

t77\_finseqop (TMby-  
cfZxjD4DkMvs3BgPAUWNgjoAWDuBG98)

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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  $k6\_finseqop : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k15\_funct\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1.(( \\ & \quad v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (\forall X2. \forall X3. (k4\_tarski \\ & \quad X2 X3 \in k2\_zfmisc\_1 (k9\_xtuple\_0 X0) (k9\_xtuple\_0 X1)) \Rightarrow (k1\_binop\_1 \\ & \quad (k15\_funct\_3 X0 X1) X2 X3 = k4\_tarski (k1\_funct\_1 X0 X2) (k1\_funct\_1 \\ & \quad \quad X1 X3)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (\forall X2. \\ & \quad ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow ((X0 \in k9\_xtuple\_0 (k3\_relat\_1 \\ & \quad X2 X1)) \Rightarrow (k1\_funct\_1 (k3\_relat\_1 X2 X1) X0 = k1\_funct\_1 X1 (k1\_funct\_1 \\ & \quad \quad X2 X0)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (\forall X2. \\ & \quad ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow ((X0 \in k9\_xtuple\_0 (k3\_relat\_1 \\ & \quad X2 X1)) \Leftrightarrow ((X0 \in k9\_xtuple\_0 X2) \wedge (k1\_funct\_1 X2 X0 \in k9\_xtuple\_0 X1)))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1\_relat\_1 X0) \wedge (v1\_funct\_1 \\ & \quad X0)) \wedge (((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \wedge ((v1\_relat\_1 X2) \wedge \\ & \quad v1\_funct\_1 X2)))) \Rightarrow ((v1\_relat\_1 (k6\_finseqop X0 X1 X2)) \wedge (v1\_funct\_1 \\ & \quad \quad (k6\_finseqop X0 X1 X2))) \end{aligned} \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.(((v1\_relat\_1 X0)\wedge(v1\_funct\_1 X0))\wedge((v1\_relat\_1 X1)\wedge(v1\_funct\_1 X1)))\Rightarrow((v1\_relat\_1 (k15\_funct\_3 X0 X1))\wedge(v1\_funct\_1 (k15\_funct\_3 X0 X1))) \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0)\wedge(v1\_funct\_1 X0))\Rightarrow(\forall X1.((v1\_relat\_1 X1)\wedge(v1\_funct\_1 X1))\Rightarrow(\forall X2.((v1\_relat\_1 X2)\wedge(v1\_funct\_1 X2))\Rightarrow((X2 = k15\_funct\_3 X0 X1)\Leftrightarrow((k9\_xtuple\_0 X2 = k2\_zfmisc\_1 (k9\_xtuple\_0 X0) (k9\_xtuple\_0 X1))\wedge(\forall X3.\forall X4.((X3 \in k9\_xtuple\_0 X0)\wedge(X4 \in k9\_xtuple\_0 X1))\Rightarrow(k1\_binop\_1 X2 X3 X4 = k4\_tarski (k1\_funct\_1 X0 X3) (k1\_funct\_1 X1 X4))))))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0)\wedge(v1\_funct\_1 X0))\Rightarrow(\forall X1.((v1\_relat\_1 X1)\wedge(v1\_funct\_1 X1))\Rightarrow(\forall X2.((v1\_relat\_1 X2)\wedge(v1\_funct\_1 X2))\Rightarrow(k6\_finseqop X0 X1 X2 = k3\_relat\_1 (k15\_funct\_3 X1 X2) X0))) \quad (7)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0)\wedge(v1\_funct\_1 X0))\Rightarrow(\forall X1.\forall X2. k1\_binop\_1 X0 X1 X2 = k1\_funct\_1 X0 (k4\_tarski X1 X2)) \quad (8)$$

**Theorem 1**

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((v1\_relat\_1 X2)\wedge(v1\_funct\_1 X2))\Rightarrow(\forall X3.((v1\_relat\_1 X3)\wedge(v1\_funct\_1 X3))\Rightarrow(\forall X4.((v1\_relat\_1 X4)\wedge(v1\_funct\_1 X4))\Rightarrow((k4\_tarski X0 X1 \in k9\_xtuple\_0 (k6\_finseqop X2 X3 X4))\Rightarrow(k1\_binop\_1 (k6\_finseqop X2 X3 X4) X0 X1 = k1\_binop\_1 X2 (k1\_funct\_1 X3 X0) (k1\_funct\_1 X4 X1)))))) \end{aligned}$$