t9_oppcat_1 (TMGHGh-pTeAze5EHqPyryzeEYq2oY4VvSiMu)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v11\_struct\_0 : \iota \Rightarrow o$ be given. Let $v2\_cat\_1 : \iota \Rightarrow o$ be given. Let $v3\_cat\_1 : \iota \Rightarrow o$ be given. Let $v4\_cat\_1 : \iota \Rightarrow o$ be given. Let $v5\_cat\_1 : \iota \Rightarrow o$ be given. Let $v6\_cat\_1 : \iota \Rightarrow o$ be given. Let $l1\_cat\_1 : \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k2\_oppcat\_1 : \iota \Rightarrow \iota$ be given. Let $m1\_cat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5\_oppcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6\_oppcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_cat\_1 : \iota \Rightarrow o$ be given. Let $u4\_struct\_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((\neg v11\_struct\_0\ X0) \wedge ((v2\_cat\_1\ X0) \wedge ((v3\_cat\_1\ X0) \wedge ((v4\_cat\_1\ X0) \wedge ((v5\_cat\_1\ X0) \wedge ((v6\_cat\_1\ X0) \wedge (l1\_cat\_1\ X0))))))))) \Rightarrow ((\neg v2\_struct\_0\ (k2\_oppcat\_1\ X0)) \wedge ((\neg v11\_struct\_0\ (k2\_oppcat\_1\ X0)) \wedge ((v1\_cat\_1\ (k2\_oppcat\_1\ X0)) \wedge ((v2\_cat\_1\ (k2\_oppcat\_1\ X0)) \wedge ((v3\_cat\_1\ (k2\_oppcat\_1\ X0)) \wedge ((v4\_cat\_1\ (k2\_oppcat\_1\ X0)) \wedge ((v5\_cat\_1\ (k2\_oppcat\_1\ X0)) \wedge (v6\_cat\_1\ (k2\_oppcat\_1\ X0))))))))) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0) \wedge ((\neg v11\_struct\_0\ X0) \wedge (l1\_cat\_1\ X0))) \wedge ((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \wedge (m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)))) \Rightarrow (\forall X3.(m1\_cat\_1\ X3\ X0\ X1\ X2) \Rightarrow (m1\_subset\_1\ X3\ (u4\_struct\_0\ X0))) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0) \wedge ((\neg v11\_struct\_0\ X0) \wedge ((v2\_cat\_1\ X0) \wedge ((v3\_cat\_1\ X0) \wedge ((v4\_cat\_1\ X0) \wedge ((v5\_cat\_1\ X0) \wedge ((v6\_cat\_1\ X0) \wedge (l1\_cat\_1\ X0))))))))) \wedge (m1\_subset\_1\ X1\ (u4\_struct\_0\ (k2\_oppcat\_1\ X0)))) \Rightarrow (m1\_subset\_1\ (k6\_oppcat\_1\ X0\ X1)\ (u4\_struct\_0\ X0)) \tag{3}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0))))))))\Rightarrow((\neg v2\_struct\_0\ (k2\_oppcat\_1\ X0))\wedge((\neg v11\_struct\_0\ (k2\_oppcat\_1\ X0))\wedge((v1\_cat\_1\ (k2\_oppcat\_1\ X0))\wedge(l1\_cat\_1\ (k2\_oppcat\_1\ X0))))) \tag{4}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0))))))))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u4\_struct\_0\ (k2\_oppcat\_1\ X0)))\Rightarrow(k6\_oppcat\_1\ X0\ X1 = k5\_oppcat\_1\ (k2\_oppcat\_1\ X0)\ X1)) \tag{5}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0))))))))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u4\_struct\_0\ X0))\Rightarrow(k5\_oppcat\_1\ X0\ X1 = X1)) \tag{6}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_cat\_1\ X0)\wedge((v3\_cat\_1\ X0)\wedge((v4\_cat\_1\ X0)\wedge((v5\_cat\_1\ X0)\wedge((v6\_cat\_1\ X0)\wedge(l1\_cat\_1\ X0))))))))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ (k2\_oppcat\_1\ X0)))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ (k2\_oppcat\_1\ X0)))\Rightarrow(\forall X3.(m1\_cat\_1\ X3\ (k2\_oppcat\_1\ X0)\ X1\ X2)\Rightarrow(k5\_oppcat\_1\ X0\ (k6\_oppcat\_1\ X0\ X3) = X3))))$$