

# t17\_grfunc\_1

## (TMdCpat674Mq1hYe6hL2ew25s1a9svnzxEq)

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v2\_funct\_1 : \iota \Rightarrow o$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (\forall X2. \\ & ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow (\forall X3. ((v1\_relat\_1 \\ & X3) \wedge (v1\_funct\_1 X3)) \Rightarrow (((X0 \in k9\_xtuple\_0 X1) \wedge (X2 = k2\_xboole\_0 \\ & X3 X1)) \Rightarrow (k1\_funct\_1 X2 X0 = k1\_funct\_1 X1 X0)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 \\ & X2)) \Rightarrow (\forall X3. ((v1\_relat\_1 X3) \wedge (v1\_funct\_1 X3)) \Rightarrow (\neg (k3\_xboole\_0 \\ & (k10\_xtuple\_0 X2) (k10\_xtuple\_0 X3) = k1\_xboole\_0) \wedge ((X0 \in k9\_xtuple\_0 \\ & X2) \wedge ((X1 \in k9\_xtuple\_0 X3) \wedge (k1\_funct\_1 X2 X0 = k1\_funct\_1 X3 X1)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (\forall X2. \\ & ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow (\forall X3. ((v1\_relat\_1 \\ & X3) \wedge (v1\_funct\_1 X3)) \Rightarrow ((X1 = k2\_xboole\_0 X2 X3) \Rightarrow ((X0 \in k9\_xtuple\_0 \\ & X1) \Leftrightarrow ((X0 \in k9\_xtuple\_0 X2) \vee (X0 \in k9\_xtuple\_0 X3)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. (r1\_xboole\_0 X0 X1) \Leftrightarrow (k3\_xboole\_0 X0 X1 = k1\_xboole\_0) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow ((v2\_funct\_1 X0) \Leftrightarrow \\ & (\forall X1. \forall X2. ((X1 \in k9\_xtuple\_0 X0) \wedge ((X2 \in k9\_xtuple\_0 \\ & X0) \wedge (k1\_funct\_1 X0 X1 = k1\_funct\_1 X0 X2))) \Rightarrow (X1 = X2))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.k2\_xboole\_0 X0 X1 = k2\_xboole\_0 X1 X0 \quad (6)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0)\wedge(v1\_funct\_1 X0))\Rightarrow(\forall X1.(( \\ & \quad v1\_relat\_1 X1)\wedge(v1\_funct\_1 X1))\Rightarrow(\forall X2.((v1\_relat\_1 X2)\wedge \\ & (v1\_funct\_1 X2))\Rightarrow(((v2\_funct\_1 X0)\wedge(v2\_funct\_1 X1)\wedge((X2 = k2\_xboole\_0 \\ & \quad X0 X1)\wedge(r1\_xboole\_0 (k10\_xtuple\_0 X0) (k10\_xtuple\_0 X1))))))\Rightarrow \\ & \quad (v2\_funct\_1 X2)))) \end{aligned}$$