

## t2\_yellow\_6

(TMX8G66EWQT88JnKXhRpqTjiiqdpWQs31P5)

October 27, 2020

Let  $v1\_xboole\_0 : \iota \Rightarrow o$  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  $v2\_pralg\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k12\_pralg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k10\_pralg\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X0) \wedge (((v1\_relat\_1 \\ & X1) \wedge ((v4\_relat\_1 X1 X0) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_partfun1 X1 X0) \wedge \\ & (v2\_pralg\_1 X1)))))) \wedge (m1\_subset\_1 X2 X0))) \Rightarrow (k10\_pralg\_1 X0 X1 \\ & X2 = k1\_funct\_1 X1 X2) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge ( \\ & (v1\_funct\_1 X1) \wedge ((v1\_partfun1 X1 X0) \wedge (v2\_pralg\_1 X1)))))) \Rightarrow (( \\ & v1\_relat\_1 (k12\_pralg\_1 X0 X1)) \wedge ((v4\_relat\_1 (k12\_pralg\_1 X0 \\ & X1) X0) \wedge ((v1\_funct\_1 (k12\_pralg\_1 X0 X1)) \wedge (v1\_partfun1 (k12\_pralg\_1 \\ & X0 X1) X0)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \Rightarrow ((m1\_subset\_1 X1 X0) \Leftrightarrow \\ & (X1 \in X0))) \wedge ((v1\_xboole\_0 X0) \Rightarrow ((m1\_subset\_1 X1 X0) \Leftrightarrow (v1\_xboole\_0 \\ & X1))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge ( \\ & (v1\_funct\_1 X1) \wedge ((v1\_partfun1 X1 X0) \wedge (v2\_pralg\_1 X1)))))) \Rightarrow (\forall X2. \\ & ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 X0) \wedge ((v1\_funct\_1 X2) \wedge (v1\_partfun1 \\ & X2 X0)))) \Rightarrow ((X2 = k12\_pralg\_1 X0 X1) \Leftrightarrow (\forall X3. \neg (X3 \in X0) \wedge (\forall X4. \\ & (l1\_struct\_0 X4) \Rightarrow (\neg (X4 = k1\_funct\_1 X1 X3) \wedge (k1\_funct\_1 X2 X3 = u1\_struct\_0 \\ & X4)))))) \end{aligned} \tag{4}$$

**Theorem 1**

$$\begin{aligned} \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_relat\_1 X1) \wedge \\ (v4\_relat\_1 X1 X0) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_partfun1 X1 X0) \wedge (v2\_pralg\_1 \\ X1)))))) \Rightarrow (\forall X2. (m1\_subset\_1 X2 X0) \Rightarrow (k1\_funct\_1 (k12\_pralg\_1 \\ X0 X1) X2 = u1\_struct\_0 (k10\_pralg\_1 X0 X1 X2))) \end{aligned}$$