

t41\_great\_1  
(TMdTz4LVJJoJCjJBCfRsZy16N2CQLVCrD7D)

October 27, 2020

Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_tops\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k6\_partfun1 : \iota \Rightarrow \iota$  be given. Let  $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_relat\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
& \forall X0.(l1\_struct\_0 X0) \Rightarrow (\forall X1.(l1\_struct\_0 X1) \Rightarrow (\forall X2. \\
& ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 \\
& X1)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 \\
& X0) (u1\_struct\_0 X1)))))) \Rightarrow (((k2\_relset\_1 (u1\_struct\_0 X1) X2 = \\
& k2\_struct\_0 X1) \wedge (v2\_funct\_1 X2)) \Rightarrow ((k1\_partfun1 (u1\_struct\_0 \\
& X0) (u1\_struct\_0 X1) (u1\_struct\_0 X1) (u1\_struct\_0 X0) X2 (k2\_tops\_2 \\
& (u1\_struct\_0 X0) (u1\_struct\_0 X1) X2) = k6\_partfun1 (k1\_relset\_1 \\
& (u1\_struct\_0 X0) X2)) \wedge (k1\_partfun1 (u1\_struct\_0 X1) (u1\_struct\_0 \\
& X0) (u1\_struct\_0 X0) (u1\_struct\_0 X1) (k2\_tops\_2 (u1\_struct\_0 \\
& X0) (u1\_struct\_0 X1) X2) X2 = k6\_partfun1 (k2\_relset\_1 (u1\_struct\_0 \\
& X1) X2))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1\_struct\_0 X0) \Rightarrow (\forall X1.(l1\_struct\_0 X1) \Rightarrow (\forall X2. \\
& ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 \\
& X1)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 \\
& X0) (u1\_struct\_0 X1)))))) \Rightarrow (((k2\_relset\_1 (u1\_struct\_0 X1) X2 = \\
& k2\_struct\_0 X1) \wedge (v2\_funct\_1 X2)) \Rightarrow (v2\_funct\_1 (k2\_tops\_2 (u1\_struct\_0 \\
& X0) (u1\_struct\_0 X1) X2))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1\_struct\_0 X0) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge \\
& (l1\_struct\_0 X1)) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 \\
& X2 (u1\_struct\_0 X0) (u1\_struct\_0 X1)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1)))))) \Rightarrow (((k2\_relset\_1 \\
& (u1\_struct\_0 X1) X2 = k2\_struct\_0 X1) \wedge (v2\_funct\_1 X2)) \Rightarrow ((k1\_relset\_1 \\
& (u1\_struct\_0 X1) (k2\_tops\_2 (u1\_struct\_0 X0) (u1\_struct\_0 X1) \\
& X2) = k2\_struct\_0 X1) \wedge (k2\_relset\_1 (u1\_struct\_0 X0) (k2\_tops\_2 \\
& (u1\_struct\_0 X0) (u1\_struct\_0 X1) X2) = k2\_struct\_0 X0))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(((v1\_funct\_1 X2) \wedge \\
& ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& X0 X1)))))) \wedge ((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 X0 X1) \wedge (m1\_subset\_1 \\
& X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \Rightarrow (r2\_funct\_2 X0 X1 X2 X2)
\end{aligned} \tag{4}$$

Assume the following.

$$\forall X0.k6\_partfun1 X0 = k4\_relat\_1 X0 \tag{5}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \tag{6}$$

Assume the following.

$$v1\_xboole\_0 k1\_xboole\_0 \tag{7}$$

Assume the following.

$$\forall X0.(v1\_relat\_1 (k4\_relat\_1 X0)) \wedge ((v4\_relat\_1 (k4\_relat\_1 X0) X0) \wedge ((v1\_funct\_1 (k4\_relat\_1 X0)) \wedge (v1\_partfun1 (k4\_relat\_1 X0) X0))) \tag{8}$$

Assume the following.

$$\forall X0.(v1\_partfun1 (k6\_partfun1 X0) X0) \wedge (m1\_subset\_1 (k6\_partfun1 X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0))) \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 \\
& X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \Rightarrow \\
& ((v1\_funct\_1 (k2\_tops\_2 X0 X1 X2)) \wedge ((v1\_funct\_2 (k2\_tops\_2 X0 \\
& X1 X2) X1 X0) \wedge (m1\_subset\_1 (k2\_tops\_2 X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& X1 X0))))))
\end{aligned} \tag{10}$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0) \Rightarrow (k3\_struct\_0 X0 = k6\_partfun1 (u1\_struct\_0 X0)) \quad (11)$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0) \Rightarrow (k2\_struct\_0 X0 = u1\_struct\_0 X0) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1) \wedge (v5\_relat\_1 X1 X0)) \Rightarrow (v2\_funct\_2 X1 X0) \Leftrightarrow (k2\_relset\_1 X0 X1 = X0) \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1))) \Rightarrow (((X1 \neq k1\_xboole\_0) \Rightarrow ((v1\_funct\_2 X2 X0 \\ & X1) \Leftrightarrow (X0 = k1\_relset\_1 X0 X2))) \wedge ((X1 = k1\_xboole\_0) \Rightarrow ((v1\_funct\_2 \\ & X2 X0 X1) \Leftrightarrow (X2 = k1\_xboole\_0)))) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \Rightarrow ((v4\_relat\_1 X2 X0) \wedge (v5\_relat\_1 X2 X1)) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \Rightarrow (v1\_relat\_1 X2) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \Rightarrow ((v1\_partfun1 X2 X0) \Rightarrow (v1\_funct\_2 X2 X0 X1)) \quad (17)$$

### Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2\_struct\_0 X1) \wedge (l1\_struct\_0 X1)) \Rightarrow (\forall X2.((v1\_funct\_1 \\ & X2) \wedge ((v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 X1)) \wedge (m1\_subset\_1 \\ & X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1)))))) \Rightarrow \\ & (((v2\_funct\_1 X2) \wedge (v2\_funct\_2 X2 (u1\_struct\_0 X1))) \Rightarrow ((r2\_funct\_2 \\ & (u1\_struct\_0 X1) (u1\_struct\_0 X1) (k1\_partfun1 (u1\_struct\_0 X1) \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X0) (u1\_struct\_0 X1) (k2\_tops\_2 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X1) X2) X2) (k3\_struct\_0 X1)) \wedge (( \\ & r2\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 X0) (k1\_partfun1 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X1) (u1\_struct\_0 X1) (u1\_struct\_0 X0) X2 (k2\_tops\_2 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X1) X2)) (k3\_struct\_0 X0)) \wedge ((v2\_funct\_1 \\ & (k2\_tops\_2 (u1\_struct\_0 X0) (u1\_struct\_0 X1) X2)) \wedge (v2\_funct\_2 \\ & (k2\_tops\_2 (u1\_struct\_0 X0) (u1\_struct\_0 X1) X2) (u1\_struct\_0 \\ & X0)))))) \end{aligned}$$