

# t26\_mod\_2 (TMGoUUuC- NdVq6J1p39dLhrDH1u5kbBQrsJy)

October 27, 2020

Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l6\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k4\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v6\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v33\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v3\_group\_1 : \iota \Rightarrow o$  be given. Let  $v5\_group\_1 : \iota \Rightarrow o$  be given. Let  $v4\_vectsp\_1 : \iota \Rightarrow o$  be given. Let  $v5\_vectsp\_1 : \iota \Rightarrow o$  be given. Let  $v2\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v3\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v4\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v1\_vectsp\_1 : \iota \Rightarrow o$  be given. Let  $v1\_algstr\_1 : \iota \Rightarrow o$  be given. Let  $v4\_algstr\_1 : \iota \Rightarrow o$  be given. Let  $v7\_algstr\_1 : \iota \Rightarrow o$  be given. Let  $v7\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_zfmisc\_1 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $l5\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l4\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l4\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l3\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l3\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l1\_algstr\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2\_struct\_0 X0) \wedge (l2\_algstr\_0 X0)) \Rightarrow (((\neg v2\_struct\_0 \\
& X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge \\
& ((v4\_rlvect\_1 X0) \wedge (l2\_algstr\_0 X0)))))) \Leftrightarrow ((\forall X1. (m1\_subset\_1 \\
& X1 (u1\_struct\_0 X0)) \Rightarrow (k1\_algstr\_0 X0 X1 (k4\_struct\_0 X0) = X1)) \wedge \\
& ((\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\exists X2. ( \\
& m1\_subset\_1 X2 (u1\_struct\_0 X0)) \wedge (k1\_algstr\_0 X0 X1 X2 = k4\_struct\_0 \\
& X0))) \wedge ((\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\
& (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3. (m1\_subset\_1 X3 \\
& (u1\_struct\_0 X0)) \Rightarrow (k1\_algstr\_0 X0 (k1\_algstr\_0 X0 X1 X2) X3 = k1\_algstr\_0 \\
& X0 X1 (k1\_algstr\_0 X0 X2 X3)))))) \wedge (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 \\
& X0)) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (k1\_algstr\_0 \\
& X0 X1 X2 = k1\_algstr\_0 X0 X2 X1))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v3\_rlvect\_1 \\ & X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v1\_vectsp\_1 X0) \wedge (l6\_algstr\_0 X0)))))) \Rightarrow \\ & (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (k6\_algstr\_0 X0 \\ & X1 (k4\_struct\_0 X0) = k4\_struct\_0 X0)) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l6\_algstr\_0 X0)) \Rightarrow (((\neg v2\_struct\_0 \\ & X0) \wedge ((\neg v6\_struct\_0 X0) \wedge ((v1\_algstr\_1 X0) \wedge ((v4\_algstr\_1 X0) \wedge \\ & ((v7\_algstr\_1 X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 \\ & X0) \wedge ((v3\_group\_1 X0) \wedge ((v5\_group\_1 X0) \wedge ((v4\_vectsp\_1 X0) \wedge (( \\ & v5\_vectsp\_1 X0) \wedge (l6\_algstr\_0 X0)))))))))) \Leftrightarrow ((\forall X1. \\ & (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (k1\_algstr\_0 X0 X1 (k4\_struct\_0 \\ & X0) = X1)) \wedge ((\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\exists X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \wedge (k1\_algstr\_0 X0 X1 X2 = k4\_struct\_0 \\ & X0))) \wedge ((\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\ & (u1\_struct\_0 X0)) \Rightarrow (k1\_algstr\_0 X0 (k1\_algstr\_0 X0 X1 X2) X3 = k1\_algstr\_0 \\ & X0 X1 (k1\_algstr\_0 X0 X2 X3)))))) \wedge ((\forall X1.(m1\_subset\_1 X1 ( \\ & u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow \\ & (k1\_algstr\_0 X0 X1 X2 = k1\_algstr\_0 X0 X2 X1))) \wedge ((k4\_struct\_0 X0 \neq \\ & k5\_struct\_0 X0) \wedge ((\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow \\ & (k6\_algstr\_0 X0 X1 (k5\_struct\_0 X0) = X1)) \wedge ((\forall X1.(m1\_subset\_1 \\ & X1 (u1\_struct\_0 X0)) \Rightarrow (\neg (X1 \neq k4\_struct\_0 X0) \wedge (\forall X2.(m1\_subset\_1 \\ & X2 (u1\_struct\_0 X0)) \Rightarrow (k6\_algstr\_0 X0 X1 X2 \neq k5\_struct\_0 X0)))) \wedge \\ & ((\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (k6\_algstr\_0 \\ & X0 X1 (k4\_struct\_0 X0) = k4\_struct\_0 X0)) \wedge ((\forall X1.(m1\_subset\_1 \\ & X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ & X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (k6\_algstr\_0 \\ & X0 (k6\_algstr\_0 X0 X1 X2) X3 = k6\_algstr\_0 X0 X1 (k6\_algstr\_0 X0 X2 \\ & X3)))))) \wedge ((\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\ & (u1\_struct\_0 X0)) \Rightarrow (k6\_algstr\_0 X0 X1 (k1\_algstr\_0 X0 X2 X3) = k1\_algstr\_0 \\ & X0 (k6\_algstr\_0 X0 X1 X2) (k6\_algstr\_0 X0 X1 X3)))))) \wedge ((\forall X1. \\ & (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\ & (u1\_struct\_0 X0)) \Rightarrow (k6\_algstr\_0 X0 X1 X2 = k6\_algstr\_0 X0 X2 X1)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge (l6\_algstr\_0 X0)) \Rightarrow ((\forall X1. \\
& (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (k6\_algstr\_0 X0 X1 (k5\_struct\_0 \\
& X0 = X1)) \wedge ((\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\neg \\
& X1 \neq k4\_struct\_0 X0) \wedge (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\
& X0)) \Rightarrow (k6\_algstr\_0 X0 X1 X2 \neq k5\_struct\_0 X0)))) \wedge ((\forall X1.( \\
& m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\
& (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow \\
& (k6\_algstr\_0 X0 (k6\_algstr\_0 X0 X1 X2) X3 = k6\_algstr\_0 X0 X1 (k6\_algstr\_0 \\
& X0 X2 X3)))) \wedge (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow ( \\
& k6\_algstr\_0 X0 X1 (k4\_struct\_0 X0) = k4\_struct\_0 X0)))) \Rightarrow ((k4\_struct\_0 \\
& X0 = k5\_struct\_0 X0) \vee (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 \\
& X0)) \Rightarrow (\neg (X1 \neq k4\_struct\_0 X0) \wedge (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\
& X0)) \Rightarrow (k6\_algstr\_0 X0 X2 X1 \neq k5\_struct\_0 X0))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\forall X0.((\neg v7\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_zfmisc\_1 (u1\_struct\_0 X0)) \tag{5}$$

Assume the following.

$$\forall X0.((v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (v1\_xboole\_0 (u1\_struct\_0 X0)) \tag{6}$$

Assume the following.

$$\forall X0. \exists X1. m1\_subset\_1 X1 X0 \tag{7}$$

Assume the following.

$$\forall X0. (l6\_algstr\_0 X0) \Rightarrow ((l2\_algstr\_0 X0) \wedge (l5\_algstr\_0 X0)) \tag{8}$$

Assume the following.

$$\forall X0. (l5\_algstr\_0 X0) \Rightarrow ((l4\_algstr\_0 X0) \wedge (l4\_struct\_0 X0)) \tag{9}$$

Assume the following.

$$\forall X0. (l4\_struct\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l3\_struct\_0 X0)) \tag{10}$$

Assume the following.

$$\forall X0. (l4\_algstr\_0 X0) \Rightarrow ((l3\_struct\_0 X0) \wedge (l3\_algstr\_0 X0)) \tag{11}$$

Assume the following.

$$\forall X0. (l2\_struct\_0 X0) \Rightarrow (l1\_struct\_0 X0) \tag{12}$$

Assume the following.

$$\forall X0.(l2\_algstr\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l1\_algstr\_0 X0)) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.((l2\_algstr\_0 X0) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 X0))) \Rightarrow (m1\_subset\_1 (k4\_algstr\_0 X0 X1) (u1\_struct\_0 X0)) \quad (14)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge (l5\_algstr\_0 X0)) \Rightarrow ((v33\_algstr\_0 \\ X0) \Leftrightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\neg(X1 \neq k4\_struct\_0 \\ X0) \wedge (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (k6\_algstr\_0 \\ X0 X2 X1 \neq k5\_struct\_0 X0)))))) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge (l4\_algstr\_0 X0)) \Rightarrow ((v4\_vectsp\_1 \\ X0) \Leftrightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow ((k6\_algstr\_0 \\ X0 X1 (k5\_struct\_0 X0) = X1) \wedge (k6\_algstr\_0 X0 (k5\_struct\_0 X0) X1 = \\ X1)))) \end{aligned} \quad (16)$$

Assume the following.

$$\forall X0.(l2\_algstr\_0 X0) \Rightarrow ((v4\_rlvect\_1 X0) \Leftrightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (k1\_algstr\_0 X0 X1 (k4\_struct\_0 X0) = X1))) \quad (17)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_algstr\_0 X0) \Rightarrow ((v3\_rlvect\_1 X0) \Leftrightarrow (\forall X1.( \\ m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\ (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow \\ (k1\_algstr\_0 X0 (k1\_algstr\_0 X0 X1 X2) X3 = k1\_algstr\_0 X0 X1 (k1\_algstr\_0 \\ X0 X2 X3)))))) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} \forall X0.(l3\_algstr\_0 X0) \Rightarrow ((v3\_group\_1 X0) \Leftrightarrow (\forall X1.(m1\_subset\_1 \\ X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (k6\_algstr\_0 \\ X0 (k6\_algstr\_0 X0 X1 X2) X3 = k6\_algstr\_0 X0 X1 (k6\_algstr\_0 X0 X2 \\ X3)))))) \end{aligned} \quad (19)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge (l6\_algstr\_0 X0)) \Rightarrow ((v1\_vectsp\_1 \\ X0) \Leftrightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\ (u1\_struct\_0 X0)) \Rightarrow (k6\_algstr\_0 X0 X1 (k1\_algstr\_0 X0 X2 X3) = k1\_algstr\_0 \\ X0 (k6\_algstr\_0 X0 X1 X2) (k6\_algstr\_0 X0 X1 X3)))))) \end{aligned} \quad (20)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_algstr\_0 X0) \Rightarrow ((v2\_rlvect\_1 X0) \Leftrightarrow (\forall X1.( \\ m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\ (u1\_struct\_0 X0)) \Rightarrow (k1\_algstr\_0 X0 X1 X2 = k1\_algstr\_0 X0 X2 X1)))) \end{aligned} \quad (21)$$

Assume the following.

$$\begin{aligned} \forall X0.(l3\_algstr\_0 X0) \Rightarrow ((v5\_group\_1 X0) \Leftrightarrow (\forall X1.(m1\_subset\_1 \\ X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ X0)) \Rightarrow (k6\_algstr\_0 X0 X1 X2 = k6\_algstr\_0 X0 X2 X1)))) \end{aligned} \quad (22)$$

Assume the following.

$$\forall X0.(l4\_struct\_0 X0) \Rightarrow ((\neg v6\_struct\_0 X0) \Rightarrow (\neg v7\_struct\_0 X0)) \quad (23)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (v1\_zfmisc\_1 X0) \quad (24)$$

### Theorem 1

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge (l6\_algstr\_0 X0)) \Rightarrow ((\forall X1. \\ (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\ (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow \\ ((k1\_algstr\_0 X0 X1 X2 = k1\_algstr\_0 X0 X2 X1) \wedge ((k1\_algstr\_0 X0 ( \\ k1\_algstr\_0 X0 X1 X2) X3 = k1\_algstr\_0 X0 X1 (k1\_algstr\_0 X0 X2 X3)) \wedge \\ ((k1\_algstr\_0 X0 X1 (k4\_struct\_0 X0) = X1) \wedge ((k1\_algstr\_0 X0 X1 ( \\ k4\_algstr\_0 X0 X1) = k4\_struct\_0 X0) \wedge ((k6\_algstr\_0 X0 X1 X2 = k6\_algstr\_0 \\ X0 X2 X1) \wedge ((k6\_algstr\_0 X0 (k6\_algstr\_0 X0 X1 X2) X3 = k6\_algstr\_0 \\ X0 X1 (k6\_algstr\_0 X0 X2 X3)) \wedge ((k6\_algstr\_0 X0 (k5\_struct\_0 X0) \\ X1 = X1) \wedge ((k6\_algstr\_0 X0 X1 (k5\_struct\_0 X0) = X1) \wedge ((\neg (X1 \neq k4\_struct\_0 \\ X0) \wedge (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow (k6\_algstr\_0 \\ X0 X1 X4 \neq k5\_struct\_0 X0)))) \wedge ((k4\_struct\_0 X0 \neq k5\_struct\_0 X0) \wedge \\ (k6\_algstr\_0 X0 X1 (k1\_algstr\_0 X0 X2 X3) = k1\_algstr\_0 X0 (k6\_algstr\_0 \\ X0 X1 X2) (k6\_algstr\_0 X0 X1 X3)))))))))) \Rightarrow ((\neg v2\_struct\_0 \\ X0) \wedge ((\neg v6\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v33\_algstr\_0 X0) \wedge \\ ((v3\_group\_1 X0) \wedge ((v5\_group\_1 X0) \wedge ((v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 \\ X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge \\ (l6\_algstr\_0 X0)))))))))))))) \end{aligned}$$