

t17\_eqrel\_1  
(TMQR8EJNf8oHoyYgRB4YqKdestnuNpJb798)

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Let  $v3\_relat\_2 : \iota \Rightarrow o$  be given. Let  $v8\_relat\_2 : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_eqrel\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_eqrel\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_eqrel\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. k2\_xboole\_0 X0 (k3\_xboole\_0 X0 X1) = X0 \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \Rightarrow (r1\_relset\_1 X0 X1 X2 X2) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. ((m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \Rightarrow ((r2\_relset\_1 X0 X1 X2 X3) \Leftrightarrow (X2 = X3)) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (((v3\_relat\_2 X1) \wedge ((v8\_relat\_2 X1) \wedge ((v1\_partfun1 X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0)))))) \wedge ((v3\_relat\_2 X2) \wedge ((v8\_relat\_2 X2) \wedge ((v1\_partfun1 X2 X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0))))))) \Rightarrow (k4\_eqrel\_1 X0 X1 X2 = k3\_xboole\_0 X1 X2) \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0))) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0)))) \Rightarrow (k3\_eqrel\_1 X0 X1 X2 = k2\_xboole\_0 X1 X2) \quad (5)$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((v3\_relat\_2 X1) \wedge ((v8\_relat\_2 \\
& X1) \wedge ((v1\_partfun1 X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& X0 X0)))))) \wedge ((v3\_relat\_2 X2) \wedge ((v8\_relat\_2 X2) \wedge ((v1\_partfun1 \\
& X2 X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0)))))) \Rightarrow \\
& ((v3\_relat\_2 (k5\_eqrel\_1 X0 X1 X2)) \wedge ((v8\_relat\_2 (k5\_eqrel\_1 \\
& X0 X1 X2)) \wedge ((v1\_partfun1 (k5\_eqrel\_1 X0 X1 X2) X0) \wedge (m1\_subset\_1 \\
& (k5\_eqrel\_1 X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((v3\_relat\_2 X1) \wedge ((v8\_relat\_2 \\
& X1) \wedge ((v1\_partfun1 X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& X0 X0)))))) \wedge ((v3\_relat\_2 X2) \wedge ((v8\_relat\_2 X2) \wedge ((v1\_partfun1 \\
& X2 X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0)))))) \Rightarrow \\
& ((v3\_relat\_2 (k4\_eqrel\_1 X0 X1 X2)) \wedge ((v8\_relat\_2 (k4\_eqrel\_1 \\
& X0 X1 X2)) \wedge ((v1\_partfun1 (k4\_eqrel\_1 X0 X1 X2) X0) \wedge (m1\_subset\_1 \\
& (k4\_eqrel\_1 X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0))))))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((v3\_relat\_2 X1) \wedge ((v8\_relat\_2 X1) \wedge ((v1\_partfun1 \\
& X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0)))))) \Rightarrow \\
& (\forall X2. ((v3\_relat\_2 X2) \wedge ((v8\_relat\_2 X2) \wedge ((v1\_partfun1 \\
& X2 X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0)))))) \Rightarrow \\
& (\forall X3. ((v3\_relat\_2 X3) \wedge ((v8\_relat\_2 X3) \wedge ((v1\_partfun1 \\
& X3 X0) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0)))))) \Rightarrow \\
& ((X3 = k5\_eqrel\_1 X0 X1 X2) \Leftrightarrow ((r1\_relset\_1 X0 X0 (k3\_eqrel\_1 X0 X1 \\
& X2) X3) \wedge (\forall X4. ((v3\_relat\_2 X4) \wedge ((v8\_relat\_2 X4) \wedge ((v1\_partfun1 \\
& X4 X0) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0)))))) \Rightarrow \\
& ((r1\_relset\_1 X0 X0 (k3\_eqrel\_1 X0 X1 X2) X4) \Rightarrow (r1\_relset\_1 X0 X0 \\
& X3 X4))))))
\end{aligned} \tag{8}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0. \forall X1. ((v3\_relat\_2 X1) \wedge ((v8\_relat\_2 X1) \wedge ((v1\_partfun1 \\
& X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0)))))) \Rightarrow \\
& (\forall X2. ((v3\_relat\_2 X2) \wedge ((v8\_relat\_2 X2) \wedge ((v1\_partfun1 \\
& X2 X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0)))))) \Rightarrow \\
& (r2\_relset\_1 X0 X0 (k5\_eqrel\_1 X0 X1 (k4\_eqrel\_1 X0 X1 X2)) X1))
\end{aligned}$$