

## t36\_funct\_6

(TMWZgUqKs5oVwBsZYiCaP8Rrsn4y24bmcpL)

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $k4\_card\_3 : \iota \Rightarrow \iota$  be given. Let  $k2\_funct\_6 : \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k5\_funct\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_funct\_6 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_funct\_5 : \iota \Rightarrow \iota$  be given. Let  $k1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k8\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_6 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1.(( \\ v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow ((X0 \in k4\_card\_3 X1) \Leftrightarrow ((k9\_xtuple\_0 \\ X0 = k9\_xtuple\_0 X1) \wedge (\forall X2.(X2 \in k9\_xtuple\_0 X1) \Rightarrow (k1\_funct\_1 \\ X0 X2 \in k1\_funct\_1 X1 X2)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 \\ X2)) \Rightarrow (\forall X3. ((v1\_relat\_1 X3) \wedge (v1\_funct\_1 X3)) \Rightarrow (((X0 \in k9\_xtuple\_0 \\ X2) \wedge ((X3 = k1\_funct\_1 X2 X0) \wedge (X1 \in k9\_xtuple\_0 X3))) \Rightarrow ((k4\_tarski \\ X0 X1 \in k9\_xtuple\_0 (k2\_funct\_5 X2)) \wedge ((k1\_binop\_1 (k2\_funct\_5 \\ X2) X0 X1 = k1\_funct\_1 X3 X1) \wedge (k1\_funct\_1 X3 X1 \in k10\_xtuple\_0 (k2\_funct\_5 \\ X2)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. ((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow ((v1\_relat\_1 ( \\ k7\_funct\_6 X0)) \wedge (v1\_funct\_1 (k7\_funct\_6 X0))) \tag{3}$$

Assume the following.

$$\forall X0. ((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow ((v1\_relat\_1 ( \\ k2\_funct\_6 X0)) \wedge (v1\_funct\_1 (k2\_funct\_6 X0))) \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1.(( \\
& v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow ((X1 = k7\_funct\_6 X0) \Leftrightarrow ((k9\_xtuple\_0 \\
& X1 = k4\_card\_3 (k2\_funct\_6 X0)) \wedge (\forall X2.((v1\_relat\_1 X2) \wedge \\
& (v1\_funct\_1 X2)) \Rightarrow (\neg(X2 \in k4\_card\_3 (k2\_funct\_6 X0)) \wedge (\forall X3. \\
& ((v1\_relat\_1 X3) \wedge (v1\_funct\_1 X3)) \Rightarrow (\neg(k1\_funct\_1 X1 X2 = X3) \wedge ( \\
& (k9\_xtuple\_0 X3 = k8\_relat\_1 X0 (k1\_funct\_6 (k10\_xtuple\_0 X0)))) \wedge \\
& (\forall X4.(X4 \in k9\_xtuple\_0 X3) \Rightarrow (k1\_funct\_1 X3 X4 = k1\_binop\_1 \\
& (k2\_funct\_5 X0) X4 (k1\_funct\_1 X2 X4))))))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1. \forall X2. \\
& k5\_funct\_6 X0 X1 X2 = k1\_binop\_1 (k2\_funct\_5 X0) X1 X2)
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1.(( \\
& v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow ((X1 = k2\_funct\_6 X0) \Leftrightarrow ((k9\_xtuple\_0 \\
& X1 = k8\_relat\_1 X0 (k1\_funct\_6 (k10\_xtuple\_0 X0))) \wedge (\forall X2. \\
& (X2 \in k8\_relat\_1 X0 (k1\_funct\_6 (k10\_xtuple\_0 X0))) \Rightarrow (k1\_funct\_1 \\
& X1 X2 = k9\_xtuple\_0 (k1\_funct\_1 X0 X2))))))
\end{aligned} \tag{7}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0. \forall X1.((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (\forall X2. \\
& ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow (((X1 \in k4\_card\_3 (k2\_funct\_6 \\
& X2)) \wedge (X0 \in k9\_xtuple\_0 X1)) \Rightarrow (k5\_funct\_6 (k7\_funct\_6 X2) X1 X0 = \\
& k5\_funct\_6 X2 X0 (k1\_funct\_1 X1 X0))))
\end{aligned}$$