

t67\_arytm\_3  
(TMU3YyoUSoikVxBBXch24xDvgbHbQMKS3Y)

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Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_arytm\_3 : \iota$  be given. Let  $r3\_arytm\_3 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_arytm\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0.(m1\_subset\_1 X0 k5\_arytm\_3) \Rightarrow (\forall X1.(m1\_subset\_1 \\ X1 k5\_arytm\_3) \Rightarrow (\forall X2.(m1\_subset\_1 X2 k5\_arytm\_3) \Rightarrow (k9\_arytm\_3 \\ (k9\_arytm\_3 X0 X1) X2 = k9\_arytm\_3 X0 (k9\_arytm\_3 X1 X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((m1\_subset\_1 X0 k5\_arytm\_3) \wedge (m1\_subset\_1 \\ X1 k5\_arytm\_3)) \Rightarrow (m1\_subset\_1 (k9\_arytm\_3 X0 X1) k5\_arytm\_3) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1\_subset\_1 X0 k5\_arytm\_3) \Rightarrow (\forall X1.(m1\_subset\_1 \\ X1 k5\_arytm\_3) \Rightarrow ((r3\_arytm\_3 X0 X1) \Leftrightarrow (\exists X2.(m1\_subset\_1 \\ X2 k5\_arytm\_3) \wedge (X1 = k9\_arytm\_3 X0 X2)))) \end{aligned} \quad (3)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(m1\_subset\_1 X0 k5\_arytm\_3) \Rightarrow (\forall X1.(m1\_subset\_1 \\ X1 k5\_arytm\_3) \Rightarrow (\forall X2.(m1\_subset\_1 X2 k5\_arytm\_3) \Rightarrow (((r3\_arytm\_3 \\ X0 X1) \wedge (r3\_arytm\_3 X1 X2)) \Rightarrow (r3\_arytm\_3 X0 X2)))) \end{aligned}$$