

t9_qc_lang3
(TMLuNL4pSq9fZK57UX1Pc96sveCNZqWzndZ)

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Let $m1_qc_lang1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_qc_lang1 : \iota \Rightarrow \iota$ be given. Let $v4_qc_lang1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k24_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_qc_lang1 : \iota \Rightarrow \iota$ be given. Let $k19_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k20_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k12_qc_lang1 : \iota \Rightarrow \iota$ be given. Let $v2_qc_lang1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_qc_lang1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k18_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v5_qc_lang1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k22_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_subset_1 : \iota \Rightarrow \iota$ be given. Let $k23_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k17_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $k21_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the

following.

$$\begin{aligned}
& \forall X0. \forall X1 : \iota \Rightarrow \iota. \forall X2 : \iota \Rightarrow \iota \Rightarrow \iota. \forall X3 : \\
& \quad \iota \Rightarrow \iota \Rightarrow \iota. \forall X4 : \iota \Rightarrow \iota. \forall X5 : \iota \Rightarrow \iota. \forall X6. \\
& \quad \forall X7. \forall X8. ((m1_qc_lang1 X8) \wedge ((\neg v1_xboole_0 X7) \wedge \\
& ((m1_subset_1 X6 X7) \wedge ((\forall X9. m1_subset_1 (X5 X9) X7) \wedge ((\forall X9. \\
& \quad m1_subset_1 (X4 X9) X7) \wedge ((\forall X9. \forall X10. m1_subset_1 \\
& \quad (X3 X9 X10) X7) \wedge ((\forall X9. \forall X10. m1_subset_1 (X2 X9 X10) \\
& X7) \wedge ((\forall X9. m1_subset_1 (X1 X9) X7) \wedge (m1_subset_1 X0 (k9_qc_lang1 \\
& \quad X8)))))))))) \Rightarrow (((\forall X9. (m1_subset_1 X9 (k9_qc_lang1 X8)) \Rightarrow \\
& \quad (\forall X10. (m1_subset_1 X10 X7) \Rightarrow ((X10 = X1 X9) \Leftrightarrow (\exists X11. \\
& ((v1_funct_1 X11) \wedge ((v1_funct_2 X11 (k9_qc_lang1 X8) X7) \wedge (m1_subset_1 \\
& \quad X11 (k1_zfmisc_1 (k2_zfmisc_1 (k9_qc_lang1 X8) X7)))))) \wedge ((X10 = \\
& \quad k3_funct_2 (k9_qc_lang1 X8) X7 X11 X9) \wedge (\forall X12. (m1_subset_1 \\
& \quad X12 (k9_qc_lang1 X8)) \Rightarrow (\forall X13. (m1_subset_1 X13 X7) \Rightarrow (\forall X14. \\
& (m1_subset_1 X14 X7) \Rightarrow (((X12 = k12_qc_lang1 X8) \Rightarrow (k3_funct_2 (k9_qc_lang1 \\
& \quad X8) X7 X11 X12 = X6)) \wedge (((v2_qc_lang1 X12 X8) \Rightarrow (k3_funct_2 (k9_qc_lang1 \\
& \quad X8) X7 X11 X12 = X5 X12)) \wedge (((v3_qc_lang1 X12 X8) \wedge (X13 = k3_funct_2 \\
& \quad (k9_qc_lang1 X8) X7 X11 (k18_qc_lang1 X8 X12))) \Rightarrow (k3_funct_2 (k9_qc_lang1 \\
& \quad X8) X7 X11 X12 = X4 X13)) \wedge (((v4_qc_lang1 X12 X8) \wedge ((X13 = k3_funct_2 \\
& \quad (k9_qc_lang1 X8) X7 X11 (k19_qc_lang1 X8 X12)) \wedge (X14 = k3_funct_2 \\
& \quad (k9_qc_lang1 X8) X7 X11 (k20_qc_lang1 X8 X12)))))) \Rightarrow (k3_funct_2 (\\
& \quad k9_qc_lang1 X8) X7 X11 X12 = X3 X13 X14)) \wedge (((v5_qc_lang1 X12 X8) \wedge \\
& \quad (X13 = k3_funct_2 (k9_qc_lang1 X8) X7 X11 (k22_qc_lang1 X8 X12))) \Rightarrow \\
& \quad (k3_funct_2 (k9_qc_lang1 X8) X7 X11 X12 = X2 X12 X13)))))) \wedge \\
& \quad (v4_qc_lang1 X0 X8) \Rightarrow (\forall X9. (m1_subset_1 X9 X7) \Rightarrow (\forall X10. \\
& (m1_subset_1 X10 X7) \Rightarrow (((X9 = X1 (k19_qc_lang1 X8 X0)) \wedge (X10 = X1 (\\
& \quad k20_qc_lang1 X8 X0))) \Rightarrow (X1 X0 = X3 X9 X10))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_qc_lang1\ X0) \Rightarrow (\forall X1.(m1_subset_1\ X1\ (k9_qc_lang1\ X0)) \Rightarrow \\
& \quad (\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1\ (k3_qc_lang1\ X0))) \Rightarrow \\
& \quad ((X2 = k24_qc_lang1\ X0\ X1) \Leftrightarrow (\exists X3.((v1_funct_1\ X3) \wedge ((v1_funct_2\ X3\ (k9_qc_lang1\ X0)\ (k1_zfmisc_1\ (k3_qc_lang1\ X0))) \wedge (m1_subset_1\ X3\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k9_qc_lang1\ X0)\ (k1_zfmisc_1\ (k3_qc_lang1\ X0)))))) \wedge ((X2 = k3_funct_2\ (k9_qc_lang1\ X0)\ (k1_zfmisc_1\ (k3_qc_lang1\ X0))\ X3\ X1) \wedge (\forall X4.(m1_subset_1\ X4\ (k9_qc_lang1\ X0)) \Rightarrow (\forall X5.(m1_subset_1\ X5\ (k1_zfmisc_1\ (k3_qc_lang1\ X0))) \Rightarrow (\forall X6.(m1_subset_1\ X6\ (k1_zfmisc_1\ (k3_qc_lang1\ X0))) \Rightarrow (((X4 = k12_qc_lang1\ X0) \Rightarrow (k3_funct_2\ (k9_qc_lang1\ X0)\ (k1_zfmisc_1\ (k3_qc_lang1\ X0))\ X3\ X4 = k1_subset_1\ (k3_qc_lang1\ X0))) \wedge (((v2_qc_lang1\ X4\ X0) \Rightarrow (k3_funct_2\ (k9_qc_lang1\ X0)\ (k1_zfmisc_1\ (k3_qc_lang1\ X0))\ X3\ X4 = k23_qc_lang1\ X0\ (k17_qc_lang1\ X0\ X4)) \wedge (((v3_qc_lang1\ X4\ X0) \wedge (X5 = k3_funct_2\ (k9_qc_lang1\ X0)\ (k1_zfmisc_1\ (k3_qc_lang1\ X0))\ X3\ (k18_qc_lang1\ X0\ X4)) \Rightarrow (k3_funct_2\ (k9_qc_lang1\ X0)\ (k1_zfmisc_1\ (k3_qc_lang1\ X0))\ X3\ X4 = X5) \wedge (((v4_qc_lang1\ X4\ X0) \wedge ((X5 = k3_funct_2\ (k9_qc_lang1\ X0)\ (k1_zfmisc_1\ (k3_qc_lang1\ X0))\ X3\ (k19_qc_lang1\ X0\ X4)) \wedge (X6 = k3_funct_2\ (k9_qc_lang1\ X0)\ (k1_zfmisc_1\ (k3_qc_lang1\ X0))\ X3\ (k20_qc_lang1\ X0\ X4)) \Rightarrow (k3_funct_2\ (k9_qc_lang1\ X0)\ (k1_zfmisc_1\ (k3_qc_lang1\ X0))\ X3\ X4 = k4_subset_1\ (k3_qc_lang1\ X0\ X5\ X6) \wedge (((v5_qc_lang1\ X4\ X0) \wedge (X5 = k3_funct_2\ (k9_qc_lang1\ X0)\ (k1_zfmisc_1\ (k3_qc_lang1\ X0))\ X3\ (k22_qc_lang1\ X0\ X4)) \Rightarrow (k3_funct_2\ (k9_qc_lang1\ X0)\ (k1_zfmisc_1\ (k3_qc_lang1\ X0))\ X3\ X4 = k7_subset_1\ (k3_qc_lang1\ X0\ X5\ (k1_tarski\ (k21_qc_lang1\ X0\ X4)))))))))))))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1\ X0) \wedge (m1_subset_1\ X1\ (k9_qc_lang1\ X0))) \Rightarrow (m1_subset_1\ (k24_qc_lang1\ X0\ X1)\ (k1_zfmisc_1\ (k3_qc_lang1\ X0))) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1\ X0) \wedge (m1_subset_1\ X1\ (k9_qc_lang1\ X0))) \Rightarrow (m1_subset_1\ (k20_qc_lang1\ X0\ X1)\ (k9_qc_lang1\ X0)) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1\ X0) \wedge (m1_subset_1\ X1\ (k9_qc_lang1\ X0))) \Rightarrow (m1_subset_1\ (k19_qc_lang1\ X0\ X1)\ (k9_qc_lang1\ X0)) \tag{5}$$

Theorem 1

$$\forall X0.(m1_qc_lang1\ X0) \Rightarrow (\forall X1.(m1_subset_1\ X1\ (k9_qc_lang1\ X0)) \Rightarrow ((v4_qc_lang1\ X1\ X0) \Rightarrow (k24_qc_lang1\ X0\ X1 = k4_subset_1\ (k3_qc_lang1\ X0)\ (k24_qc_lang1\ X0\ (k19_qc_lang1\ X0\ X1))\ (k24_qc_lang1\ X0\ (k20_qc_lang1\ X0\ X1))))))$$