

## t22\_mesfun9c

(TMM6qPq5qPGkN8ZTmYTJBKwGNTk71f4BEiX)

October 27, 2020

Let  $v1\_xboole\_0 : \iota \Rightarrow o$  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  $k5\_numbers : \iota$  be given. Let  $k4\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_numbers : \iota$  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  $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k12\_mesfun7c : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_mesfun9c : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $r2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_mesfunc5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k11\_mesfun7c : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. \forall X2. ((v1\_funct\_1 \\
 & \quad X2) \wedge ((v1\_funct\_2 X2 k5\_numbers (k4\_partfun1 X0 k2\_numbers)) \wedge \\
 & \quad (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k4\_partfun1 \\
 & \quad X0 k2\_numbers)))))) \Rightarrow (\forall X3. (v7\_ordinal1 X3) \Rightarrow ((r2\_relset\_1 \\
 & \quad X0 k1\_numbers (k4\_mesfunc5 X0 k1\_numbers (k11\_mesfun7c X0 (k1\_mesfun9c \\
 & \quad X0 k2\_numbers X2 X1)) X3) (k2\_partfun1 X0 k1\_numbers (k4\_mesfunc5 \\
 & \quad X0 k1\_numbers (k11\_mesfun7c X0 X2) X3) X1)) \wedge (r2\_relset\_1 X0 k1\_numbers \\
 & \quad (k4\_mesfunc5 X0 k1\_numbers (k12\_mesfun7c X0 (k1\_mesfun9c X0 k2\_numbers \\
 & \quad X2 X1)) X3) (k2\_partfun1 X0 k1\_numbers (k4\_mesfunc5 X0 k1\_numbers \\
 & \quad (k12\_mesfun7c X0 X2) X3) X1))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. \forall X1. \forall X2. \forall X3. ((v1\_funct\_1 X2) \wedge \\
 & \quad ((v1\_funct\_2 X2 k5\_numbers (k4\_partfun1 X0 X1)) \wedge (m1\_subset\_1 \\
 & \quad X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k4\_partfun1 X0 X1)))))) \Rightarrow \\
 & \quad ((v1\_funct\_1 (k1\_mesfun9c X0 X1 X2 X3)) \wedge ((v1\_funct\_2 (k1\_mesfun9c \\
 & \quad X0 X1 X2 X3) k5\_numbers (k4\_partfun1 X0 X1)) \wedge (m1\_subset\_1 (k1\_mesfun9c \\
 & \quad X0 X1 X2 X3) (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k4\_partfun1 \\
 & \quad X0 X1))))))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \wedge ((v1\_funct\_1 X1) \wedge \\ & (v1\_funct\_2 X1 k5\_numbers (k4\_partfun1 X0 k2\_numbers)) \wedge (m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k4\_partfun1 X0 k2\_numbers)))))) \Rightarrow \\ & ((v1\_funct\_1 (k12\_mesfun7c X0 X1)) \wedge ((v1\_funct\_2 (k12\_mesfun7c \\ & X0 X1) k5\_numbers (k4\_partfun1 X0 k1\_numbers)) \wedge (m1\_subset\_1 ( \\ & k12\_mesfun7c X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k4\_partfun1 \\ & X0 k1\_numbers)))))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 \\ & X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \Rightarrow \\ & (\forall X3. ((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 X0 X1) \wedge (m1\_subset\_1 \\ & X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \Rightarrow ((r2\_funct\_2 X0 X1 X2 X3) \Leftrightarrow \\ & (\forall X4. (m1\_subset\_1 X4 X0) \Rightarrow (k1\_funct\_1 X2 X4 = k1\_funct\_1 \\ & X3 X4)))) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 \\ & X2 k5\_numbers (k4\_partfun1 X0 X1)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 k5\_numbers (k4\_partfun1 X0 X1)))))) \Rightarrow (\forall X3. \\ & \forall X4. ((v1\_funct\_1 X4) \wedge ((v1\_funct\_2 X4 k5\_numbers (k4\_partfun1 \\ & X0 X1)) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers \\ & (k4\_partfun1 X0 X1)))))) \Rightarrow ((X4 = k1\_mesfun9c X0 X1 X2 X3) \Leftrightarrow (\forall X5. \\ & (v7\_ordinal1 X5) \Rightarrow (r2\_relset\_1 X0 X1 (k4\_mesfunc5 X0 X1 X4 X5) (k2\_partfun1 \\ & X0 X1 (k4\_mesfunc5 X0 X1 X2 X5) X3)))))) \end{aligned} \tag{5}$$

**Theorem 1**

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. \forall X2. ((v1\_funct\_1 \\ & X2) \wedge ((v1\_funct\_2 X2 k5\_numbers (k4\_partfun1 X0 k2\_numbers)) \wedge \\ & (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k4\_partfun1 \\ & X0 k2\_numbers)))))) \Rightarrow (r2\_funct\_2 k5\_numbers (k4\_partfun1 X0 k1\_numbers) \\ & (k12\_mesfun7c X0 (k1\_mesfun9c X0 k2\_numbers X2 X1)) (k1\_mesfun9c \\ & X0 k1\_numbers (k12\_mesfun7c X0 X2) X1))) \end{aligned}$$