

## t46\_valued\_2

(TMXvE71enPATBwQxnBfx4Ntnmkihx27bwqQ)

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Let  $v1\_valued\_2 : \iota \Rightarrow o$  be given. Let  $v1\_xcmplx\_0 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  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  $v2\_relat\_1 : \iota \Rightarrow o$  be given. Let  $r2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_valued\_2 : \iota \Rightarrow \iota$  be given. Let  $k1\_valued\_2 : \iota \Rightarrow \iota$  be given. Let  $k31\_valued\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_valued\_0 : \iota \Rightarrow o$  be given. Let  $k7\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k30\_valued\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $v7\_valued\_2 : \iota \Rightarrow o$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. \neg(v1\_xboole\_0 X0) \wedge ((X0 \neq X1) \wedge (v1\_xboole\_0 X1)) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. (v1\_xcmplx\_0 X0) \Rightarrow (\forall X1. (v1\_xcmplx\_0 X1) \Rightarrow (\forall X2. \\ & ((v1\_relat\_1 X2) \wedge ((v1\_funct\_1 X2) \wedge (v1\_valued\_0 X2)))) \Rightarrow ((k7\_valued\_1 \\ & X2 X0 = k7\_valued\_1 X2 X1) \Rightarrow ((X2 = k1\_xboole\_0) \vee (X0 = X1)))) \end{aligned} \quad (2)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((v1\_valued\_2 X1) \wedge \\ & (((v1\_funct\_1 X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X1)))) \wedge (v1\_xcmplx\_0 X3))) \Rightarrow (k31\_valued\_2 X0 X1 X2 X3 = k30\_valued\_2 \\ & X1 X2 X3) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.((\neg v1\_xboole\_0 X0) \wedge (v1\_relat\_1 X0)) \Rightarrow (\neg v1\_xboole\_0 (k9\_xtuple\_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v7\_valued\_2 X0))) \Rightarrow (v1\_valued\_0 (k1\_funct\_1 X0 X1)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v7\_valued\_2 X0))) \Rightarrow ((v1\_relat\_1 (k1\_funct\_1 X0 X1)) \wedge (v1\_funct\_1 (k1\_funct\_1 X0 X1))) \quad (7)$$

Assume the following.

$$v1\_xboole\_0 k1\_xboole\_0 \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((v1\_valued\_2 X1) \wedge \\ & (((v1\_funct\_1 X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X1)))) \wedge (v1\_xcmplx\_0 X3))) \Rightarrow ((v1\_funct\_1 (k31\_valued\_2 X0 X1 \\ & X2 X3)) \wedge (m1\_subset\_1 (k31\_valued\_2 X0 X1 X2 X3) (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 (k2\_valued\_2 (k1\_valued\_2 X1)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((v1\_valued\_2 X0) \wedge ((v1\_relat\_1 \\ & X1) \wedge ((v5\_relat\_1 X1 X0) \wedge (v1\_funct\_1 X1)))) \wedge (v1\_xcmplx\_0 X2)) \Rightarrow \\ & ((v1\_relat\_1 (k30\_valued\_2 X0 X1 X2)) \wedge (v1\_funct\_1 (k30\_valued\_2 \\ & X0 X1 X2))) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow ((v2\_relat\_1 X0) \Leftrightarrow (\neg k1\_xboole\_0 \in k10\_xtuple\_0 X0)) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1.(X1 = \\ & k10\_xtuple\_0 X0) \Leftrightarrow (\forall X2.(X2 \in X1) \Leftrightarrow (\exists X3.(X3 \in k9\_xtuple\_0 \\ & X0) \wedge (X2 = k1\_funct\_1 X0 X3)))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1\_valued\_2 X0) \Rightarrow (\forall X1.((v1\_relat\_1 X1) \wedge (( \\ & v5\_relat\_1 X1 X0) \wedge (v1\_funct\_1 X1))) \Rightarrow (\forall X2.(v1\_xcmplx\_0 \\ & X2) \Rightarrow (\forall X3.((v1\_relat\_1 X3) \wedge (v1\_funct\_1 X3)) \Rightarrow ((X3 = k30\_valued\_2 \\ & X0 X1 X2) \Leftrightarrow ((k9\_xtuple\_0 X3 = k9\_xtuple\_0 X1) \wedge (\forall X4.(X4 \in k9\_xtuple\_0 \\ & X3) \Rightarrow (k1\_funct\_1 X3 X4 = k7\_valued\_1 (k1\_funct\_1 X1 X4) X2)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Leftrightarrow (\forall X1. \neg X1 \in X0) \quad (14)$$

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.

$$\forall X0. (v1\_valued\_2 X0) \Rightarrow (\forall X1. ((v1\_relat\_1 X1) \wedge ((v5\_relat\_1 X1 X0) \wedge (v1\_funct\_1 X1))) \Rightarrow ((v1\_relat\_1 X1) \wedge ((v5\_relat\_1 X1 X0) \wedge ((v1\_funct\_1 X1) \wedge (v7\_valued\_2 X1)))))) \quad (16)$$

Assume the following.

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

**Theorem 1**

$$\forall X0. \forall X1. (v1\_valued\_2 X1) \Rightarrow (\forall X2. (v1\_xcmplx\_0 X2) \Rightarrow (\forall X3. (v1\_xcmplx\_0 X3) \Rightarrow (\forall X4. ((v1\_funct\_1 X4) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \Rightarrow (((v2\_relat\_1 X4) \wedge (r2\_rerset\_1 X0 (k2\_valued\_2 (k1\_valued\_2 X1)) (k31\_valued\_2 X0 X1 X4 X2) (k31\_valued\_2 X0 X1 X4 X3))) \Rightarrow ((X4 = k1\_xboole\_0) \vee (X2 = X3)))))))$$