

## t40\_mesfun9c

(TMPkK95QYuwwJtogkgasEg6gmRynRmwQYZA)

October 27, 2020

Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_prob\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v4\_prob\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  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  $k7\_numbers : \iota$  be given. Let  $v10\_valued\_0 : \iota \Rightarrow o$  be given. Let  $v6\_supinf\_2 : \iota \Rightarrow o$  be given. Let  $v4\_measure1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  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  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $r2\_mesfun6c : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_mesfunc5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_mesfun9c : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k2\_mesfun9c : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k11\_mesfun7c : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k12\_mesfun7c : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_comseq\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_comseq\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r3\_mesfunc6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $k3\_rfunct\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge ( \\ & (v1\_funct\_2 X1 k5\_numbers (k4\_partfun1 X0 k2\_numbers)) \wedge (m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k4\_partfun1 X0 k2\_numbers)))))) \Rightarrow \\ & ((r2\_funct\_2 k5\_numbers (k4\_partfun1 X0 k1\_numbers) (k2\_mesfun9c \\ & X0 (k11\_mesfun7c X0 X1)) (k11\_mesfun7c X0 (k3\_mesfun9c X0 X1))) \wedge \\ & (r2\_funct\_2 k5\_numbers (k4\_partfun1 X0 k1\_numbers) (k2\_mesfun9c \\ & X0 (k12\_mesfun7c X0 X1)) (k12\_mesfun7c X0 (k3\_mesfun9c X0 X1)))))) \\ & (1) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge \\ & (v1\_funct\_2 X1 k5\_numbers (k4\_partfun1 X0 k2\_numbers)) \wedge (m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k4\_partfun1 X0 k2\_numbers)))))) \Rightarrow \\ & (\forall X2.(v7\_ordinal1 X2) \Rightarrow ((r2\_relset\_1 X0 k1\_numbers (k4\_mesfunc5 \\ & X0 k1\_numbers (k11\_mesfun7c X0 X1) X2) (k5\_comseq\_3 X0 (k4\_mesfunc5 \\ & X0 k2\_numbers X1 X2))) \wedge (r2\_relset\_1 X0 k1\_numbers (k4\_mesfunc5 \\ & X0 k1\_numbers (k12\_mesfun7c X0 X1) X2) (k6\_comseq\_3 X0 (k4\_mesfunc5 \\ & X0 k2\_numbers X1 X2)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((\neg v1\_xboole\_0 X1) \wedge \\ & ((v1\_prob\_1 X1 X0) \wedge ((v4\_prob\_1 X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (k1\_zfmisc\_1 X0)))))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 \\ & X2 X1 k7\_numbers) \wedge ((v10\_valued\_0 X2) \wedge ((v6\_supinf\_2 X2) \wedge ((v4\_measure1 \\ & X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X1 k7\_numbers))))))))) \Rightarrow \\ & (\forall X3.((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 k5\_numbers (k4\_partfun1 \\ & X0 k1\_numbers) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers \\ & (k4\_partfun1 X0 k1\_numbers)))))) \Rightarrow ((\forall X4.(v7\_ordinal1 \\ & X4) \Rightarrow (r3\_mesfunc6 X0 X1 X2 (k4\_mesfunc5 X0 k1\_numbers X3 X4))) \Rightarrow ( \\ & \forall X4.(v7\_ordinal1 X4) \Rightarrow (r3\_mesfunc6 X0 X1 X2 (k4\_mesfunc5 \\ & X0 k1\_numbers (k2\_mesfun9c X0 X3) X4)))))) \end{aligned} \quad (3)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((v1\_funct\_1 X2) \wedge \\ & ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X1)))))) \wedge ((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 X0 X1) \wedge (m1\_subset\_1 \\ & X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \Rightarrow ((r2\_funct\_2 X0 X1 X2 \\ & X3) \Leftrightarrow (X2 = X3)) \end{aligned} \quad (5)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((v1\_funct\_1 X2) \wedge \\ & ((v1\_funct\_2 X2 k5\_numbers (k3\_rfunct\_3 X0 X1)) \wedge (m1\_subset\_1 \\ & X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k3\_rfunct\_3 X0 X1)))))) \wedge \\ & (v7\_ordinal1 X3)) \Rightarrow (k4\_mesfunc5 X0 X1 X2 X3 = k1\_funct\_1 X2 X3) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.k3\_rfunc3\ X0\ X1 = k4\_partfun1\ X0\ X1 \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1\_funct\_1\ X1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1 \\ (k2\_zfmisc\_1\ X0\ k2\_numbers))))\Rightarrow((v1\_funct\_1\ (k6\_comseq\_3\ X0 \\ X1))\wedge(m1\_subset\_1\ (k6\_comseq\_3\ X0\ X1)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1 \\ X0\ k1\_numbers)))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1\_funct\_1\ X1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1 \\ (k2\_zfmisc\_1\ X0\ k2\_numbers))))\Rightarrow((v1\_funct\_1\ (k5\_comseq\_3\ X0 \\ X1))\wedge(m1\_subset\_1\ (k5\_comseq\_3\ X0\ X1)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1 \\ X0\ k1\_numbers)))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.(((v1\_funct\_1\ X2)\wedge \\ ((v1\_funct\_2\ X2\ k5\_numbers\ (k3\_rfunc3\ X0\ X1))\wedge(m1\_subset\_1 \\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ (k3\_rfunc3\ X0\ X1))))))\wedge \\ (v7\_ordinal1\ X3))\Rightarrow((v1\_funct\_1\ (k4\_mesfunc5\ X0\ X1\ X2\ X3))\wedge(m1\_subset\_1 \\ (k4\_mesfunc5\ X0\ X1\ X2\ X3)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge((v1\_funct\_1\ X1)\wedge( \\ (v1\_funct\_2\ X1\ k5\_numbers\ (k4\_partfun1\ X0\ k2\_numbers))\wedge(m1\_subset\_1 \\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ (k4\_partfun1\ X0\ k2\_numbers))))))\Rightarrow \\ ((v1\_funct\_1\ (k3\_mesfun9c\ X0\ X1))\wedge((v1\_funct\_2\ (k3\_mesfun9c \\ X0\ X1)\ k5\_numbers\ (k4\_partfun1\ X0\ k2\_numbers))\wedge(m1\_subset\_1\ ( \\ k3\_mesfun9c\ X0\ X1)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ (k4\_partfun1 \\ X0\ k2\_numbers)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge((v1\_funct\_1\ X1)\wedge( \\ (v1\_funct\_2\ X1\ k5\_numbers\ (k4\_partfun1\ X0\ k1\_numbers))\wedge(m1\_subset\_1 \\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ (k4\_partfun1\ X0\ k1\_numbers))))))\Rightarrow \\ ((v1\_funct\_1\ (k2\_mesfun9c\ X0\ X1))\wedge((v1\_funct\_2\ (k2\_mesfun9c \\ X0\ X1)\ k5\_numbers\ (k4\_partfun1\ X0\ k1\_numbers))\wedge(m1\_subset\_1\ ( \\ k2\_mesfun9c\ X0\ X1)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ (k4\_partfun1 \\ X0\ k1\_numbers)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \wedge ((v1\_funct\_1 X1) \wedge \\ & (v1\_funct\_2 X1 k5\_numbers (k4\_partfun1 X0 k2\_numbers)) \wedge (m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k4\_partfun1 X0 k2\_numbers)))))) \Rightarrow \\ & ((v1\_funct\_1 (k12\_mesfun7c X0 X1)) \wedge ((v1\_funct\_2 (k12\_mesfun7c \\ & X0 X1) k5\_numbers (k4\_partfun1 X0 k1\_numbers)) \wedge (m1\_subset\_1 ( \\ & k12\_mesfun7c X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k4\_partfun1 \\ & X0 k1\_numbers)))))) \end{aligned} \tag{14}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \wedge ((v1\_funct\_1 X1) \wedge \\ & (v1\_funct\_2 X1 k5\_numbers (k4\_partfun1 X0 k2\_numbers)) \wedge (m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k4\_partfun1 X0 k2\_numbers)))))) \Rightarrow \\ & ((v1\_funct\_1 (k11\_mesfun7c X0 X1)) \wedge ((v1\_funct\_2 (k11\_mesfun7c \\ & X0 X1) k5\_numbers (k4\_partfun1 X0 k1\_numbers)) \wedge (m1\_subset\_1 ( \\ & k11\_mesfun7c X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k4\_partfun1 \\ & X0 k1\_numbers)))))) \end{aligned} \tag{15}$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((\neg v1\_xboole\_0 X1) \wedge \\ & ((v1\_prob\_1 X1 X0) \wedge ((v4\_prob\_1 X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (k1\_zfmisc\_1 X0)))))) \Rightarrow (\forall X2. ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 \\ & X2 X1 k7\_numbers) \wedge ((v10\_valued\_0 X2) \wedge ((v6\_supinf\_2 X2) \wedge ((v4\_measure1 \\ & X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X1 k7\_numbers)))))) \Rightarrow \\ & (\forall X3. ((v1\_funct\_1 X3) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 k2\_numbers)))) \Rightarrow ((r2\_mesfun6c X0 X1 X2 X3) \Leftrightarrow ((r3\_mesfunc6 X0 \\ & X1 X2 (k5\_comseq\_3 X0 X3)) \wedge (r3\_mesfunc6 X0 X1 X2 (k6\_comseq\_3 X0 \\ & X3)))))) \end{aligned} \tag{16}$$

**Theorem 1**

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((\neg v1\_xboole\_0 X1) \wedge \\ & ((v1\_prob\_1 X1 X0) \wedge ((v4\_prob\_1 X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (k1\_zfmisc\_1 X0)))))) \Rightarrow (\forall X2. ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 \\ & X2 X1 k7\_numbers) \wedge ((v10\_valued\_0 X2) \wedge ((v6\_supinf\_2 X2) \wedge ((v4\_measure1 \\ & X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X1 k7\_numbers)))))) \Rightarrow \\ & (\forall X3. ((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 k5\_numbers (k4\_partfun1 \\ & X0 k2\_numbers)) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers \\ & (k4\_partfun1 X0 k2\_numbers)))))) \Rightarrow ((\forall X4. (v7\_ordinal1 \\ & X4) \Rightarrow (r2\_mesfun6c X0 X1 X2 (k4\_mesfunc5 X0 k2\_numbers X3 X4)) \Rightarrow ( \\ & \forall X4. (v7\_ordinal1 X4) \Rightarrow (r2\_mesfun6c X0 X1 X2 (k4\_mesfunc5 \\ & X0 k2\_numbers (k3\_mesfun9c X0 X3) X4)))))) \end{aligned}$$