

## t34\_cqc\_the1

(TMFb5CwwaYqpKXGZyXNMzj16vt4vX8HSaZD)

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  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_cqc\_the1 : \iota$  be given. Let  $r2\_cqc\_the1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_cqc\_the1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_cqc\_the1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k3\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k13\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k24\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k11\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_cqc\_lang : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k9\_qc\_lang1 \\
 & \quad X0)) \Rightarrow (\forall X2.(m2\_subset\_1 X2 (k2\_qc\_lang1 X0) (k3\_qc\_lang1 \\
 & \quad X0)) \Rightarrow (\forall X3.(m2\_subset\_1 X3 (k2\_qc\_lang1 X0) (k3\_qc\_lang1 \\
 & \quad X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (k1\_zfmisc\_1 (k3\_cqc\_lang X0))) \Rightarrow \\
 & \quad (((k13\_cqc\_lang X0 X1 X2 \in k3\_cqc\_lang X0) \wedge ((k13\_cqc\_lang X0 X1 \\
 & \quad X3 \in k3\_cqc\_lang X0) \wedge (k13\_cqc\_lang X0 X1 X2 \in ReplSep (toset (\lambda X5 : \\
 & \quad \iota.m2\_subset\_1 X5 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)))) (\lambda X5 : \\
 & \quad \iota.\exists X6.(m2\_finseq\_1 X6 (k2\_zfmisc\_1 (k3\_cqc\_lang X0) \\
 & \quad k2\_cqc\_the1)) \wedge ((r2\_cqc\_the1 X0 X4 X6) \wedge (k3\_cqc\_the1 X0 X6 = X5))) \\
 & \quad (\lambda X5 : \iota.X5)))))) \Rightarrow ((X2 \in k24\_qc\_lang1 X0 X1) \vee (k13\_cqc\_lang \\
 & \quad X0 X1 X3 \in ReplSep (toset (\lambda X5 : \iota.m2\_subset\_1 X5 (k9\_qc\_lang1 \\
 & \quad X0) (k3\_cqc\_lang X0)))) (\lambda X5 : \iota.\exists X6.(m2\_finseq\_1 X6 \\
 & \quad (k2\_zfmisc\_1 (k3\_cqc\_lang X0) k2\_cqc\_the1)) \wedge ((r2\_cqc\_the1 X0 \\
 & \quad X4 X6) \wedge (k3\_cqc\_the1 X0 X6 = X5))) (\lambda X5 : \iota.X5)))))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\
& \quad X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1 \\
& \quad X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X3.(m2\_subset\_1\ X3\ (k2\_qc\_lang1 \\
& \quad X0)\ (k3\_qc\_lang1\ X0)) \Rightarrow (\forall X4.(m1\_subset\_1\ X4\ (k1\_zfmisc\_1 \\
& \quad (k3\_cqc\_lang\ X0))) \Rightarrow ((k8\_cqc\_lang\ X0\ X1\ X2 \in ReplSep\ (toset\ (\lambda X5 : \\
& \quad \iota.m2\_subset\_1\ X5\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)))\ (\lambda X5 : \\
& \quad \iota.\exists X6.(m2\_finseq\_1\ X6\ (k2\_zfmisc\_1\ (k3\_cqc\_lang\ X0) \\
& \quad k2\_cqc\_the1)) \wedge ((r2\_cqc\_the1\ X0\ X4\ X6) \wedge (k3\_cqc\_the1\ X0\ X6 = X5))) \\
& \quad (\lambda X5 : \iota.X5)) \Rightarrow ((X3 \in k24\_qc\_lang1\ X0\ X1) \vee (k8\_cqc\_lang\ X0\ X1 \\
& \quad (k11\_cqc\_lang\ X0\ X3\ X2) \in ReplSep\ (toset\ (\lambda X5 : \iota.m2\_subset\_1 \\
& \quad X5\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)))\ (\lambda X5 : \iota.\exists X6. \\
& \quad (m2\_finseq\_1\ X6\ (k2\_zfmisc\_1\ (k3\_cqc\_lang\ X0)\ k2\_cqc\_the1)) \wedge \\
& \quad ((r2\_cqc\_the1\ X0\ X4\ X6) \wedge (k3\_cqc\_the1\ X0\ X6 = X5)))\ (\lambda X5 : \iota. \\
& \quad X5))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\
& \quad X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k2\_qc\_lang1 \\
& \quad X0)\ (k3\_qc\_lang1\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (k1\_zfmisc\_1 \\
& \quad (k3\_cqc\_lang\ X0))) \Rightarrow (k8\_cqc\_lang\ X0\ (k11\_cqc\_lang\ X0\ X2\ X1)\ X1 \in \\
& \quad ReplSep\ (toset\ (\lambda X4 : \iota.m2\_subset\_1\ X4\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang \\
& \quad X0)))\ (\lambda X4 : \iota.\exists X5.(m2\_finseq\_1\ X5\ (k2\_zfmisc\_1\ (k3\_cqc\_lang \\
& \quad X0)\ k2\_cqc\_the1)) \wedge ((r2\_cqc\_the1\ X0\ X3\ X5) \wedge (k3\_cqc\_the1\ X0\ X5 = \\
& \quad X4)))\ (\lambda X4 : \iota.X4))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\
& \quad X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1 \\
& \quad X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (k1\_zfmisc\_1 \\
& \quad (k3\_cqc\_lang\ X0))) \Rightarrow (((X1 \in ReplSep\ (toset\ (\lambda X4 : \iota.m2\_subset\_1 \\
& \quad X4\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)))\ (\lambda X4 : \iota.\exists X5. \\
& \quad (m2\_finseq\_1\ X5\ (k2\_zfmisc\_1\ (k3\_cqc\_lang\ X0)\ k2\_cqc\_the1)) \wedge \\
& \quad ((r2\_cqc\_the1\ X0\ X3\ X5) \wedge (k3\_cqc\_the1\ X0\ X5 = X4)))\ (\lambda X4 : \iota. \\
& \quad X4)) \wedge (k8\_cqc\_lang\ X0\ X1\ X2 \in ReplSep\ (toset\ (\lambda X4 : \iota.m2\_subset\_1 \\
& \quad X4\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)))\ (\lambda X4 : \iota.\exists X5. \\
& \quad (m2\_finseq\_1\ X5\ (k2\_zfmisc\_1\ (k3\_cqc\_lang\ X0)\ k2\_cqc\_the1)) \wedge \\
& \quad ((r2\_cqc\_the1\ X0\ X3\ X5) \wedge (k3\_cqc\_the1\ X0\ X5 = X4)))\ (\lambda X4 : \iota. \\
& \quad X4)) \Rightarrow (X2 \in ReplSep\ (toset\ (\lambda X4 : \iota.m2\_subset\_1\ X4\ (k9\_qc\_lang1 \\
& \quad X0)\ (k3\_cqc\_lang\ X0)))\ (\lambda X4 : \iota.\exists X5.(m2\_finseq\_1\ X5 \\
& \quad (k2\_zfmisc\_1\ (k3\_cqc\_lang\ X0)\ k2\_cqc\_the1)) \wedge ((r2\_cqc\_the1\ X0 \\
& \quad X3\ X5) \wedge (k3\_cqc\_the1\ X0\ X5 = X4)))\ (\lambda X4 : \iota.X4))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\
& \quad X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1 \\
& \quad X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (k1\_zfmisc\_1 \\
& \quad (k3\_cqc\_lang\ X0))) \Rightarrow (k8\_cqc\_lang\ X0\ (k7\_cqc\_lang\ X0\ X1\ X2)\ (k7\_cqc\_lang \\
& \quad X0\ X2\ X1) \in ReplSep\ (toset\ (\lambda X4 : \iota.m2\_subset\_1\ X4\ (k9\_qc\_lang1 \\
& \quad X0)\ (k3\_cqc\_lang\ X0)))\ (\lambda X4 : \iota.\exists X5.(m2\_finseq\_1\ X5 \\
& \quad (k2\_zfmisc\_1\ (k3\_cqc\_lang\ X0)\ k2\_cqc\_the1)) \wedge ((r2\_cqc\_the1\ X0 \\
& \quad X3\ X5) \wedge (k3\_cqc\_the1\ X0\ X5 = X4)))\ (\lambda X4 : \iota.X4))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\
& \quad X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1 \\
& \quad X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X3.(m2\_subset\_1\ X3\ (k9\_qc\_lang1 \\
& \quad X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X4.(m1\_subset\_1\ X4\ (k1\_zfmisc\_1 \\
& \quad (k3\_cqc\_lang\ X0))) \Rightarrow (k8\_cqc\_lang\ X0\ (k8\_cqc\_lang\ X0\ X1\ X2)\ (k8\_cqc\_lang \\
& \quad X0\ (k6\_cqc\_lang\ X0\ (k7\_cqc\_lang\ X0\ X2\ X3))\ (k6\_cqc\_lang\ X0\ (k7\_cqc\_lang \\
& \quad X0\ X1\ X3))) \in ReplSep\ (toset\ (\lambda X5 : \iota.m2\_subset\_1\ X5\ (k9\_qc\_lang1 \\
& \quad X0)\ (k3\_cqc\_lang\ X0)))\ (\lambda X5 : \iota.\exists X6.(m2\_finseq\_1\ X6 \\
& \quad (k2\_zfmisc\_1\ (k3\_cqc\_lang\ X0)\ k2\_cqc\_the1)) \wedge ((r2\_cqc\_the1\ X0 \\
& \quad X4\ X6) \wedge (k3\_cqc\_the1\ X0\ X6 = X5)))\ (\lambda X5 : \iota.X5))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\
& \quad X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1 \\
& \quad X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (k1\_zfmisc\_1 \\
& \quad (k3\_cqc\_lang\ X0))) \Rightarrow (k8\_cqc\_lang\ X0\ X1\ (k8\_cqc\_lang\ X0\ (k6\_cqc\_lang \\
& \quad X0\ X1)\ X2) \in ReplSep\ (toset\ (\lambda X4 : \iota.m2\_subset\_1\ X4\ (k9\_qc\_lang1 \\
& \quad X0)\ (k3\_cqc\_lang\ X0)))\ (\lambda X4 : \iota.\exists X5.(m2\_finseq\_1\ X5 \\
& \quad (k2\_zfmisc\_1\ (k3\_cqc\_lang\ X0)\ k2\_cqc\_the1)) \wedge ((r2\_cqc\_the1\ X0 \\
& \quad X3\ X5) \wedge (k3\_cqc\_the1\ X0\ X5 = X4)))\ (\lambda X4 : \iota.X4))))))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\
& \quad X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1 \\
& \quad (k3\_cqc\_lang\ X0))) \Rightarrow (k8\_cqc\_lang\ X0\ (k8\_cqc\_lang\ X0\ (k6\_cqc\_lang \\
& \quad X0\ X1)\ X1) \in ReplSep\ (toset\ (\lambda X3 : \iota.m2\_subset\_1\ X3\ (k9\_qc\_lang1 \\
& \quad X0)\ (k3\_cqc\_lang\ X0)))\ (\lambda X3 : \iota.\exists X4.(m2\_finseq\_1\ X4 \\
& \quad (k2\_zfmisc\_1\ (k3\_cqc\_lang\ X0)\ k2\_cqc\_the1)) \wedge ((r2\_cqc\_the1\ X0 \\
& \quad X2\ X4) \wedge (k3\_cqc\_the1\ X0\ X4 = X3)))\ (\lambda X3 : \iota.X3))))))
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1 \\
& (k3\_cqc\_lang\ X0))) \Rightarrow (k5\_cqc\_lang\ X0 \in ReplSep\ (toset\ (\lambda X2 : \iota. \\
& m2\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)))\ (\lambda X2 : \iota. \\
& \exists X3.(m2\_finseq\_1\ X3\ (k2\_zfmisc\_1\ (k3\_cqc\_lang\ X0)\ k2\_cqc\_the1)) \wedge \\
& ((r2\_cqc\_the1\ X0\ X1\ X3) \wedge (k3\_cqc\_the1\ X0\ X3 = X2)))\ (\lambda X2 : \iota. \\
& X2))) \quad (9)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1 \\
& (k3\_cqc\_lang\ X0))) \Rightarrow ((v1\_cqc\_the1\ X1\ X0) \Leftrightarrow ((k5\_cqc\_lang\ X0 \in X1) \wedge \\
& (\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow \\
& (\forall X3.(m2\_subset\_1\ X3\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow \\
& (\forall X4.(m2\_subset\_1\ X4\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow \\
& (\forall X5.(m1\_subset\_1\ X5\ (k9\_qc\_lang1\ X0)) \Rightarrow (\forall X6.(m2\_subset\_1 \\
& X6\ (k2\_qc\_lang1\ X0)\ (k3\_qc\_lang1\ X0)) \Rightarrow (\forall X7.(m2\_subset\_1 \\
& X7\ (k2\_qc\_lang1\ X0)\ (k3\_qc\_lang1\ X0)) \Rightarrow ((k8\_cqc\_lang\ X0\ (k8\_cqc\_lang \\
& X0\ (k6\_cqc\_lang\ X0\ X2)\ X2) \in X1) \wedge ((k8\_cqc\_lang\ X0\ X2\ (k8\_cqc\_lang \\
& X0\ (k6\_cqc\_lang\ X0\ X2)\ X3) \in X1) \wedge ((k8\_cqc\_lang\ X0\ (k8\_cqc\_lang\ X0 \\
& X2\ X3)\ (k8\_cqc\_lang\ X0\ (k6\_cqc\_lang\ X0\ (k7\_cqc\_lang\ X0\ X3\ X4))\ (k6\_cqc\_lang \\
& X0\ (k7\_cqc\_lang\ X0\ X2\ X4))) \in X1) \wedge ((k8\_cqc\_lang\ X0\ (k7\_cqc\_lang \\
& X0\ X2\ X3)\ (k7\_cqc\_lang\ X0\ X3\ X2) \in X1) \wedge (((X2 \in X1) \wedge (k8\_cqc\_lang\ X0 \\
& X2\ X3 \in X1)) \Rightarrow (X3 \in X1)) \wedge ((k8\_cqc\_lang\ X0\ (k11\_cqc\_lang\ X0\ X6\ X2)\ X2 \in \\
& X1) \wedge ((k8\_cqc\_lang\ X0\ X2\ X3 \in X1) \Rightarrow ((X6 \in k24\_qc\_lang1\ X0\ X2) \vee (k8\_cqc\_lang \\
& X0\ X2\ (k11\_cqc\_lang\ X0\ X6\ X3) \in X1))) \wedge ((k13\_cqc\_lang\ X0\ X5\ X6 \in k3\_cqc\_lang \\
& X0) \wedge ((k13\_cqc\_lang\ X0\ X5\ X7 \in k3\_cqc\_lang\ X0) \wedge (k13\_cqc\_lang\ X0 \\
& X5\ X6 \in X1))) \Rightarrow ((X6 \in k24\_qc\_lang1\ X0\ X5) \vee (k13\_cqc\_lang\ X0\ X5\ X7 \in X1))))))))))))) \quad (10)
\end{aligned}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1 \\
& (k3\_cqc\_lang\ X0))) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1 \\
& (k3\_cqc\_lang\ X0))) \Rightarrow ((X1 = ReplSep\ (toset\ (\lambda X3 : \iota.m2\_subset\_1 \\
& X3\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)))\ (\lambda X3 : \iota.\exists X4. \\
& (m2\_finseq\_1\ X4\ (k2\_zfmisc\_1\ (k3\_cqc\_lang\ X0)\ k2\_cqc\_the1)) \wedge \\
& ((r2\_cqc\_the1\ X0\ X2\ X4) \wedge (k3\_cqc\_the1\ X0\ X4 = X3)))\ (\lambda X3 : \iota. \\
& X3)) \Rightarrow (v1\_cqc\_the1\ X1\ X0)))
\end{aligned}$$