t10_modcat_1 (TMaKn6U239TGAJt9poFHapDy8H2Xh9hcvRi)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v13\_algstr\_0 : \iota \Rightarrow o$ be given. Let $v2\_rlvect\_1 : \iota \Rightarrow o$ be given. Let $v3\_rlvect\_1 : \iota \Rightarrow o$ be given. Let $v4\_rlvect\_1 : \iota \Rightarrow o$ be given. Let $v3\_group\_1 : \iota \Rightarrow o$ be given. Let $v4\_vectsp\_1 : \iota \Rightarrow o$ be given. Let $v5\_vectsp\_1 : \iota \Rightarrow o$ be given. Let $l6\_algstr\_0 : \iota \Rightarrow o$ be given. Let $m1\_modcat\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m4\_modcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4\_modcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_mod\_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_mod\_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8\_mod\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5\_modcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6\_modcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v13\_algstr\_0\ X0) \wedge ((v2\_rlvect\_1\ X0) \wedge ((v3\_rlvect\_1\ X0) \wedge ((v4\_rlvect\_1\ X0) \wedge ((v3\_group\_1\ X0) \wedge ((v4\_vectsp\_1\ X0) \wedge ((v5\_vectsp\_1\ X0) \wedge (l6\_algstr\_0\ X0))))))))) \Rightarrow (\forall X1.(m1\_modcat\_1\ X1\ X0) \Rightarrow (\forall X2.(m4\_modcat\_1\ X2\ X0\ (k4\_modcat\_1\ X0\ X1)) \Rightarrow (\forall X3.(m4\_modcat\_1\ X3\ X0\ (k4\_modcat\_1\ X0\ X1)) \Rightarrow ((k5\_modcat\_1\ X0\ X1\ X2 = k6\_modcat\_1\ X0\ X1\ X3) \Rightarrow (k8\_mod\_2\ X0\ X2\ X3 \in k4\_modcat\_1\ X0\ X1)))))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v13\_algstr\_0\ X0) \wedge ((v2\_rlvect\_1\ X0) \wedge ((v3\_rlvect\_1\ X0) \wedge ((v4\_rlvect\_1\ X0) \wedge ((v3\_group\_1\ X0) \wedge ((v4\_vectsp\_1\ X0) \wedge ((v5\_vectsp\_1\ X0) \wedge (l6\_algstr\_0\ X0))))))))) \Rightarrow (\forall X1.(m1\_modcat\_1\ X1\ X0) \Rightarrow (\forall X2.(m4\_modcat\_1\ X2\ X0\ (k4\_modcat\_1\ X0\ X1)) \Rightarrow (k6\_modcat\_1\ X0\ X1\ X2 = k3\_mod\_2\ X0\ X2))) \tag{2}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v13\_algstr\_0\ X0) \wedge ((v2\_rlvect\_1\ X0) \wedge ((v3\_rlvect\_1\ X0) \wedge ((v4\_rlvect\_1\ X0) \wedge ((v3\_group\_1\ X0) \wedge ((v4\_vectsp\_1\ X0) \wedge ((v5\_vectsp\_1\ X0) \wedge (l6\_algstr\_0\ X0))))))))) \Rightarrow (\forall X1.(m1\_modcat\_1\ X1\ X0) \Rightarrow (\forall X2.(m4\_modcat\_1\ X2\ X0\ (k4\_modcat\_1\ X0\ X1)) \Rightarrow (k5\_modcat\_1\ X0\ X1\ X2 = k2\_mod\_2\ X0\ X2))) \tag{3}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v13\_algstr\_0\ X0)\wedge((v2\_rlvect\_1\ X0)\wedge((v3\_rlvect\_1\ X0)\wedge((v4\_rlvect\_1\ X0)\wedge((v3\_group\_1\ X0)\wedge((v4\_vectsp\_1\ X0)\wedge((v5\_vectsp\_1\ X0)\wedge(l6\_algstr\_0\ X0))))))))\Rightarrow(\forall X1.(m1\_modcat\_1\ X1\ X0)\Rightarrow(\forall X2.(m4\_modcat\_1\ X2\ X0\ (k4\_modcat\_1\ X0\ X1))\Rightarrow(\forall X3.(m4\_modcat\_1\ X3\ X0\ (k4\_modcat\_1\ X0\ X1))\Rightarrow((k2\_mod\_2\ X0\ X2 = k3\_mod\_2\ X0\ X3)\Rightarrow(k8\_mod\_2\ X0\ X2\ X3 \in k4\_modcat\_1\ X0\ X1)))))$$