

# t5\_altcat\_1 (TMaRxivfeZA- mmG9wJSwUoPPJN8wfj42XSQz)

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  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  $k1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_mcart\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. (k4\_tarski\ X0\ X1 \in k2\_zfmisc\_1\ X2\ X3) \Leftrightarrow ((X0 \in X2) \wedge (X1 \in X3)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((v1\_relat\_1\ X2) \wedge (v1\_funct\_1\ X2)) \Rightarrow ((X0 \in X1) \Rightarrow (k1\_funct\_1\ (k5\_relat\_1\ X2\ X1)\ X0 = k1\_funct\_1\ X2\ X0)) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. ((m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ X0)) \wedge (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ X1))) \Rightarrow (k8\_mcart\_1\ X0\ X1\ X2\ X3 = k2\_zfmisc\_1\ X2\ X3) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1\ X0) \wedge (v1\_funct\_1\ X0)) \Rightarrow ((v1\_relat\_1\ (k5\_relat\_1\ X0\ X1)) \wedge (v1\_funct\_1\ (k5\_relat\_1\ X0\ X1))) \quad (4)$$

Assume the following.

$$\forall X0. ((v1\_relat\_1\ X0) \wedge (v1\_funct\_1\ X0)) \Rightarrow (\forall X1. \forall X2. k1\_binop\_1\ X0\ X1\ X2 = k1\_funct\_1\ X0\ (k4\_tarski\ X1\ X2)) \quad (5)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((v1\_relat\_1 X2)\wedge((v4\_relat\_1 \\ & X2 (k2\_zfmisc\_1 X1 X0))\wedge((v1\_funct\_1 X2)\wedge(v1\_partfun1 X2 (k2\_zfmisc\_1 \\ & X1 X0))))))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (k1\_zfmisc\_1 X0))\Rightarrow(\forall X4. \\ & (m1\_subset\_1 X4 (k1\_zfmisc\_1 X1))\Rightarrow(\forall X5.\forall X6.((X5 \in \\ & X3)\wedge(X6 \in X4))\Rightarrow(k1\_binop\_1 X2 X6 X5 = k1\_binop\_1 (k5\_relat\_1 X2 ( \\ & k8\_mcart\_1 X1 X0 X4 X3)) X6 X5)))) \end{aligned}$$