

# l33\_modcat\_1 (TMUHXVTLjMGZstnF- bkHHP17KoJmFyFvrTDo)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_classes2 : \iota \Rightarrow o$  be given. 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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k11\_modcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_graph\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_graph\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_cat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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  $k2\_mod\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  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  $m4\_modcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_modcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_modcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_modcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m3\_modcat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $g1\_cat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_modcat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_modcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_modcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_cat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_cat\_1 : \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_graph\_1 : \iota \Rightarrow \iota$  be given. Let  $u2\_graph\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_cat\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v3\_group\_1 \\
& X0) \wedge ((v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge ((v2\_rlvect\_1 X0) \wedge \\
& ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l6\_algstr\_0 X0)))))))) \Rightarrow \\
& (\forall X1. ((v2\_mod\_2 X1 X0) \wedge ((v3\_mod\_2 X1 X0) \wedge (l1\_mod\_2 X1 X0))) \Rightarrow \\
& (\forall X2. ((v2\_mod\_2 X2 X0) \wedge ((v3\_mod\_2 X2 X0) \wedge (l1\_mod\_2 X2 X0))) \Rightarrow \\
& (\forall X3. ((v2\_mod\_2 X3 X0) \wedge ((v3\_mod\_2 X3 X0) \wedge (l1\_mod\_2 X3 X0))) \Rightarrow \\
& (((k2\_mod\_2 X0 X3 = k3\_mod\_2 X0 X2) \wedge (k2\_mod\_2 X0 X2 = k3\_mod\_2 X0 X1)) \Rightarrow \\
& (k8\_mod\_2 X0 X3 (k8\_mod\_2 X0 X2 X1) = k8\_mod\_2 X0 (k8\_mod\_2 X0 X3 X2) \\
& X1))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1\_xboole\_0 X0) \wedge (v1\_classes2 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 X1) \wedge (( \\
& v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v3\_group\_1 X1) \wedge ((v4\_vectsp\_1 \\
& X1) \wedge ((v5\_vectsp\_1 X1) \wedge (l6\_algstr\_0 X1)))))))) \Rightarrow (\forall X2. \\
& (m1\_subset\_1 X2 (u4\_struct\_0 (k11\_modcat\_1 X0 X1))) \Rightarrow (\forall X3. \\
& (m1\_subset\_1 X3 (u4\_struct\_0 (k11\_modcat\_1 X0 X1))) \Rightarrow (\forall X4. \\
& (m4\_modcat\_1 X4 X1 (k4\_modcat\_1 X1 (k3\_modcat\_1 X0 X1))) \Rightarrow (\forall X5. \\
& (m4\_modcat\_1 X5 X1 (k4\_modcat\_1 X1 (k3\_modcat\_1 X0 X1))) \Rightarrow (((X2 = \\
& X4) \wedge (X3 = X5)) \Rightarrow (((k3\_graph\_1 (k11\_modcat\_1 X0 X1) X3 = k4\_graph\_1 \\
& (k11\_modcat\_1 X0 X1) X2) \Rightarrow (k2\_mod\_2 X1 X5 = k3\_mod\_2 X1 X4)) \wedge (((k2\_mod\_2 \\
& X1 X5 = k3\_mod\_2 X1 X4) \Rightarrow (k3\_graph\_1 (k11\_modcat\_1 X0 X1) X3 = k4\_graph\_1 \\
& (k11\_modcat\_1 X0 X1) X2)) \wedge (((k3\_graph\_1 (k11\_modcat\_1 X0 X1) X3 = \\
& k4\_graph\_1 (k11\_modcat\_1 X0 X1) X2) \Rightarrow (k4\_tarski X5 X4 \in k1\_relset\_1 \\
& (k2\_zfmisc\_1 (k4\_modcat\_1 X1 (k3\_modcat\_1 X0 X1)) (k4\_modcat\_1 \\
& X1 (k3\_modcat\_1 X0 X1))) (k10\_modcat\_1 X1 (k3\_modcat\_1 X0 X1)))) \wedge \\
& (((k4\_tarski X5 X4 \in k1\_relset\_1 (k2\_zfmisc\_1 (k4\_modcat\_1 X1 ( \\
& k3\_modcat\_1 X0 X1)) (k4\_modcat\_1 X1 (k3\_modcat\_1 X0 X1))) (k10\_modcat\_1 \\
& X1 (k3\_modcat\_1 X0 X1))) \Rightarrow (k3\_graph\_1 (k11\_modcat\_1 X0 X1) X3 = k4\_graph\_1 \\
& (k11\_modcat\_1 X0 X1) X2)) \wedge (((k3\_graph\_1 (k11\_modcat\_1 X0 X1) X3 = \\
& k4\_graph\_1 (k11\_modcat\_1 X0 X1) X2) \Rightarrow (k1\_cat\_1 (k11\_modcat\_1 X0 \\
& X1) X2 X3 = k8\_mod\_2 X1 X5 X4)) \wedge (((k3\_graph\_1 (k11\_modcat\_1 X0 X1) \\
& X2 = k3\_graph\_1 (k11\_modcat\_1 X0 X1) X3) \Rightarrow (k2\_mod\_2 X1 X4 = k2\_mod\_2 \\
& X1 X5)) \wedge (((k2\_mod\_2 X1 X4 = k2\_mod\_2 X1 X5) \Rightarrow (k3\_graph\_1 (k11\_modcat\_1 \\
& X0 X1) X2 = k3\_graph\_1 (k11\_modcat\_1 X0 X1) X3)) \wedge (((k4\_graph\_1 ( \\
& k11\_modcat\_1 X0 X1) X2 = k4\_graph\_1 (k11\_modcat\_1 X0 X1) X3) \Rightarrow (k3\_mod\_2 \\
& X1 X4 = k3\_mod\_2 X1 X5)) \wedge ((k3\_mod\_2 X1 X4 = k3\_mod\_2 X1 X5) \Rightarrow (k4\_graph\_1 \\
& (k11\_modcat\_1 X0 X1) X2 = k4\_graph\_1 (k11\_modcat\_1 X0 X1) X3))))))))))))) \\
& \hspace{15em} (2)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge \\
& ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v3\_group\_1 \\
& X0) \wedge ((v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge (l6\_algstr\_0 X0)))))))) \wedge \\
& (m3\_modcat\_1 X1 X0)) \Rightarrow (\forall X2. (m4\_modcat\_1 X2 X0 X1) \Leftrightarrow (m1\_subset\_1 \\
& X2 X1)) \\
& \hspace{15em} (3)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1\_xboole\_0 X0) \wedge (v1\_classes2 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 X1) \wedge (( \\
& v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v3\_group\_1 X1) \wedge ((v4\_vectsp\_1 \\
& X1) \wedge ((v5\_vectsp\_1 X1) \wedge (l6\_algstr\_0 X1)))))))) \Rightarrow (\forall X2. \\
& (m1\_subset\_1 X2 (u4\_struct\_0 (k11\_modcat\_1 X0 X1))) \Rightarrow (\forall X3. \\
& (m1\_subset\_1 X3 (u4\_struct\_0 (k11\_modcat\_1 X0 X1))) \Rightarrow ((k3\_graph\_1 \\
& (k11\_modcat\_1 X0 X1) X3 = k4\_graph\_1 (k11\_modcat\_1 X0 X1) X2) \Rightarrow (( \\
& k3\_graph\_1 (k11\_modcat\_1 X0 X1) (k1\_cat\_1 (k11\_modcat\_1 X0 X1) \\
& X2 X3) = k3\_graph\_1 (k11\_modcat\_1 X0 X1) X2) \wedge (k4\_graph\_1 (k11\_modcat\_1 \\
& X0 X1) (k1\_cat\_1 (k11\_modcat\_1 X0 X1) X2 X3) = k4\_graph\_1 (k11\_modcat\_1 \\
& X0 X1) X3))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. (((v1\_funct\_1 \\
& X2) \wedge ((v1\_funct\_2 X2 X1 X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& X1 X0)))))) \wedge (((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 X1 X0) \wedge (m1\_subset\_1 \\
& X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X1 X0)))))) \wedge ((v1\_funct\_1 X4) \wedge (m1\_subset\_1 \\
& X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X1 X1) X1)))))) \Rightarrow (\forall X5. \\
& \forall X6. \forall X7. \forall X8. \forall X9. (g1\_cat\_1 X0 X1 X2 \\
& X3 X4 = g1\_cat\_1 X5 X6 X7 X8 X9) \Rightarrow ((X0 = X5) \wedge ((X1 = X6) \wedge ((X2 = X7) \wedge ((X3 = \\
& X8) \wedge (X4 = X9))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge \\
& ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v3\_group\_1 \\
& X0) \wedge ((v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge (l6\_algstr\_0 X0)))))))))) \wedge \\
& (m3\_modcat\_1 X1 X0) \Rightarrow (\forall X2. (m4\_modcat\_1 X2 X0 X1) \Rightarrow ((v3\_mod\_2 \\
& X2 X0) \wedge (l1\_mod\_2 X2 X0)))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge \\
& ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v3\_group\_1 \\
& X0) \wedge ((v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge (l6\_algstr\_0 X0)))))))))) \wedge \\
& (m1\_modcat\_1 X1 X0) \Rightarrow ((v1\_funct\_1 (k9\_modcat\_1 X0 X1)) \wedge ((v1\_funct\_2 \\
& (k9\_modcat\_1 X0 X1) (k4\_modcat\_1 X0 X1) X1) \wedge (m1\_subset\_1 (k9\_modcat\_1 \\
& X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k4\_modcat\_1 X0 X1) X1))))))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge \\ & ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v3\_group\_1 \\ & X0) \wedge ((v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge (l6\_algstr\_0 X0))))))))) \wedge \\ & (m1\_modcat\_1 X1 X0)) \Rightarrow ((v1\_funct\_1 (k8\_modcat\_1 X0 X1)) \wedge ((v1\_funct\_2 \\ & (k8\_modcat\_1 X0 X1) (k4\_modcat\_1 X0 X1) X1) \wedge (m1\_subset\_1 (k8\_modcat\_1 \\ & X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k4\_modcat\_1 X0 X1) X1)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge \\ & ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v3\_group\_1 \\ & X0) \wedge ((v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge (l6\_algstr\_0 X0))))))))) \wedge \\ & (m1\_modcat\_1 X1 X0)) \Rightarrow (m3\_modcat\_1 (k4\_modcat\_1 X0 X1) X0) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v1\_xboole\_0 X0) \wedge (v1\_classes2 X0)) \wedge \\ & ((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 X1) \wedge (( \\ & v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v3\_group\_1 X1) \wedge ((v4\_vectsp\_1 \\ & X1) \wedge ((v5\_vectsp\_1 X1) \wedge (l6\_algstr\_0 X1))))))))) \Rightarrow (m1\_modcat\_1 \\ & (k3\_modcat\_1 X0 X1) X1) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((l1\_cat\_1 X0) \wedge ((m1\_subset\_1 \\ & X1 (u4\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (u4\_struct\_0 X0)))) \Rightarrow (m1\_subset\_1 \\ & (k1\_cat\_1 X0 X1 X2) (u4\_struct\_0 X0)) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v1\_xboole\_0 X0) \wedge (v1\_classes2 X0)) \wedge \\ & ((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 X1) \wedge (( \\ & v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v3\_group\_1 X1) \wedge ((v4\_vectsp\_1 \\ & X1) \wedge ((v5\_vectsp\_1 X1) \wedge (l6\_algstr\_0 X1))))))))) \Rightarrow ((v1\_cat\_1 \\ & (k11\_modcat\_1 X0 X1)) \wedge (l1\_cat\_1 (k11\_modcat\_1 X0 X1))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge \\ & ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v3\_group\_1 \\ & X0) \wedge ((v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge (l6\_algstr\_0 X0))))))))) \wedge \\ & (m1\_modcat\_1 X1 X0)) \Rightarrow ((v1\_funct\_1 (k10\_modcat\_1 X0 X1)) \wedge (m1\_subset\_1 \\ & (k10\_modcat\_1 X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 ( \\ & k4\_modcat\_1 X0 X1) (k4\_modcat\_1 X0 X1)) (k4\_modcat\_1 X0 X1)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1\_xboole\_0 X0) \wedge (v1\_classes2 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 X1) \wedge (( \\
& v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v3\_group\_1 X1) \wedge ((v4\_vectsp\_1 \\
& X1) \wedge ((v5\_vectsp\_1 X1) \wedge (l6\_algstr\_0 X1)))))))) \Rightarrow (k11\_modcat\_1 \\
& X0 X1 = g1\_cat\_1 (k3\_modcat\_1 X0 X1) (k4\_modcat\_1 X1 (k3\_modcat\_1 \\
& X0 X1)) (k8\_modcat\_1 X1 (k3\_modcat\_1 X0 X1)) (k9\_modcat\_1 X1 (k3\_modcat\_1 \\
& X0 X1)) (k10\_modcat\_1 X1 (k3\_modcat\_1 X0 X1)))
\end{aligned} \tag{14}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v1\_xboole\_0 X0) \wedge (v1\_classes2 X0)) \wedge \\
& ((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 X1) \wedge (( \\
& v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v3\_group\_1 X1) \wedge ((v4\_vectsp\_1 \\
& X1) \wedge ((v5\_vectsp\_1 X1) \wedge (l6\_algstr\_0 X1)))))))) \Rightarrow (\forall X2. \\
& (m1\_subset\_1 X2 (k4\_modcat\_1 X1 (k3\_modcat\_1 X0 X1))) \Rightarrow (v2\_mod\_2 \\
& X2 X1))
\end{aligned} \tag{15}$$

Assume the following.

$$\begin{aligned}
& \forall X0. (l1\_cat\_1 X0) \Rightarrow ((v1\_cat\_1 X0) \Rightarrow (X0 = g1\_cat\_1 (u1\_struct\_0 \\
& X0) (u4\_struct\_0 X0) (u1\_graph\_1 X0) (u2\_graph\_1 X0) (u1\_cat\_1 \\
& X0)))
\end{aligned} \tag{16}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0. ((\neg v1\_xboole\_0 X0) \wedge (v1\_classes2 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 X1) \wedge (( \\
& v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v3\_group\_1 X1) \wedge ((v4\_vectsp\_1 \\
& X1) \wedge ((v5\_vectsp\_1 X1) \wedge (l6\_algstr\_0 X1)))))))) \Rightarrow (\forall X2. \\
& (m1\_subset\_1 X2 (u4\_struct\_0 (k11\_modcat\_1 X0 X1))) \Rightarrow (\forall X3. \\
& (m1\_subset\_1 X3 (u4\_struct\_0 (k11\_modcat\_1 X0 X1))) \Rightarrow (\forall X4. \\
& (m1\_subset\_1 X4 (u4\_struct\_0 (k11\_modcat\_1 X0 X1))) \Rightarrow (((k3\_graph\_1 \\
& (k11\_modcat\_1 X0 X1) X4 = k4\_graph\_1 (k11\_modcat\_1 X0 X1) X3) \wedge (k3\_graph\_1 \\
& (k11\_modcat\_1 X0 X1) X3 = k4\_graph\_1 (k11\_modcat\_1 X0 X1) X2)) \Rightarrow ( \\
& k1\_cat\_1 (k11\_modcat\_1 X0 X1) (k1\_cat\_1 (k11\_modcat\_1 X0 X1) X2 \\
& X3) X4 = k1\_cat\_1 (k11\_modcat\_1 X0 X1) X2 (k1\_cat\_1 (k11\_modcat\_1 \\
& X0 X1) X3 X4))))))
\end{aligned}$$