

# t2\_topmetr3 (TMRZV- JezK7ukoPqVKFXkoLttXkb5REGRNKo)

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Let  $v2\_struct.0 : \iota \Rightarrow o$  be given. Let  $v6\_metric.1 : \iota \Rightarrow o$  be given. Let  $v7\_metric.1 : \iota \Rightarrow o$  be given. Let  $v8\_metric.1 : \iota \Rightarrow o$  be given. Let  $v9\_metric.1 : \iota \Rightarrow o$  be given. Let  $l1\_metric.1 : \iota \Rightarrow o$  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  $u1\_struct.0 : \iota \Rightarrow \iota$  be given. Let  $k3\_pcomps.1 : \iota \Rightarrow \iota$  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  $k5\_numbers : \iota$  be given. Let  $k1\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_relat.1 : \iota \Rightarrow o$  be given. Let  $k10\_xtuple.0 : \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple.0 : \iota \Rightarrow \iota$  be given. Let  $k3\_relat.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_pre\_topc : \iota \Rightarrow \iota$  be given. Let  $k2\_pcomps.1 : \iota \Rightarrow \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v5\_relat.1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_relset.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v4\_relat.1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_relset.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_struct.0 : \iota \Rightarrow o$  be given. Let  $v1\_xboole.0 : \iota \Rightarrow o$  be given. Let  $k1\_xboole.0 : \iota$  be given. Assume the following.

$$\forall X0. \forall X1. (m1\_subset.1 X0 (k1\_zfmisc.1 X1)) \Leftrightarrow (r1\_tarski X0 X1) \quad (1)$$

Assume the following.

$$\forall X0. (v1\_relat.1 X0) \Rightarrow (\forall X1. (v1\_relat.1 X1) \Rightarrow ((r1\_tarski (k10\_xtuple.0 X0) (k9\_xtuple.0 X1)) \Rightarrow (k9\_xtuple.0 (k3\_relat.1 X0 X1) = k9\_xtuple.0 X0))) \quad (2)$$

Assume the following.

$$\forall X0. (l1\_metric.1 X0) \Rightarrow ((u1\_struct.0 X0 = u1\_struct.0 (k3\_pcomps.1 X0)) \wedge (u1\_pre\_topc (k3\_pcomps.1 X0) = k2\_pcomps.1 X0)) \quad (3)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat.1 X1) \wedge (v5\_relat.1 X1 X0)) \Rightarrow (k2\_relset.1 X0 X1 = k10\_xtuple.0 X1) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1)\wedge(v4\_relat\_1 X1 X0))\Rightarrow(k1\_relset\_1 X0 X1 = k9\_xtuple\_0 X1) \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & (((v1\_funct\_1 X4)\wedge(m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X1))))\wedge((v1\_funct\_1 X5)\wedge(m1\_subset\_1 X5 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X2 X3))))))\Rightarrow(k1\_partfun1 X0 X1 X2 X3 X4 X5 = k3\_relat\_1 X4 X5) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_struct\_0 X0))\Rightarrow(\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (8)$$

Assume the following.

$$v1\_xboole\_0 k1\_xboole\_0 \quad (9)$$

Assume the following.

$$\forall X0.(l1\_metric\_1 X0)\Rightarrow(l1\_struct\_0 X0) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1)\wedge(v5\_relat\_1 X1 X0))\Rightarrow(m1\_subset\_1 (k2\_relset\_1 X0 X1) (k1\_zfmisc\_1 X0)) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & (((v1\_funct\_1 X4)\wedge(m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X1))))\wedge((v1\_funct\_1 X5)\wedge(m1\_subset\_1 X5 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X2 X3))))))\Rightarrow((v1\_funct\_1 (k1\_partfun1 X0 X1 X2 X3 X4 X5))\wedge(m1\_subset\_1 \\ & (k1\_partfun1 X0 X1 X2 X3 X4 X5) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X3)))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1)))\Rightarrow(((X1\neq k1\_xboole\_0)\Rightarrow((v1\_funct\_2 X2 X0 \\ & X1)\Leftrightarrow(X0 = k1\_relset\_1 X0 X2)))\wedge((X1 = k1\_xboole\_0)\Rightarrow((v1\_funct\_2 \\ & X2 X0 X1)\Leftrightarrow(X2 = k1\_xboole\_0)))) \end{aligned} \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow((v4\_relat\_1 X2 X0)\wedge(v5\_relat\_1 X2 X1)) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(v1\_relat\_1 X2) \quad (15)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v6\_metric\_1 X0) \wedge ((v7\_metric\_1 \\ & X0) \wedge ((v8\_metric\_1 X0) \wedge ((v9\_metric\_1 X0) \wedge (l1\_metric\_1 X0)))))) \Rightarrow \\ & (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v6\_metric\_1 X1) \wedge ((v7\_metric\_1 \\ & X1) \wedge ((v8\_metric\_1 X1) \wedge ((v9\_metric\_1 X1) \wedge (l1\_metric\_1 X1)))))) \Rightarrow \\ & (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (u1\_struct\_0 (k3\_pcomps\_1 \\ & X0)) (u1\_struct\_0 (k3\_pcomps\_1 X1))) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (u1\_struct\_0 (k3\_pcomps\_1 X0)) (u1\_struct\_0 (k3\_pcomps\_1 \\ & X1)))))) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 k5\_numbers \\ & (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & k5\_numbers (u1\_struct\_0 X0)))))) \Rightarrow ((v1\_funct\_1 (k1\_partfun1 \\ & k5\_numbers (u1\_struct\_0 X0) (u1\_struct\_0 (k3\_pcomps\_1 X0)) (u1\_struct\_0 \\ & (k3\_pcomps\_1 X1)) X3 X2) \wedge ((v1\_funct\_2 (k1\_partfun1 k5\_numbers \\ & (u1\_struct\_0 X0) (u1\_struct\_0 (k3\_pcomps\_1 X0)) (u1\_struct\_0 \\ & (k3\_pcomps\_1 X1)) X3 X2) k5\_numbers (u1\_struct\_0 X1)) \wedge (m1\_subset\_1 \\ & (k1\_partfun1 k5\_numbers (u1\_struct\_0 X0) (u1\_struct\_0 (k3\_pcomps\_1 \\ & X0)) (u1\_struct\_0 (k3\_pcomps\_1 X1)) X3 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & k5\_numbers (u1\_struct\_0 X1)))))))))) \end{aligned}$$