

l15_convex2

(TMT6SwNuDDdHgPZquLXg41hGZKVVzzPYcnAY)

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Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $r2_classes1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $v2_funct_1 : \iota \Rightarrow o$ be given. Let $k3_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1.((\\ & \quad v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow ((r2_classes1 X0 X1) \Leftrightarrow (\exists X2. \\ & \quad ((v1_relat_1 X2) \wedge (v1_funct_1 X2)) \wedge ((k9_xtuple_0 X2 = k9_xtuple_0 \\ & \quad X0) \wedge ((k10_xtuple_0 X2 = k9_xtuple_0 X1) \wedge ((v2_funct_1 X2) \wedge (X0 = \\ & \quad k3_relat_1 X2 X1)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow ((X0 \in k9_xtuple_0 X1) \Rightarrow (k1_funct_1 X1 X0 \in k10_xtuple_0 X1)) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (\forall X2. \\ & \quad ((v1_relat_1 X2) \wedge (v1_funct_1 X2)) \Rightarrow ((X0 \in k9_xtuple_0 (k3_relat_1 \\ & \quad X2 X1)) \Rightarrow (k1_funct_1 (k3_relat_1 X2 X1) X0 = k1_funct_1 X1 (k1_funct_1 \\ & \quad X2 X0)))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow ((v2_funct_1 X0) \Leftrightarrow \\ & \quad (\forall X1. \forall X2. ((X1 \in k9_xtuple_0 X0) \wedge ((X2 \in k9_xtuple_0 \\ & \quad X0) \wedge (k1_funct_1 X0 X1 = k1_funct_1 X0 X2))) \Rightarrow (X1 = X2))) \end{aligned} \quad (4)$$

Theorem 1

$$\begin{aligned} & \forall X0. ((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1. ((\\ & \quad v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow ((r2_classes1 X0 X1) \Rightarrow (\forall X2. \\ & \quad \forall X3. \neg (X2 \in k9_xtuple_0 X0) \wedge ((X3 \in k9_xtuple_0 X0) \wedge ((X2 \neq \\ & \quad X3) \wedge (\forall X4. \forall X5. \neg (X4 \in k9_xtuple_0 X1) \wedge ((X5 \in k9_xtuple_0 \\ & \quad X1) \wedge ((X4 \neq X5) \wedge ((k1_funct_1 X0 X2 = k1_funct_1 X1 X4) \wedge (k1_funct_1 \\ & \quad X0 X3 = k1_funct_1 X1 X5)))))))))) \end{aligned}$$