

## t31\_functor0

(TMdzF676XQseKm2bEQ82djqhB8wEGnZLK1G)

October 27, 2020

Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_altcat\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_altcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $v8\_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v10\_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l2\_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k11\_functor0 : \iota \Rightarrow \iota$  be given. Let  $k6\_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_altcat\_1 X0)) \Rightarrow (\forall X1. \\
 & (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\
 & (u1\_struct\_0 X0)) \Rightarrow ((k1\_altcat\_1 X0 X1 X2 \neq k1\_xboole\_0) \Rightarrow (\forall X3. \\
 & (m1\_subset\_1 X3 (k1\_altcat\_1 X0 X1 X2)) \Rightarrow (k1\_funct\_1 (k4\_functor0 \\
 & X0 X0 (k11\_functor0 X0) X1 X2) X3 = X3))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. (((\neg v2\_struct\_0 \\
 & X0) \wedge (l1\_altcat\_1 X0)) \wedge (((\neg v2\_struct\_0 X1) \wedge (l1\_altcat\_1 X1)) \wedge \\
 & (((v10\_functor0 X2 X0 X1) \wedge (l2\_functor0 X2 X0 X1)) \wedge ((m1\_subset\_1 \\
 & X3 (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X4 (u1\_struct\_0 X0)))))) \Rightarrow ( \\
 & k5\_functor0 X0 X1 X2 X3 X4 = k4\_functor0 X0 X1 X2 X3 X4)
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_altcat\_1 X0)) \Rightarrow (\forall X1. \\
 & ((\neg v2\_struct\_0 X1) \wedge (l1\_altcat\_1 X1)) \Rightarrow (\forall X2.((v10\_functor0 \\
 & X2 X0 X1) \wedge (l2\_functor0 X2 X0 X1)) \Rightarrow ((v8\_functor0 X2 X0 X1) \Leftrightarrow (\forall X3. \\
 & (m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 \\
 & (u1\_struct\_0 X0)) \Rightarrow (\neg(k1\_altcat\_1 X0 X3 X4 \neq k1\_xboole\_0) \wedge (k1\_altcat\_1 \\
 & X1 (k3\_functor0 X0 X1 X2 X3) (k3\_functor0 X0 X1 X2 X4) = k1\_xboole\_0))))))
 \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_altcat\_1 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2\_struct\_0 X1) \wedge (l1\_altcat\_1 X1)) \Rightarrow (\forall X2.((v10\_functor0 \\
& X2 X0 X1) \wedge (l2\_functor0 X2 X0 X1)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 ( \\
& u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow \\
& (\neg(k1\_altcat\_1 X0 X3 X4 \neq k1\_xboole\_0) \wedge ((k1\_altcat\_1 X1 (k3\_functor0 \\
& X0 X1 X2 X3) (k3\_functor0 X0 X1 X2 X4) \neq k1\_xboole\_0) \wedge (\neg \forall X5. \\
& (m1\_subset\_1 X5 (k1\_altcat\_1 X0 X3 X4)) \Rightarrow (k6\_functor0 X0 X1 X2 X3 \\
& X4 X5 = k1\_funct\_1 (k5\_functor0 X0 X1 X2 X3 X4) X5)))))))))
\end{aligned} \tag{4}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_altcat\_1 X0)) \Rightarrow (\forall X1. \\
& (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\
& (u1\_struct\_0 X0)) \Rightarrow ((k1\_altcat\_1 X0 X1 X2 \neq k1\_xboole\_0) \Rightarrow (\forall X3. \\
& ((v8\_functor0 X3 X0 X0) \wedge ((v10\_functor0 X3 X0 X0) \wedge (l2\_functor0 \\
& X3 X0 X0))) \Rightarrow ((X3 = k11\_functor0 X0) \Rightarrow (\forall X4.(m1\_subset\_1 X4 \\
& (k1\_altcat\_1 X0 X1 X2)) \Rightarrow (k6\_functor0 X0 X0 X3 X1 X2 X4 = X4)))))))))
\end{aligned}$$