

t12_termord (TMKfBRfboR- CdykEKjW9tRxJRTtL1ZuGSHSs)

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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 $v8_relat_2 : \iota \Rightarrow o$ 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 $r6_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_termord : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_termord : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_relat_1 X1) \wedge (v4_relat_1 \\ & X1 X0) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 X0))) \wedge ((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 X0) \wedge (v1_funct_1 X2) \wedge (v1_partfun1 X2 X0)))) \Rightarrow \\ & (r6_pboole X0 X1 X2) \Leftrightarrow (X1 = X2) \end{aligned} \tag{1}$$

Assume the following.

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

Theorem 1

$$\begin{aligned} & \forall X0.(v3_ordinal1\ X0) \Rightarrow (\forall X1.((v1_partfun1\ X1\ (k15_pre_poly \\ & X0)) \wedge ((v1_relat_2\ X1) \wedge ((v4_relat_2\ X1) \wedge ((v8_relat_2\ X1) \wedge (m1_subset_1 \\ & X1\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k15_pre_poly\ X0)\ (k15_pre_poly \\ & X0)))))) \Rightarrow (\forall X2.((v1_relat_1\ X2) \wedge ((v4_relat_1\ X2\ X0) \wedge \\ & ((v1_funct_1\ X2) \wedge ((v1_partfun1\ X2\ X0) \wedge ((v4_valued_0\ X2) \wedge (v2_pre_poly \\ & X2)))))) \Rightarrow (\forall X3.((v1_relat_1\ X3) \wedge ((v4_relat_1\ X3\ X0) \wedge \\ & (v1_funct_1\ X3) \wedge ((v1_partfun1\ X3\ X0) \wedge ((v4_valued_0\ X3) \wedge (v2_pre_poly \\ & X3)))))) \Rightarrow ((r6_pboole\ X0\ (k2_termord\ X0\ X1\ X2\ X3)\ X2) \vee (r6_pboole \\ & X0\ (k2_termord\ X0\ X1\ X2\ X3)\ X3)))) \end{aligned}$$