

l4_polyred

(TMXK6Xs12kvSTFDQkWkit99HMG7aVwUNK6y)

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Let $v3_ordinal1 : \iota \Rightarrow o$ be given. 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 $v2_pre_poly : \iota \Rightarrow o$ be given. Let $r1_pre_poly : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_pre_poly : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r6_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} \forall X0.(v3_ordinal1\ X0) \Rightarrow (\forall X1.((v1_relat_1\ X1) \wedge ((\\ v4_relat_1\ X1\ X0) \wedge ((v1_funct_1\ X1) \wedge ((v1_partfun1\ X1\ X0) \wedge ((v4_valued_0 \\ X1) \wedge (v2_pre_poly\ X1)))))) \Rightarrow (\forall X2.((v1_relat_1\ X2) \wedge ((v4_relat_1 \\ X2\ X0) \wedge ((v1_funct_1\ X2) \wedge ((v1_partfun1\ X2\ X0) \wedge ((v4_valued_0\ X2) \wedge \\ (v2_pre_poly\ X2)))))) \Rightarrow ((r2_pre_poly\ X0\ X1\ X2) \vee (r2_pre_poly\ X0 \\ X2\ X1)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((v1_relat_1\ X1) \wedge ((v4_relat_1 \\ X1\ X0) \wedge ((v1_funct_1\ X1) \wedge (v1_partfun1\ X1\ X0)))) \wedge ((v1_relat_1 \\ X2) \wedge ((v4_relat_1\ X2\ X0) \wedge ((v1_funct_1\ X2) \wedge (v1_partfun1\ X2\ X0)))))) \Rightarrow \\ ((r6_pboole\ X0\ X1\ X2) \Leftrightarrow (X1 = X2)) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} \forall X0.(v3_ordinal1\ X0) \Rightarrow (\forall X1.((v1_relat_1\ X1) \wedge ((\\ v4_relat_1\ X1\ X0) \wedge ((v1_funct_1\ X1) \wedge ((v1_partfun1\ X1\ X0) \wedge ((v4_valued_0 \\ X1) \wedge (v2_pre_poly\ X1)))))) \Rightarrow (\forall X2.((v1_relat_1\ X2) \wedge ((v4_relat_1 \\ X2\ X0) \wedge ((v1_funct_1\ X2) \wedge ((v1_partfun1\ X2\ X0) \wedge ((v4_valued_0\ X2) \wedge \\ (v2_pre_poly\ X2)))))) \Rightarrow ((r2_pre_poly\ X0\ X1\ X2) \Leftrightarrow ((r1_pre_poly \\ X0\ X1\ X2) \vee (r6_pboole\ X0\ X1\ X2)))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. ((v3_ordinal1\ X0) \wedge ((v1_relat_1 \\
& X1) \wedge ((v4_relat_1\ X1\ X0) \wedge ((v1_funct_1\ X1) \wedge ((v1_partfun1\ X1\ X0) \wedge \\
& ((v4_valued_0\ X1) \wedge (v2_pre_poly\ X1)))))) \wedge ((v1_relat_1\ X2) \wedge (\\
& (v4_relat_1\ X2\ X0) \wedge ((v1_funct_1\ X2) \wedge ((v1_partfun1\ X2\ X0) \wedge ((v4_valued_0 \\
& X2) \wedge (v2_pre_poly\ X2)))))) \Rightarrow ((r1_pre_poly\ X0\ X1\ X2) \Rightarrow (\neg r1_pre_poly \\
& X0\ X2\ X1))
\end{aligned} \tag{4}$$

Theorem 1

$$\begin{aligned}
& \forall X0. (v3_ordinal1\ X0) \Rightarrow (\forall X1. ((v1_relat_1\ X1) \wedge (\\
& v4_relat_1\ X1\ X0) \wedge ((v1_funct_1\ X1) \wedge ((v1_partfun1\ X1\ X0) \wedge ((v4_valued_0 \\
& X1) \wedge (v2_pre_poly\ X1)))))) \Rightarrow (\forall X2. ((v1_relat_1\ X2) \wedge ((v4_relat_1 \\
& X2\ X0) \wedge ((v1_funct_1\ X2) \wedge ((v1_partfun1\ X2\ X0) \wedge ((v4_valued_0\ X2) \wedge \\
& (v2_pre_poly\ X2)))))) \Rightarrow ((\neg r1_pre_poly\ X0\ X1\ X2) \Leftrightarrow (r2_pre_poly \\
& X0\ X2\ X1)))
\end{aligned}$$