

l48_topalg_1 (TMcVmxkU-
biB2EDJBbLM4UL1HcQRDh8z89F4)

October 27, 2020

Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_pre_topc : \iota \Rightarrow o$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $r1_borsuk_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_topalg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_relat_2 : \iota \Rightarrow o$ be given. Let $v8_relat_2 : \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_borsuk_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_borsuk_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_borsuk_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_borsuk_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_borsuk_2 X3 \\ & X0 X1 X2) \Rightarrow (\forall X4.(m1_borsuk_2 X4 X0 X1 X2) \Rightarrow (\forall X5.(m1_borsuk_2 \\ & X5 X0 X1 X2) \Rightarrow (((r3_borsuk_2 X0 X1 X2 X3 X4) \wedge (r3_borsuk_2 X0 X1 X2 X4 \\ & X5)) \Rightarrow (r3_borsuk_2 X0 X1 X2 X3 X5))))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_borsuk_2 X3 \\ & X0 X1 X2) \Rightarrow ((r2_borsuk_2 X0 X1 X2) \Rightarrow (r3_borsuk_2 X0 X1 X2 X3 X3)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. (((\neg v2_struct_0 \\ & X0) \wedge (l1_pre_topc X0)) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge ((\\ & m1_subset_1 X2 (u1_struct_0 X0)) \wedge ((m1_borsuk_2 X3 X0 X1 X2) \wedge (m1_borsuk_2 \\ & X4 X0 X1 X2)))))) \Rightarrow ((r3_borsuk_2 X0 X1 X2 X3 X4) \Rightarrow (r3_borsuk_2 X0 X1 \\ & X2 X4 X3)) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0 : \iota \Rightarrow \iota \Rightarrow o. \forall X1. ((\forall X2. (X2 \in X1) \Rightarrow (X0 \\
& \quad X2 \ X2)) \wedge ((\forall X2. \forall X3. (X0 \ X2 \ X3) \Rightarrow (X0 \ X3 \ X2)) \wedge (\forall X2. \\
& \quad \forall X3. \forall X4. ((X0 \ X2 \ X3) \wedge (X0 \ X3 \ X4)) \Rightarrow (X0 \ X2 \ X4)))) \Rightarrow (\exists X2. \\
& ((v3_relat_2 \ X2) \wedge ((v8_relat_2 \ X2) \wedge ((v1_partfun1 \ X2 \ X1) \wedge (m1_subset_1 \\
& \quad X2 \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ X1 \ X1)))))) \wedge (\forall X3. \forall X4. \\
& (k4_tarski \ X3 \ X4 \in X2) \Leftrightarrow ((X3 \in X1) \wedge ((X4 \in X1) \wedge (X0 \ X3 \ X4))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 \ X0) \wedge ((v2_pre_topc \\
& \quad X0) \wedge (l1_pre_topc \ X0))) \wedge ((m1_subset_1 \ X1 \ (u1_struct_0 \ X0)) \wedge (\\
& \quad m1_subset_1 \ X2 \ (u1_struct_0 \ X0)))) \Rightarrow ((r2_borsuk_2 \ X0 \ X1 \ X2) \Leftrightarrow (r1_borsuk_2 \\
& \quad X0 \ X1 \ X2))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 \ X0) \wedge ((v2_pre_topc \\
& \quad X0) \wedge (l1_pre_topc \ X0))) \wedge ((m1_subset_1 \ X1 \ (u1_struct_0 \ X0)) \wedge (\\
& \quad m1_subset_1 \ X2 \ (u1_struct_0 \ X0)))) \Rightarrow ((r1_borsuk_6 \ X0 \ X1 \ X2) \Leftrightarrow (r1_borsuk_2 \\
& \quad X0 \ X1 \ X2))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 \ X0) \wedge (l1_pre_topc \ X0)) \Rightarrow (\forall X1. \\
& (m1_subset_1 \ X1 \ (u1_struct_0 \ X0)) \Rightarrow (\forall X2. (m1_subset_1 \ X2 \\
& (u1_struct_0 \ X0)) \Rightarrow (\forall X3. (X3 = k1_topalg_1 \ X0 \ X1 \ X2) \Leftrightarrow (\forall X4. \\
& (X4 \in X3) \Leftrightarrow (m1_borsuk_2 \ X4 \ X0 \ X1 \ X2))))))
\end{aligned} \tag{7}$$

Theorem 1

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 \ X0) \wedge ((v2_pre_topc \ X0) \wedge (l1_pre_topc \\
& \quad X0))) \Rightarrow (\forall X1. (m1_subset_1 \ X1 \ (u1_struct_0 \ X0)) \Rightarrow (\forall X2. \\
& (m1_subset_1 \ X2 \ (u1_struct_0 \ X0)) \Rightarrow (\neg (r1_borsuk_6 \ X0 \ X1 \ X2) \wedge (\forall X3. \\
& ((v1_partfun1 \ X3 \ (k1_topalg_1 \ X0 \ X1 \ X2)) \wedge ((v3_relat_2 \ X3) \wedge ((v8_relat_2 \\
& \quad X3) \wedge (m1_subset_1 \ X3 \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ (k1_topalg_1 \ X0 \\
& \quad X1 \ X2) \ (k1_topalg_1 \ X0 \ X1 \ X2)))))) \Rightarrow (\neg \forall X4. \forall X5. (k4_tarski \\
& \quad X4 \ X5 \in X3) \Leftrightarrow ((X4 \in k1_topalg_1 \ X0 \ X1 \ X2) \wedge ((X5 \in k1_topalg_1 \ X0 \ X1 \ X2) \wedge \\
& \quad (\exists X6. (m1_borsuk_2 \ X6 \ X0 \ X1 \ X2) \wedge (\exists X7. (m1_borsuk_2 \\
& \quad X7 \ X0 \ X1 \ X2) \wedge ((X6 = X4) \wedge ((X7 = X5) \wedge (r3_borsuk_2 \ X0 \ X1 \ X2 \ X6 \ X7))))))))))
\end{aligned}$$