

t31\_card\_fin  
 (TMQyzTns73jwEjoWo2uGtuHENuXhz7ZQMDn)

October 27, 2020

Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $k8\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_card\_fin : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k3\_tarski : \iota \Rightarrow \iota$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_relat\_1 X0)\wedge(v1\_funct\_1 X0))\wedge((v1\_relat\_1 X1)\wedge(v1\_funct\_1 X1)))\Rightarrow(m1\_subset\_1 (k2\_card\_fin X0 X1 X2) (k1\_zfmisc\_1 (k3\_tarski (k10\_xtuple\_0 X0)))) \quad (1)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0)\wedge(v1\_funct\_1 X0))\Rightarrow(\forall X1.\forall X2.(X2 = k8\_relat\_1 X0 X1)\Leftrightarrow(\forall X3.(X3 \in X2)\Leftrightarrow((X3 \in k9\_xtuple\_0 X0)\wedge(k1\_funct\_1 X0 X3 \in X1)))) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.(r1\_tarski X0 X1)\Leftrightarrow(\forall X2.(X2 \in X0)\Rightarrow(X2 \in X1)) \quad (3)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0)\wedge(v1\_funct\_1 X0))\Rightarrow(\forall X1.(((v1\_relat\_1 X1)\wedge(v1\_funct\_1 X1))\Rightarrow(\forall X2.\forall X3.(m1\_subset\_1 X3 (k1\_zfmisc\_1 (k3\_tarski (k10\_xtuple\_0 X0))))\Rightarrow((X3 = k2\_card\_fin X0 X1 X2)\Leftrightarrow(\forall X4.(X4 \in X3)\Leftrightarrow((X4 \in k3\_tarski (k10\_xtuple\_0 X0))\wedge(\forall X5.((X5 \in k9\_xtuple\_0 X1)\wedge(k1\_funct\_1 X1 X5 = X2))\Rightarrow(X4 \in k1\_funct\_1 X0 X5)))))))))) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(X1 = k1\_tarski X0)\Leftrightarrow(\forall X2.(X2 \in X1)\Leftrightarrow(X2 = X0)) \quad (5)$$

**Theorem 1**

$$\forall X0.\forall X1.\forall X2.((v1\_relat\_1 X2)\wedge(v1\_funct\_1 X2))\Rightarrow(\forall X3.((v1\_relat\_1 X3)\wedge(v1\_funct\_1 X3))\Rightarrow((X0 \in k8\_relat\_1 X2 (k1\_tarski X1))\Rightarrow(r1\_tarski (k2\_card\_fin X3 X2 X1) (k1\_funct\_1 X3 X0))))$$