

t9\_cqc\_the3 (TMXxhJd-  
NaHQMq76NWUPDfhNiaEKcfiqWT5M)

October 27, 2020

Let  $m1\_qc\_lang1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k3\_cqc\_lang : \iota \Rightarrow \iota$  be given. Let  $r2\_cqc\_the3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_cqc\_the1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1 \\ (k3\_cqc\_lang\ X0))) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1 \\ (k3\_cqc\_lang\ X0))) \Rightarrow ((r2\_cqc\_the3\ X0\ X1\ X2) \Leftrightarrow (r1\_tarski\ X2\ (k1\_cqc\_the1 \\ X0\ X1)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1 \\ (k3\_cqc\_lang\ X0))) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1 \\ (k3\_cqc\_lang\ X0))) \Rightarrow ((r1\_tarski\ X1\ (k1\_cqc\_the1\ X0\ X2)) \Rightarrow (r1\_tarski \\ (k1\_cqc\_the1\ X0\ X1)\ (k1\_cqc\_the1\ X0\ X2)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((r1\_tarski\ X0\ X1) \wedge (r1\_tarski\ X1\ X2)) \Rightarrow (r1\_tarski\ X0\ X2) \tag{3}$$

**Theorem 1**

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1 \\ (k3\_cqc\_lang\ X0))) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1 \\ (k3\_cqc\_lang\ X0))) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (k1\_zfmisc\_1 \\ (k3\_cqc\_lang\ X0))) \Rightarrow (((r2\_cqc\_the3\ X0\ X1\ X2) \wedge (r2\_cqc\_the3\ X0\ X2 \\ X3)) \Rightarrow (r2\_cqc\_the3\ X0\ X1\ X3)))))) \end{aligned}$$