

t20_topalg_1
(TMP42eKmQqPedk9BqoZPL63gBgbB6UhZHtz)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_pre_topc : \iota \Rightarrow o$ be given. Let $v1_borsuk_2 : \iota \Rightarrow o$ 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 $m1_borsuk_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r4_borsuk_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_borsuk_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_borsuk_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_borsuk_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_borsuk_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_borsuk_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ & (u1_struct_0 X0)) \Rightarrow (((r1_borsuk_6 X0 X1 X2) \wedge (r1_borsuk_6 X0 X2 \\ & X3)) \Rightarrow (\forall X4.(m1_borsuk_2 X4 X0 X1 X2) \Rightarrow (\forall X5.(m1_borsuk_2 \\ & X5 X0 X1 X2) \Rightarrow (\forall X6.(m1_borsuk_2 X6 X0 X2 X3) \Rightarrow ((r3_borsuk_2 \\ & X0 X1 X2 X4 X5) \Rightarrow (r3_borsuk_2 X0 X1 X2 X4 (k1_borsuk_2 X0 X1 X3 X2 (k1_borsuk_2 \\ & X0 X1 X2 X3 X5 X6) (k2_borsuk_2 X0 X2 X3 X6)))))))))) \\ & \hspace{15em} (1) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((\neg v2_struct_0 \\ & X0) \wedge ((v2_pre_topc X0) \wedge ((v1_borsuk_2 X0) \wedge (l1_pre_topc X0)))) \wedge \\ & ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge ((m1_subset_1 X2 (u1_struct_0 \\ & X0)) \wedge ((m1_borsuk_2 X3 X0 X1 X2) \wedge (m1_borsuk_2 X4 X0 X1 X2)))) \Rightarrow (\\ & (r4_borsuk_2 X0 X1 X2 X3 X4) \Leftrightarrow (r3_borsuk_2 X0 X1 X2 X3 X4)) \\ & \hspace{15em} (2) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge ((v2_pre_topc \\ & X0) \wedge (l1_pre_topc X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (\\ & m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow ((r1_borsuk_6 X0 X1 X2) \Leftrightarrow (r1_borsuk_2 \\ & X0 X1 X2)) \\ & \hspace{15em} (3) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v2_struct_0 \\ & X0) \wedge ((v2_pre_topc\ X0) \wedge (l1_pre_topc\ X0))) \wedge ((m1_subset_1\ X1\ (\\ & u1_struct_0\ X0)) \wedge ((m1_subset_1\ X2\ (u1_struct_0\ X0)) \wedge (m1_borsuk_2 \\ & X3\ X0\ X1\ X2)))) \Rightarrow (m1_borsuk_2\ (k2_borsuk_2\ X0\ X1\ X2\ X3)\ X0\ X2\ X1) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\ & (((\neg v2_struct_0\ X0) \wedge ((v2_pre_topc\ X0) \wedge (l1_pre_topc\ X0))) \wedge (\\ & (m1_subset_1\ X1\ (u1_struct_0\ X0)) \wedge ((m1_subset_1\ X2\ (u1_struct_0 \\ & X0)) \wedge ((m1_subset_1\ X3\ (u1_struct_0\ X0)) \wedge ((m1_borsuk_2\ X4\ X0\ X1 \\ & X2) \wedge (m1_borsuk_2\ X5\ X0\ X2\ X3)))))) \Rightarrow (m1_borsuk_2\ (k1_borsuk_2 \\ & X0\ X1\ X2\ X3\ X4\ X5)\ X0\ X1\ X3) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1_pre_topc\ X0) \Rightarrow ((v1_borsuk_2\ X0) \Leftrightarrow (\forall X1. (\\ & m1_subset_1\ X1\ (u1_struct_0\ X0)) \Rightarrow (\forall X2. (m1_subset_1\ X2 \\ & (u1_struct_0\ X0)) \Rightarrow (r1_borsuk_2\ X0\ X1\ X2)))) \end{aligned} \quad (6)$$

Theorem 1

$$\begin{aligned} & \forall X0. (((\neg v2_struct_0\ X0) \wedge ((v2_pre_topc\ X0) \wedge ((v1_borsuk_2 \\ & X0) \wedge (l1_pre_topc\ X0)))) \Rightarrow (\forall X1. (m1_subset_1\ X1\ (u1_struct_0 \\ & X0)) \Rightarrow (\forall X2. (m1_subset_1\ X2\ (u1_struct_0\ X0)) \Rightarrow (\forall X3. \\ & (m1_subset_1\ X3\ (u1_struct_0\ X0)) \Rightarrow (\forall X4. (m1_borsuk_2\ X4 \\ & X0\ X1\ X2) \Rightarrow (\forall X5. (m1_borsuk_2\ X5\ X0\ X1\ X2) \Rightarrow (\forall X6. (m1_borsuk_2 \\ & X6\ X0\ X2\ X3) \Rightarrow ((r4_borsuk_2\ X0\ X1\ X2\ X4\ X5) \Rightarrow (r4_borsuk_2\ X0\ X1\ X2\ X4 \\ & (k1_borsuk_2\ X0\ X1\ X3\ X2\ (k1_borsuk_2\ X0\ X1\ X2\ X3\ X5\ X6)\ (k2_borsuk_2 \\ & X0\ X2\ X3\ X6)))))))))) \end{aligned}$$