

## t31\_rfunct\_1

(TMWWdQ5PQdriCmJrhV3WqjJaJ91qzza113W)

October 27, 2020

Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_valued\_0 : \iota \Rightarrow o$  be given. Let  $k1\_rfunct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k18\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_rfunct\_1 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k9\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k5\_xcmplx\_0 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 X0)) \Rightarrow (k9\_subset\_1 X0 X1 X2 = k3\_xboole\_0 X1 X2) \quad (1)$$

Assume the following.

$$\forall X0. ((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_valued\_0 X0))) \Rightarrow ((v1\_relat\_1 (k4\_rfunct\_1 X0)) \wedge ((v1\_funct\_1 (k4\_rfunct\_1 X0)) \wedge (v1\_valued\_0 (k4\_rfunct\_1 X0)))) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. m1\_subset\_1 (k6\_subset\_1 X0 X1) (k1\_zfmisc\_1 X0) \quad (3)$$

Assume the following.

$$\forall X0. ((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_valued\_0 X0))) \Rightarrow ((v1\_relat\_1 (k4\_rfunct\_1 X0)) \wedge (v1\_funct\_1 (k4\_rfunct\_1 X0))) \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. (((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_valued\_0 X0))) \wedge ((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_valued\_0 X1)))) \Rightarrow ((v1\_relat\_1 (k1\_rfunct\_1 X0 X1)) \wedge (v1\_funct\_1 (k1\_rfunct\_1 X0 X1))) \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(X2 = k3\_xboole\_0 X0 X1) \Leftrightarrow (\forall X3. \\ (X3 \in X2) \Leftrightarrow ((X3 \in X0) \wedge (X3 \in X1))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_valued\_0 X0))) \Rightarrow \\ (\forall X1.((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_valued\_0 \\ X1)))) \Rightarrow (\forall X2.((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow ((X2 = k18\_valued\_1 \\ X0 X1) \Leftrightarrow ((k9\_xtuple\_0 X2 = k3\_xboole\_0 (k9\_xtuple\_0 X0) (k9\_xtuple\_0 \\ X1)) \wedge (\forall X3.(X3 \in k9\_xtuple\_0 X2) \Rightarrow (k1\_funct\_1 X2 X3 = k3\_xcmplx\_0 \\ (k1\_funct\_1 X0 X3) (k1\_funct\_1 X1 X3))))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_valued\_0 X0))) \Rightarrow \\ (\forall X1.((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow ((X1 = k4\_rfuncnt\_1 \\ X0) \Leftrightarrow ((k9\_xtuple\_0 X1 = k6\_subset\_1 (k9\_xtuple\_0 X0) (k8\_relat\_1 \\ X0 (k1\_tarski k6\_numbers)))) \wedge (\forall X2.(X2 \in k9\_xtuple\_0 X1) \Rightarrow \\ (k1\_funct\_1 X1 X2 = k5\_xcmplx\_0 (k1\_funct\_1 X0 X2)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_valued\_0 X0))) \Rightarrow \\ (\forall X1.((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_valued\_0 \\ X1)))) \Rightarrow (\forall X2.((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow ((X2 = k1\_rfuncnt\_1 \\ X0 X1) \Leftrightarrow ((k9\_xtuple\_0 X2 = k9\_subset\_1 (k9\_xtuple\_0 X1) (k9\_xtuple\_0 \\ X0) (k6\_subset\_1 (k9\_xtuple\_0 X1) (k8\_relat\_1 X1 (k1\_tarski k6\_numbers)))) \wedge \\ (\forall X3.(X3 \in k9\_xtuple\_0 X2) \Rightarrow (k1\_funct\_1 X2 X3 = k3\_xcmplx\_0 \\ (k1\_funct\_1 X0 X3) (k5\_xcmplx\_0 (k1\_funct\_1 X1 X3))))))) \end{aligned} \quad (9)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_valued\_0 X0))) \Rightarrow \\ (\forall X1.((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_valued\_0 \\ X1)))) \Rightarrow (k1\_rfuncnt\_1 X0 X1 = k18\_valued\_1 X0 (k4\_rfuncnt\_1 X1)) \end{aligned}$$