t22_altcat_2 (TMNDdKhitu6zKxTyagZZ8ZKuaF5AV1HzuhF)

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Let $l2\_altcat\_1 : \iota \Rightarrow o$ be given. Let $m1\_altcat\_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $g2\_altcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $u1\_altcat\_1 : \iota \Rightarrow \iota$ be given. Let $u2\_altcat\_1 : \iota \Rightarrow \iota$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2\_altcat\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_altcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_altcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1\_altcat\_1 : \iota \Rightarrow o$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ X0))))\Rightarrow(\forall X3.((v1\_relat\_1\ X3)\wedge((v4\_relat\_1\ X3\ X1)\wedge((v1\_funct\_1\ X3)\wedge(v1\_partfun1\ X3\ X1))))\Rightarrow(((r2\_altcat\_2\ X0\ X1\ X2\ X3)\wedge(r2\_altcat\_2\ X1\ X0\ X3\ X2))\Rightarrow(X2 = X3))) \tag{1}$$

Assume the following.

$$\forall X0.(l2\_altcat\_1\ X0)\Rightarrow(m2\_pboole\ (u2\_altcat\_1\ X0)\ (k3\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (k3\_altcat\_1\ (u1\_struct\_0\ X0)\ (u1\_altcat\_1\ X0)\ (u1\_altcat\_1\ X0))\ (k2\_altcat\_1\ (u1\_struct\_0\ X0)\ (u1\_altcat\_1\ X0))) \tag{2}$$

Assume the following.

$$\forall X0.(l1\_altcat\_1\ X0)\Rightarrow((v1\_relat\_1\ (u1\_altcat\_1\ X0))\wedge((v4\_relat\_1\ (u1\_altcat\_1\ X0)\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0)))\wedge((v1\_funct\_1\ (u1\_altcat\_1\ X0))\wedge(v1\_partfun1\ (u1\_altcat\_1\ X0)\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0)))))) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\wedge((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ X0)))))\Rightarrow(\forall X3.(m2\_pboole\ X3\ X0\ X1\ X2)\Rightarrow((v1\_relat\_1\ X3)\wedge((v4\_relat\_1\ X3\ X0)\wedge((v1\_funct\_1\ X3)\wedge(v1\_partfun1\ X3\ X0)))))) \tag{4}$$

Assume the following.

$$\forall X0.(l2\_altcat\_1\ X0)\Rightarrow(l1\_altcat\_1\ X0) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ (k2\_zfmisc\_1\ X0\ X0))\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ (k2\_zfmisc\_1\ X0\ X0)))))\wedge((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ (k2\_zfmisc\_1\ X0\ X0))\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ (k2\_zfmisc\_1\ X0\ X0))))))\Rightarrow((v1\_relat\_1\ (k3\_altcat\_1\ X0\ X1\ X2))\wedge((v4\_relat\_1\ (k3\_altcat\_1\ X0\ X1\ X2)\ (k3\_zfmisc\_1\ X0\ X0\ X0))\wedge((v1\_funct\_1\ (k3\_altcat\_1\ X0\ X1\ X2))\wedge(v1\_partfun1\ (k3\_altcat\_1\ X0\ X1\ X2)\ (k3\_zfmisc\_1\ X0\ X0\ X0))))) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ (k2\_zfmisc\_1\ X0\ X0))\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ (k2\_zfmisc\_1\ X0\ X0)))))\Rightarrow((v1\_relat\_1\ (k2\_altcat\_1\ X0\ X1))\wedge((v4\_relat\_1\ (k2\_altcat\_1\ X0\ X1)\ (k3\_zfmisc\_1\ X0\ X0\ X0))\wedge((v1\_funct\_1\ (k2\_altcat\_1\ X0\ X1))\wedge(v1\_partfun1\ (k2\_altcat\_1\ X0\ X1)\ (k3\_zfmisc\_1\ X0\ X0\ X0))))) \tag{7}$$

Assume the following.

$$\forall X0.(l2\_altcat\_1\ X0)\Rightarrow(\forall X1.(l2\_altcat\_1\ X1)\Rightarrow((m1\_altcat\_2\ X1\ X0)\Leftrightarrow((r1\_tarski\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X0))\wedge((r2\_altcat\_2\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1))\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (u1\_altcat\_1\ X1)\ (u1\_altcat\_1\ X0))\wedge(r2\_altcat\_2\ (k3\_zfmisc\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1))\ (k3\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\ (u2\_altcat\_1\ X1)\ (u2\_altcat\_1\ X0)))))) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.(X0 = X1)\Leftrightarrow((r1\_tarski\ X0\ X1)\wedge(r1\_tarski\ X1\ X0)) \tag{9}$$

Theorem 1

$$\forall X0.(l2\_altcat\_1\ X0)\Rightarrow(\forall X1.(l2\_altcat\_1\ X1)\Rightarrow((m1\_altcat\_2\ X0\ X1)\wedge(m1\_altcat\_2\ X1\ X0))\Rightarrow(g2\_altcat\_1\ (u1\_struct\_0\ X0)\ (u1\_altcat\_1\ X0)\ (u2\_altcat\_1\ X0) = g2\_altcat\_1\ (u1\_struct\_0\ X1)\ (u1\_altcat\_1\ X1)\ (u2\_altcat\_1\ X1))))$$