

l1_extens_1 (TMN- CasAykUDbV6bLQG5yLSbtkVxmHPd94q1)

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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 $m2_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k8_pboole : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_funcop_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge \\ & (v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge (v1_funcop_1 X1)))) \Rightarrow (\\ & \quad \forall X2. ((v1_relat_1 X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 \\ & X2) \wedge ((v1_partfun1 X2 X0) \wedge (v1_funcop_1 X2)))))) \Rightarrow ((v1_relat_1 \\ & (k8_pboole X1 X2)) \wedge ((v4_relat_1 (k8_pboole X1 X2) X0) \wedge ((v1_funct_1 \\ & (k8_pboole X1 X2)) \wedge ((v1_partfun1 (k8_pboole X1 X2) X0) \wedge (v1_funcop_1 \\ & (k8_pboole X1 X2)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 X0) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 X0)))) \wedge ((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X0)))))) \Rightarrow \\ & (\forall X3. (m2_pboole X3 X0 X1 X2) \Rightarrow ((v1_relat_1 X3) \wedge ((v4_relat_1 \\ & X3 X0) \wedge ((v1_funct_1 X3) \wedge (v1_partfun1 X3 X0)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_funcop_1 \\ & X0))) \wedge ((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v1_funcop_1 X1)))) \Rightarrow \\ & ((v1_relat_1 (k8_pboole X0 X1)) \wedge (v1_funct_1 (k8_pboole X0 X1))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 X0) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 X0)))) \wedge ((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X0)))))) \Rightarrow \\ & (\forall X3. (m2_pboole X3 X0 X1 X2) \Rightarrow (v1_funcop_1 X3)) \end{aligned} \tag{4}$$

Theorem 1

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge \\ & (v1_funct_1 X1) \wedge (v1_partfun1 X1 X0))) \Rightarrow (\forall X2. ((v1_relat_1 \\ X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X0)))) \Rightarrow \\ & (\forall X3. ((v1_relat_1 X3) \wedge ((v4_relat_1 X3 X0) \wedge ((v1_funct_1 \\ X3) \wedge (v1_partfun1 X3 X0)))) \Rightarrow (\forall X4. (m2_pboole X4 X0 X1 X2) \Rightarrow \\ & (\forall X5. (m2_pboole X5 X0 X2 X3) \Rightarrow ((v1_relat_1 (k8_pboole X4 \\ X5)) \wedge ((v4_relat_1 (k8_pboole X4 X5) X0) \wedge ((v1_funct_1 (k8_pboole \\ X4 X5)) \wedge (v1_partfun1 (k8_pboole X4 X5) X0))))))) \end{aligned}$$