

t13_termord

(TMHyUmz3vuhbgHwnqK69BeH29t5zAs6KBBx)

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Let $v3_ordinal1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k15_pre_poly : \iota \Rightarrow \iota$ be given. Let $v1_relat_2 : \iota \Rightarrow o$ be given. Let $v4_relat_2 : \iota \Rightarrow o$ be given. Let $v6_relat_2 : \iota \Rightarrow o$ be given. Let $v8_relat_2 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $v4_valued_0 : \iota \Rightarrow o$ be given. Let $v2_pre_poly : \iota \Rightarrow o$ be given. Let $r1_termord : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_termord : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_termord : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.(v3_ordinal1 X0) \Rightarrow (\forall X1.((v1_partfun1 X1 (k15_pre_poly \\
 & \quad X0)) \wedge (v1_relat_2 X1) \wedge (v4_relat_2 X1) \wedge (v6_relat_2 X1) \wedge (\\
 & \quad v8_relat_2 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k15_pre_poly \\
 & \quad X0) (k15_pre_poly X0)))))) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge (\\
 & \quad (v4_relat_1 X2 X0) \wedge (v1_funct_1 X2) \wedge (v1_partfun1 X2 X0) \wedge (\\
 & \quad v4_valued_0 X2) \wedge (v2_pre_poly X2)))) \Rightarrow (\forall X3.((v1_relat_1 \\
 & \quad X3) \wedge (v4_relat_1 X3 X0) \wedge (v1_funct_1 X3) \wedge (v1_partfun1 X3 X0) \wedge \\
 & \quad ((v4_valued_0 X3) \wedge (v2_pre_poly X3)))) \Rightarrow ((r1_termord X0 X1 X2 \\
 & \quad X3) \vee (r1_termord X0 X1 X3 X2))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0.(v3_ordinal1 X0) \Rightarrow (\forall X1.((v1_partfun1 X1 (k15_pre_poly \\
 & \quad X0)) \wedge (v1_relat_2 X1) \wedge (v4_relat_2 X1) \wedge (v8_relat_2 X1) \wedge (m1_subset_1 \\
 & \quad X1 (k1_zfmisc_1 (k2_zfmisc_1 (k15_pre_poly X0) (k15_pre_poly \\
 & \quad X0)))))) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge (v4_relat_1 X2 X0) \wedge \\
 & \quad ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X0) \wedge (v4_valued_0 X2) \wedge (v2_pre_poly \\
 & \quad X2)))) \Rightarrow (\forall X3.((v1_relat_1 X3) \wedge (v4_relat_1 X3 X0) \wedge (\\
 & \quad (v1_funct_1 X3) \wedge (v1_partfun1 X3 X0) \wedge (v4_valued_0 X3) \wedge (v2_pre_poly \\
 & \quad X3)))) \Rightarrow (((r1_termord X0 X1 X3 X2) \Rightarrow (k2_termord X0 X1 X2 X3 = X2)) \wedge \\
 & \quad ((\neg r1_termord X0 X1 X3 X2) \Rightarrow (k2_termord X0 X1 X2 X3 = X3))))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v3_ordinal1\ X0) \Rightarrow (\forall X1.((v1_partfun1\ X1\ (k15_pre_poly \\
& X0)) \wedge ((v1_relat_2\ X1) \wedge ((v4_relat_2\ X1) \wedge ((v8_relat_2\ X1) \wedge (m1_subset_1 \\
& X1\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k15_pre_poly\ X0)\ (k15_pre_poly \\
& X0)))))) \Rightarrow (\forall X2.((v1_relat_1\ X2) \wedge ((v4_relat_1\ X2\ X0) \wedge \\
& ((v1_funct_1\ X2) \wedge ((v1_partfun1\ X2\ X0) \wedge ((v4_valued_0\ X2) \wedge (v2_pre_poly \\
& X2)))))) \Rightarrow (\forall X3.((v1_relat_1\ X3) \wedge ((v4_relat_1\ X3\ X0) \wedge (\\
& (v1_funct_1\ X3) \wedge ((v1_partfun1\ X3\ X0) \wedge ((v4_valued_0\ X3) \wedge (v2_pre_poly \\
& X3)))))) \Rightarrow (((r1_termord\ X0\ X1\ X2\ X3) \Rightarrow (k1_termord\ X0\ X1\ X2\ X3 = X2)) \wedge \\
& ((\neg r1_termord\ X0\ X1\ X2\ X3) \Rightarrow (k1_termord\ X0\ X1\ X2\ X3 = X3)))))) \\
& \hspace{15em} (3)
\end{aligned}$$

Theorem 1

$$\begin{aligned}
& \forall X0.(v3_ordinal1\ X0) \Rightarrow (\forall X1.((v1_partfun1\ X1\ (k15_pre_poly \\
& X0)) \wedge ((v1_relat_2\ X1) \wedge ((v4_relat_2\ X1) \wedge ((v6_relat_2\ X1) \wedge (\\
& v8_relat_2\ X1) \wedge (m1_subset_1\ X1\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k15_pre_poly \\
& X0)\ (k15_pre_poly\ X0)))))) \Rightarrow (\forall X2.((v1_relat_1\ X2) \wedge \\
& ((v4_relat_1\ X2\ X0) \wedge ((v1_funct_1\ X2) \wedge ((v1_partfun1\ X2\ X0) \wedge (\\
& v4_valued_0\ X2) \wedge (v2_pre_poly\ X2)))))) \Rightarrow (\forall X3.((v1_relat_1 \\
& X3) \wedge ((v4_relat_1\ X3\ X0) \wedge ((v1_funct_1\ X3) \wedge ((v1_partfun1\ X3\ X0) \wedge \\
& ((v4_valued_0\ X3) \wedge (v2_pre_poly\ X3)))))) \Rightarrow ((r1_termord\ X0\ X1\ (\\
& k1_termord\ X0\ X1\ X2\ X3)\ X2) \wedge (r1_termord\ X0\ X1\ (k1_termord\ X0\ X1\ X2 \\
& X3)\ X3))))
\end{aligned}$$