

# t4\_funct\_9

(TMS2isvd2FhkJFURyPdab25JX1654fa3wQT)

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Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v3\_valued\_0 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_9 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k18\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k2\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_valued\_0 : \iota \Rightarrow o$  be given. Let  $k3\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 \\ & X1) \wedge (v3\_valued\_0 X1))) \Rightarrow ((v1\_funct\_9 X1 X0) \Leftrightarrow ((X0 \neq k6\_numbers) \wedge \\ & (\forall X2.(v1\_xreal\_0 X2) \Rightarrow ((X2 \in k9\_xtuple\_0 X1) \Rightarrow ((k2\_xcmplx\_0 \\ & X2 X0 \in k9\_xtuple\_0 X1) \wedge ((k6\_xcmplx\_0 X2 X0 \in k9\_xtuple\_0 X1) \wedge (k1\_funct\_1 \\ & X1 X2 = k1\_funct\_1 X1 (k2\_xcmplx\_0 X2 X0)))))))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v3\_valued\_0 \\ & X0))) \wedge ((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v3\_valued\_0 X1)))) \Rightarrow \\ & ((v1\_relat\_1 (k18\_valued\_1 X0 X1)) \wedge ((v1\_funct\_1 (k18\_valued\_1 \\ & X0 X1)) \wedge (v3\_valued\_0 (k18\_valued\_1 X0 X1)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(X2 = k3\_xboole\_0 X0 X1) \Leftrightarrow (\forall X3. \\ & (X3 \in X2) \Leftrightarrow ((X3 \in X0) \wedge (X3 \in X1))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.(((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_valued\_0 X0))) \Rightarrow \\ & (\forall X1.(((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_valued\_0 \\ & X1))) \Rightarrow (\forall X2.(((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow ((X2 = k18\_valued\_1 \\ & X0 X1) \Leftrightarrow ((k9\_xtuple\_0 X2 = k3\_xboole\_0 (k9\_xtuple\_0 X0) (k9\_xtuple\_0 \\ & X1)) \wedge (\forall X3.(X3 \in k9\_xtuple\_0 X2) \Rightarrow (k1\_funct\_1 X2 X3 = k3\_xcmplx\_0 \\ & (k1\_funct\_1 X0 X3) (k1\_funct\_1 X1 X3)))))))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(((v1\_relat\_1 X0)\wedge((v1\_funct\_1 X0)\wedge(v1\_valued\_0 X0)))\wedge((v1\_relat\_1 X1)\wedge((v1\_funct\_1 X1)\wedge(v1\_valued\_0 X1))))\Rightarrow (k18\_valued\_1 X0 X1 = k18\_valued\_1 X1 X0) \quad (5)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0)\wedge(v3\_valued\_0 X0))\Rightarrow((v1\_relat\_1 X0)\wedge(v1\_valued\_0 X0)) \quad (6)$$

**Theorem 1**

$$\forall X0.(v1\_xreal\_0 X0)\Rightarrow(\forall X1.((v1\_relat\_1 X1)\wedge((v1\_funct\_1 X1)\wedge(v3\_valued\_0 X1)))\Rightarrow(\forall X2.((v1\_relat\_1 X2)\wedge((v1\_funct\_1 X2)\wedge(v3\_valued\_0 X2))))\Rightarrow(((v1\_funct\_9 X1 X0)\wedge(v1\_funct\_9 X2 X0))\Rightarrow(v1\_funct\_9 (k18\_valued\_1 X1 X2) X0)))$$