ X3)))\Rightarrow((k4\_tarski\ X0\ X1\in k9\_xtuple\_0\ (k2\_funct\_5\ X2))\wedge((k1\_binop\_1\ (k2\_funct\_5\ X2)\ X0\ X1=k1\_funct\_1\ X3\ X1)\wedge(k1\_funct\_1\ X3\ X1\in k10\_xtuple\_0\ (k2\_funct\_5\ X2))))))$$