

t34_pre_poly
(TMGKx7q6m4ZPMj4CAtY8Wszd6BCmxnDzprK)

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Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_valued_0 : \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_nat_d : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r6_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k12_pre_poly : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge (v4_valued_0 X1)))))) \wedge \\ & ((v1_relat_1 X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge ((v1_partfun1 \\ & X2 X0) \wedge (v4_valued_0 X2)))))) \Rightarrow ((v1_relat_1 (k12_pre_poly X0 X1 \\ & X2)) \wedge ((v4_relat_1 (k12_pre_poly X0 X1 X2) X0) \wedge ((v1_funct_1 (k12_pre_poly \\ & X0 X1 X2)) \wedge (v1_partfun1 (k12_pre_poly X0 X1 X2) X0)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge (\\ & (v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge (v4_valued_0 X1)))))) \Rightarrow (\\ & \forall X2. ((v1_relat_1 X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 \\ & X2) \wedge ((v1_partfun1 X2 X0) \wedge (v4_valued_0 X2)))))) \Rightarrow (\forall X3. (\\ & (v1_relat_1 X3) \wedge ((v4_relat_1 X3 X0) \wedge ((v1_funct_1 X3) \wedge (v1_partfun1 \\ & X3 X0)))) \Rightarrow ((X3 = k12_pre_poly X0 X1 X2) \Leftrightarrow (\forall X4. k1_funct_1 \\ & X3 X4 = k7_nat_d (k1_funct_1 X1 X4) (k1_funct_1 X2 X4)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge (\\ & (v1_funct_1 X1) \wedge (v1_partfun1 X1 X0)))) \Rightarrow (\forall X2. ((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X0)))) \Rightarrow \\ & ((r6_pboole X0 X1 X2) \Leftrightarrow (\forall X3. (X3 \in X0) \Rightarrow (k1_funct_1 X1 X3 = k1_funct_1 \\ & X2 X3)))) \end{aligned} \quad (3)$$

Theorem 1

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge \\ & (v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge (v4_valued_0 X1)))) \Rightarrow (\\ & \quad \forall X2. ((v1_relat_1 X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 \\ & \quad X2) \wedge ((v1_partfun1 X2 X0) \wedge (v4_valued_0 X2)))))) \Rightarrow (\forall X3. (\\ & (v1_relat_1 X3) \wedge ((v4_relat_1 X3 X0) \wedge ((v1_funct_1 X3) \wedge ((v1_partfun1 \\ & \quad X3 X0) \wedge (v4_valued_0 X3)))))) \Rightarrow ((\forall X4. (X4 \in X0) \Rightarrow (k1_funct_1 \\ & X1 X4 = k7_nat_d (k1_funct_1 X2 X4) (k1_funct_1 X3 X4))) \Rightarrow (r6_pboole \\ & \quad X0 X1 (k12_pre_poly X0 X2 X3)))) \end{aligned}$$