

t21\_xboole\_1

(TMVjS8JNcyxXLv7mCkAGyNdvfj4cWm7gymE)

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Let  $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. (X2 = k3\_xboole\_0 X0 X1) \Leftrightarrow (\forall X3. \\ (X3 \in X2) \Leftrightarrow ((X3 \in X0) \wedge (X3 \in X1))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. (X2 = k2\_xboole\_0 X0 X1) \Leftrightarrow (\forall X3. \\ (X3 \in X2) \Leftrightarrow ((X3 \in X0) \vee (X3 \in X1))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. k2\_xboole\_0 X0 X1 = k2\_xboole\_0 X1 X0 \quad (3)$$

**Theorem 1**  $\forall X0. \forall X1. k3\_xboole\_0 X0 (k2\_xboole\_0 X0 X1) = X0.$