

t3_functor2 (TMFuPRGYJakN- cUSBY1D2cHgXo7niMQ3EXrk)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_altcat_1 : \iota \Rightarrow o$ be given. Let $v12_altcat_1 : \iota \Rightarrow o$ be given. Let $l2_altcat_1 : \iota \Rightarrow o$ be given. Let $m2_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_functor2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_functor2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k2_functor2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r8_pboole : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $l1_altcat_1 : \iota \Rightarrow o$ be given. Let $k1_altcat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge \\ & (v1_funct_1 X1) \wedge (v1_partfun1 X1 X0))) \Rightarrow (\forall X2. ((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X0)))) \Rightarrow \\ & ((\forall X3. (X3 \in X0) \Rightarrow (k1_funct_1 X1 X3 = k1_funct_1 X2 X3)) \Rightarrow (X1 = \\ & X2))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1_subset_1 X0 X1) \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (((v1_relat_1 \\ & X1) \wedge ((v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 X0)))) \wedge \\ & ((v1_relat_1 X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 \\ & X2 X0)))))) \Rightarrow ((r8_pboole X0 X1 X2) \Leftrightarrow (X1 = X2)) \end{aligned} \tag{3}$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 (u1_struct_0 X0)) \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v2_struct_0 \\ & X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 X0) \wedge (l2_altcat_1 X0)))) \wedge \\ & (((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge ((v12_altcat_1 X1) \wedge \\ & l2_altcat_1 X1)))) \wedge ((m2_functor0 X2 X0 X1) \wedge (m2_functor0 X3 X0 \\ & X1))) \Rightarrow (\forall X4. (m1_functor2 X4 X0 X1 X2 X3) \Rightarrow ((v1_relat_1 X4) \wedge \\ & ((v4_relat_1 X4 (u1_struct_0 X0)) \wedge ((v1_funct_1 X4) \wedge (v1_partfun1 \\ & X4 (u1_struct_0 X0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0. (l2_altcat_1 X0) \Rightarrow (l1_altcat_1 X0) \quad (6)$$

Assume the following.

$$\forall X0. (l1_altcat_1 X0) \Rightarrow (l1_struct_0 X0) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\ & (((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 X0) \wedge \\ & l2_altcat_1 X0)))) \wedge (((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 X1) \wedge \\ & (v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \wedge ((m2_functor0 X2 X0 X1) \wedge \\ & ((m2_functor0 X3 X0 X1) \wedge ((m1_functor2 X4 X0 X1 X2 X3) \wedge (m1_subset_1 \\ & X5 (u1_struct_0 X0)))))) \Rightarrow (m1_subset_1 (k2_functor2 X0 X1 X2 X3 \\ & X4 X5) (k1_altcat_1 X1 (k3_functor0 X0 X1 X2 X5) (k3_functor0 X0 X1 \\ & X3 X5))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 \\ & X0) \wedge (l2_altcat_1 X0)))) \Rightarrow (\forall X1. ((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 \\ & X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2. (m2_functor0 \\ & X2 X0 X1) \Rightarrow (\forall X3. (m2_functor0 X3 X0 X1) \Rightarrow ((r1_functor2 X0 X1 \\ & X2 X3) \Rightarrow (\forall X4. (m1_functor2 X4 X0 X1 X2 X3) \Rightarrow (\forall X5. (m1_subset_1 \\ & X5 (u1_struct_0 X0)) \Rightarrow (\forall X6. (m1_subset_1 X6 (k1_altcat_1 \\ & X1 (k3_functor0 X0 X1 X2 X5) (k3_functor0 X0 X1 X3 X5))) \Rightarrow ((X6 = k2_functor2 \\ & X0 X1 X2 X3 X4 X5) \Leftrightarrow (X6 = k1_funct_1 X4 X5))))))))) \end{aligned} \quad (9)$$

Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v2_altcat_1 X0) \wedge ((v12_altcat_1 \\ & X0) \wedge (l2_altcat_1 X0)))) \Rightarrow (\forall X1. ((\neg v2_struct_0 X1) \wedge ((v2_altcat_1 \\ & X1) \wedge ((v12_altcat_1 X1) \wedge (l2_altcat_1 X1)))) \Rightarrow (\forall X2. (m2_functor0 \\ & X2 X0 X1) \Rightarrow (\forall X3. (m2_functor0 X3 X0 X1) \Rightarrow ((r1_functor2 X0 X1 \\ & X2 X3) \Rightarrow (\forall X4. (m1_functor2 X4 X0 X1 X2 X3) \Rightarrow (\forall X5. (m1_functor2 \\ & X5 X0 X1 X2 X3) \Rightarrow ((\forall X6. (m1_subset_1 X6 (u1_struct_0 X0)) \Rightarrow \\ & (k2_functor2 X0 X1 X2 X3 X4 X6 = k2_functor2 X0 X1 X2 X3 X5 X6)) \Rightarrow (r8_pboole \\ & (u1_struct_0 X0) X4 X5))))))))) \end{aligned}$$