

## t1\_modcat\_1

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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  $v2\_mod\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_mod\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_mod\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m3\_modcat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \neg v1\_xboole\_0 (k1\_tarski X0) \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v3\_group\_1 X0) \wedge ( \\ & (v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge (l6\_algstr\_0 X0)))))))))) \Rightarrow \\ & (\forall X1. (\neg v1\_xboole\_0 X1) \Rightarrow ((m3\_modcat\_1 X1 X0) \Leftrightarrow (\forall X2. \\ & (m1\_subset\_1 X2 X1) \Rightarrow ((v2\_mod\_2 X2 X0) \wedge ((v3\_mod\_2 X2 X0) \wedge (l1\_mod\_2 \\ & X2 X0)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. \forall X1. (X1 = k1\_tarski X0) \Leftrightarrow (\forall X2. (X2 \in X1) \Leftrightarrow (X2 = X0)) \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \Rightarrow ((m1\_subset\_1 X1 X0) \Leftrightarrow \\ & (X1 \in X0))) \wedge ((v1\_xboole\_0 X0) \Rightarrow ((m1\_subset\_1 X1 X0) \Leftrightarrow (v1\_xboole\_0 \\ & X1))) \end{aligned} \tag{4}$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge (v13\_algstr\_0 X0) \wedge (v2\_rlvect\_1 \\ & X0) \wedge (v3\_rlvect\_1 X0) \wedge (v4\_rlvect\_1 X0) \wedge (v3\_group\_1 X0) \wedge \\ & (v4\_vectsp\_1 X0) \wedge (v5\_vectsp\_1 X0) \wedge (l6\_algstr\_0 X0)) \Rightarrow \\ & (\forall X1. ((v2\_mod\_2 X1 X0) \wedge (v3\_mod\_2 X1 X0) \wedge (l1\_mod\_2 X1 X0)) \Rightarrow \\ & (m3\_modcat\_1 (k1\_tarski X1) X0)) \end{aligned}$$