

## t2\_mesfun7c

(TMUnwWb33JEUqfV4SqCByzLm5Lpy8GAntdR)

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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  $k1\_numbers : \iota$  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  $k1\_rerset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_mesfun7c : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k12\_supinf\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_supinf\_2 : \iota \Rightarrow \iota$  be given. Let  $k17\_supinf\_2 : \iota \Rightarrow \iota$  be given. Let  $k1\_mesfunc5 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_seqfunc : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k7\_numbers : \iota$  be given. Let  $k3\_mesfunc5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_mesfun7c : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_mesfunc8 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_mesfunc5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k2\_rinf sup2 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge ( \\ & (v1\_funct\_2 X1 k5\_numbers (k4\_partfun1 X0 k1\_numbers)) \wedge (m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k4\_partfun1 X0 k1\_numbers)))))) \Rightarrow \\ & (\forall X2. (m1\_subset\_1 X2 X0) \Rightarrow (r1\_funct\_2 k5\_numbers k1\_numbers \\ & k5\_numbers k7\_numbers (k10\_seqfunc X0 X1 X2) (k3\_mesfunc5 X0 (k1\_mesfun7c \\ & X0 X1) X2)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\ & ((\neg v1\_xboole\_0 X1) \wedge ((\neg v1\_xboole\_0 X3) \wedge (((v1\_funct\_1 X4) \wedge ( \\ & v1\_funct\_2 X4 X0 X1) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X1)))))) \wedge ((v1\_funct\_1 X5) \wedge ((v1\_funct\_2 X5 X2 X3) \wedge (m1\_subset\_1 \\ & X5 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X2 X3)))))) \Rightarrow ((r1\_funct\_2 X0 X1 \\ & X2 X3 X4 X5) \Leftrightarrow (X4 = X5)) \end{aligned} \tag{2}$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \tag{3}$$

Assume the following.

$$(\neg v1\_xboole\_0 \ k4\_ordinal1) \wedge (v3\_ordinal1 \ k4\_ordinal1) \quad (4)$$

Assume the following.

$$\neg v1\_xboole\_0 \ k7\_numbers \quad (5)$$

Assume the following.

$$\neg v1\_xboole\_0 \ k1\_numbers \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 \ X0) \wedge ((v1\_funct\_1 \ X1) \wedge \\ & (v1\_funct\_2 \ X1 \ X0 \ k1\_numbers) \wedge (m1\_subset\_1 \ X1 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \\ & \ X0 \ k1\_numbers)))))) \Rightarrow ((v1\_funct\_1 \ (k1\_mesfunc5 \ X0 \ X1)) \wedge (v1\_partfun1 \\ & \ (k1\_mesfunc5 \ X0 \ X1) \ X0)) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 \ X0) \wedge ((v1\_funct\_1 \\ & \ X1) \wedge ((v1\_funct\_2 \ X1 \ k5\_numbers \ (k4\_partfun1 \ X0 \ k7\_numbers)) \wedge \\ & (m1\_subset\_1 \ X1 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ k5\_numbers \ (k4\_partfun1 \\ & \ X0 \ k7\_numbers)))))) \wedge (m1\_subset\_1 \ X2 \ X0)) \Rightarrow ((v1\_funct\_1 \ (k3\_mesfunc5 \\ & \ X0 \ X1 \ X2)) \wedge ((v1\_funct\_2 \ (k3\_mesfunc5 \ X0 \ X1 \ X2) \ k5\_numbers \ k7\_numbers) \wedge \\ & (m1\_subset\_1 \ (k3\_mesfunc5 \ X0 \ X1 \ X2) \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \\ & \ k5\_numbers \ k7\_numbers)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 \ X0) \wedge ((v1\_funct\_1 \ X1) \wedge ( \\ & (v1\_funct\_2 \ X1 \ k5\_numbers \ (k4\_partfun1 \ X0 \ k7\_numbers)) \wedge (m1\_subset\_1 \\ & \ X1 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ k5\_numbers \ (k4\_partfun1 \ X0 \ k7\_numbers)))))) \Rightarrow \\ & ((v1\_funct\_1 \ (k1\_mesfunc8 \ X0 \ X1)) \wedge (m1\_subset\_1 \ (k1\_mesfunc8 \\ & \ X0 \ X1) \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ X0 \ k7\_numbers)))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 \ X0) \wedge ((v1\_funct\_1 \ X1) \wedge ( \\ & m1\_subset\_1 \ X1 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ X0 \ k1\_numbers)))))) \Rightarrow \\ & ((v1\_funct\_1 \ (k1\_mesfunc5 \ X0 \ X1)) \wedge (m1\_subset\_1 \ (k1\_mesfunc5 \\ & \ X0 \ X1) \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ X0 \ k7\_numbers)))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 \ X0) \wedge ((v1\_funct\_1 \ X1) \wedge ( \\ & (v1\_funct\_2 \ X1 \ k5\_numbers \ (k4\_partfun1 \ X0 \ k1\_numbers)) \wedge (m1\_subset\_1 \\ & \ X1 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ k5\_numbers \ (k4\_partfun1 \ X0 \ k1\_numbers)))))) \Rightarrow \\ & ((v1\_funct\_1 \ (k1\_mesfun7c \ X0 \ X1)) \wedge ((v1\_funct\_2 \ (k1\_mesfun7c \\ & \ X0 \ X1) \ k5\_numbers \ (k4\_partfun1 \ X0 \ k7\_numbers)) \wedge (m1\_subset\_1 \ ( \\ & \ k1\_mesfun7c \ X0 \ X1) \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ k5\_numbers \ (k4\_partfun1 \\ & \ X0 \ k7\_numbers)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X0) \wedge (((v1\_funct\_1 \\ & X1) \wedge ((v1\_funct\_2 X1 k5\_numbers (k4\_partfun1 X0 k1\_numbers)) \wedge \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k4\_partfun1 \\ & X0 k1\_numbers)))))) \wedge (m1\_subset\_1 X2 X0))) \Rightarrow ((v1\_funct\_1 (k10\_seqfunc \\ & X0 X1 X2)) \wedge ((v1\_funct\_2 (k10\_seqfunc X0 X1 X2) k5\_numbers k1\_numbers) \wedge \\ & (m1\_subset\_1 (k10\_seqfunc X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & k5\_numbers k1\_numbers)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge ( \\ & m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))) \Rightarrow ( \\ & k1\_mesfunc5 X0 X1 = X1)) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge ( \\ & (v1\_funct\_2 X1 k5\_numbers (k4\_partfun1 X0 k7\_numbers)) \wedge (m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k4\_partfun1 X0 k7\_numbers)))))) \Rightarrow \\ & (\forall X2. ((v1\_funct\_1 X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 k7\_numbers)))) \Rightarrow ((X2 = k1\_mesfunc8 X0 X1) \Leftrightarrow ((k1\_relset\_1 X0 X2 = \\ & k1\_relset\_1 X0 (k4\_mesfunc5 X0 k7\_numbers X1 k6\_numbers)) \wedge (\forall X3. \\ & (m1\_subset\_1 X3 X0) \Rightarrow ((X3 \in k1\_relset\_1 X0 X2) \Rightarrow (k12\_supinf\_2 X2 \\ & X3 = k2\_rinfsup2 (k3\_mesfunc5 X0 X1 X3))))))))) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k7\_numbers) \wedge \\ & (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k7\_numbers)))) \Rightarrow \\ & (k2\_rinfsup2 X0 = k7\_supinf\_2 (k17\_supinf\_2 X0)) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge ( \\ & (v1\_funct\_2 X1 k5\_numbers (k4\_partfun1 X0 k1\_numbers)) \wedge (m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k4\_partfun1 X0 k1\_numbers)))))) \Rightarrow \\ & (k2\_mesfun7c X0 X1 = k1\_mesfunc8 X0 (k1\_mesfun7c X0 X1))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge ( \\ & (v1\_funct\_2 X1 k5\_numbers (k4\_partfun1 X0 k1\_numbers)) \wedge (m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k4\_partfun1 X0 k1\_numbers)))))) \Rightarrow \\ & (k1\_mesfun7c X0 X1 = X1)) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1))) \Rightarrow ((v1\_partfun1 X2 X0) \Rightarrow (v1\_funct\_2 X2 X0 X1)) \end{aligned} \quad (18)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge ( \\ & (v1\_funct\_2 X1 k5\_numbers (k4\_partfun1 X0 k1\_numbers)) \wedge (m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k4\_partfun1 X0 k1\_numbers)))))) \Rightarrow \\ & (\forall X2. (m1\_subset\_1 X2 X0) \Rightarrow ((X2 \in k1\_relset\_1 X0 (k2\_mesfun7c \\ & X0 X1)) \Rightarrow (k12\_supinf\_2 (k2\_mesfun7c X0 X1) X2 = k7\_supinf\_2 (k17\_supinf\_2 \\ & (k1\_mesfunc5 k5\_numbers (k10\_seqfunc X0 X1 X2)))))) \end{aligned}$$