

t40_rvsum_1 (TMP- sJKeSc7KE5QXiwmthXN6YenMZxiFukY)

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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 $v1_finseq_1 : \iota \Rightarrow o$ be given. Let $k4_rvsum_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_rvsum_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_valued_0 : \iota \Rightarrow o$ be given. Let $k1_valued_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k45_valued_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_valued_0 X0))) \Rightarrow \\ & (\forall X1.((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v1_valued_0 \\ & X1))) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge ((v1_funct_1 X2) \wedge (v1_valued_0 \\ & X2)))) \Rightarrow (k1_valued_1 X0 (k45_valued_1 X1 X2) = k45_valued_1 (k1_valued_1 \\ & X0 X1) X2))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge ((v3_valued_0 X0) \wedge (v1_finseq_1 X0)))) \wedge ((v1_relat_1 X1) \wedge ((v1_funct_1 \\ & X1) \wedge ((v3_valued_0 X1) \wedge (v1_finseq_1 X1)))))) \Rightarrow (k8_rvsum_1 X0 X1 = \\ & k45_valued_1 X0 X1) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge ((v3_valued_0 X0) \wedge (v1_finseq_1 X0)))) \wedge ((v1_relat_1 X1) \wedge ((v1_funct_1 \\ & X1) \wedge ((v3_valued_0 X1) \wedge (v1_finseq_1 X1)))))) \Rightarrow (k4_rvsum_1 X0 X1 = \\ & k1_valued_1 X0 X1) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge ((v1_valued_0 X0) \wedge (v1_finseq_1 X0)))) \wedge ((v1_relat_1 X1) \wedge ((v1_funct_1 \\ & X1) \wedge ((v1_valued_0 X1) \wedge (v1_finseq_1 X1)))))) \Rightarrow ((v1_relat_1 (k45_valued_1 \\ & X0 X1)) \wedge ((v1_funct_1 (k45_valued_1 X0 X1)) \wedge (v1_finseq_1 (k45_valued_1 \\ & X0 X1)))) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((v1_relat_1 X0)\wedge((v1_funct_1 X0)\wedge(v3_valued_0 \\ X0)))\wedge((v1_relat_1 X1)\wedge((v1_funct_1 X1)\wedge(v3_valued_0 X1))))\Rightarrow \\ ((v1_relat_1 (k45_valued_1 X0 X1))\wedge((v1_funct_1 (k45_valued_1 \\ X0 X1))\wedge(v3_valued_0 (k45_valued_1 X0 X1)))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((v1_relat_1 X0)\wedge((v1_funct_1 X0)\wedge(v3_valued_0 \\ X0)))\wedge((v1_relat_1 X1)\wedge((v1_funct_1 X1)\wedge(v3_valued_0 X1))))\Rightarrow \\ ((v1_relat_1 (k1_valued_1 X0 X1))\wedge((v1_funct_1 (k1_valued_1 \\ X0 X1))\wedge(v3_valued_0 (k1_valued_1 X0 X1)))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((v1_relat_1 X0)\wedge((v1_funct_1 X0)\wedge((\\ v1_valued_0 X0)\wedge(v1_finseq_1 X0))))\wedge((v1_relat_1 X1)\wedge((v1_funct_1 \\ X1)\wedge((v1_valued_0 X1)\wedge(v1_finseq_1 X1)))))\Rightarrow((v1_relat_1 (k1_valued_1 \\ X0 X1))\wedge((v1_funct_1 (k1_valued_1 X0 X1))\wedge(v1_finseq_1 (k1_valued_1 \\ X0 X1)))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0)\wedge(v3_valued_0 X0))\Rightarrow((v1_relat_1 \\ X0)\wedge(v1_valued_0 X0)) \quad (8)$$

Theorem 1

$$\begin{aligned} \forall X0.((v1_relat_1 X0)\wedge((v1_funct_1 X0)\wedge((v3_valued_0 \\ X0)\wedge(v1_finseq_1 X0))))\Rightarrow(\forall X1.((v1_relat_1 X1)\wedge((v1_funct_1 \\ X1)\wedge(v3_valued_0 X1)\wedge(v1_finseq_1 X1))))\Rightarrow(\forall X2.((v1_relat_1 \\ X2)\wedge((v1_funct_1 X2)\wedge(v3_valued_0 X2)\wedge(v1_finseq_1 X2))))\Rightarrow \\ (k4_rsum_1 X0 (k8_rsum_1 X1 X2) = k8_rsum_1 (k4_rsum_1 X0 X1 \\ X2)) \end{aligned}$$