

t41_rfunct_1 (TM-
bqjy8cZUCbHKhvntUhmhWJuHU5bYuAJz6)

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Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_valued_0 : \iota \Rightarrow o$ be given. Let $k1_rfunct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k18_valued_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k4_rfunct_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_valued_0 X0))) \Rightarrow \\ & (\forall X1.((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v1_valued_0 \\ & X1)))) \Rightarrow (k4_rfunct_1 (k1_rfunct_1 X0 X1) = k1_rfunct_1 (k5_relat_1 \\ & X1 (k9_xtuple_0 (k4_rfunct_1 X1))) X0) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_valued_0 X0))) \Rightarrow \\ & (\forall X1.((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v1_valued_0 \\ & X1)))) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge ((v1_funct_1 X2) \wedge (v1_valued_0 \\ & X2)))) \Rightarrow (\forall X3.((v1_relat_1 X3) \wedge ((v1_funct_1 X3) \wedge (v1_valued_0 \\ & X3)))) \Rightarrow (k18_valued_1 (k1_rfunct_1 X0 X1) (k1_rfunct_1 X2 X3) = k1_rfunct_1 \\ & (k18_valued_1 X0 X2) (k18_valued_1 X1 X3)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_valued_0 X0))) \Rightarrow \\ & (\forall X1.((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v1_valued_0 \\ & X1)))) \Rightarrow (k1_rfunct_1 X0 X1 = k18_valued_1 X0 (k4_rfunct_1 X1))) \end{aligned} \tag{3}$$

Assume the following.

$$\forall X0. \forall X1. ((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow ((v1_relat_1 (k5_relat_1 X0 X1)) \wedge (v1_funct_1 (k5_relat_1 X0 X1))) \tag{4}$$

Assume the following.

$$\forall X0. \forall X1. ((v1_relat_1 X0) \wedge (v1_valued_0 X0)) \Rightarrow ((v1_relat_1 (k5_relat_1 X0 X1)) \wedge (v1_valued_0 (k5_relat_1 X0 X1))) \tag{5}$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((v1_relat_1 X0)\wedge((v1_funct_1 X0)\wedge(v1_valued_0 \\ X0)))\wedge((v1_relat_1 X1)\wedge((v1_funct_1 X1)\wedge(v1_valued_0 X1))))\Rightarrow \\ ((v1_relat_1 (k1_rfunct_1 X0 X1))\wedge((v1_funct_1 (k1_rfunct_1 \\ X0 X1))\wedge(v1_valued_0 (k1_rfunct_1 X0 X1)))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(v1_relat_1 X0)\Rightarrow(v1_relat_1 (k5_relat_1 \\ X0 X1)) \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((v1_relat_1 X0)\wedge((v1_funct_1 X0)\wedge(v1_valued_0 \\ X0)))\wedge((v1_relat_1 X1)\wedge((v1_funct_1 X1)\wedge(v1_valued_0 X1))))\Rightarrow \\ ((v1_relat_1 (k1_rfunct_1 X0 X1))\wedge(v1_funct_1 (k1_rfunct_1 X0 \\ X1))) \end{aligned} \quad (8)$$

Theorem 1

$$\begin{aligned} \forall X0.((v1_relat_1 X0)\wedge((v1_funct_1 X0)\wedge(v1_valued_0 X0)))\Rightarrow \\ (\forall X1.((v1_relat_1 X1)\wedge((v1_funct_1 X1)\wedge(v1_valued_0 \\ X1))))\Rightarrow(\forall X2.((v1_relat_1 X2)\wedge((v1_funct_1 X2)\wedge(v1_valued_0 \\ X2))))\Rightarrow(\forall X3.((v1_relat_1 X3)\wedge((v1_funct_1 X3)\wedge(v1_valued_0 \\ X3))))\Rightarrow(k1_rfunct_1 (k1_rfunct_1 X0 X1) (k1_rfunct_1 X2 X3) = k1_rfunct_1 \\ (k18_valued_1 X0 (k5_relat_1 X3 (k9_xtuple_0 (k4_rfunct_1 X3)))) \\ (k18_valued_1 X1 X2)))) \end{aligned}$$