

# t40\_topalg\_1 (TMGbXd- wUh3o8NhkpfLBTJx55EcPgD3qpKc)

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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  $k1\_borsuk\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\
& \quad X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\
& \quad (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\
& \quad (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow \\
& \quad ((r1\_borsuk\_6 X0 X1 X2) \wedge ((r1\_borsuk\_6 X0 X1 X3) \wedge (r1\_borsuk\_6 \\
& \quad X0 X3 X4))) \Rightarrow (\forall X5.(m1\_borsuk\_2 X5 X0 X1 X2)) \Rightarrow (\forall X6.( \\
& \quad m1\_borsuk\_2 X6 X0 X3 X4)) \Rightarrow (\forall X7.(m1\_borsuk\_2 X7 X0 X1 X3)) \Rightarrow ( \\
& \quad r3\_borsuk\_2 X0 X1 X3 (k1\_borsuk\_2 X0 X1 X4 X3 (k1\_borsuk\_2 X0 X1 X3 \\
& \quad X4 (k1\_borsuk\_2 X0 X1 X1 X3 (k1\_borsuk\_2 X0 X1 X2 X1 X5 (k2\_borsuk\_2 \\
& \quad X0 X1 X2 X5)) X7) X6) (k2\_borsuk\_2 X0 X3 X4 X6) X7))))))))) \\
& \tag{1}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((\neg v2\_struct\_0 \\
& \quad X0) \wedge ((v2\_pre\_topc X0) \wedge ((v1\_borsuk\_2 X0) \wedge (l1\_pre\_topc X0)))) \wedge \\
& \quad ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge ((m1\_subset\_1 X2 (u1\_struct\_0 \\
& \quad X0)) \wedge ((m1\_borsuk\_2 X3 X0 X1 X2) \wedge (m1\_borsuk\_2 X4 X0 X1 X2)))) \Rightarrow ( \\
& \quad (r4\_borsuk\_2 X0 X1 X2 X3 X4) \Leftrightarrow (r3\_borsuk\_2 X0 X1 X2 X3 X4)) \\
& \tag{2}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc \\
& \quad X0) \wedge (l1\_pre\_topc X0))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge ( \\
& \quad m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow ((r1\_borsuk\_6 X0 X1 X2) \Leftrightarrow (r1\_borsuk\_2 \\
& \quad X0 X1 X2)) \\
& \tag{3}
\end{aligned}$$

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**

$$\begin{aligned} & \forall X0.(((\neg v2\_struct\_0\ X0)\wedge((v2\_pre\_topc\ X0)\wedge((v1\_borsuk\_2 \\ & X0)\wedge(l1\_pre\_topc\ X0))))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0 \\ & X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3. \\ & (m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(\forall X4.(m1\_subset\_1\ X4 \\ & (u1\_struct\_0\ X0))\Rightarrow(\forall X5.(m1\_borsuk\_2\ X5\ X0\ X1\ X2))\Rightarrow(\forall X6. \\ & (m1\_borsuk\_2\ X6\ X0\ X3\ X4))\Rightarrow(\forall X7.(m1\_borsuk\_2\ X7\ X0\ X1\ X3))\Rightarrow \\ & (r4\_borsuk\_2\ X0\ X1\ X3\ (k1\_borsuk\_2\ X0\ X1\ X4\ X3\ (k1\_borsuk\_2\ X0\ X1\ X3 \\ & X4\ (k1\_borsuk\_2\ X0\ X1\ X1\ X3\ (k1\_borsuk\_2\ X0\ X1\ X2\ X1\ X5\ (k2\_borsuk\_2 \\ & X0\ X1\ X2\ X5))\ X7)\ X6)\ (k2\_borsuk\_2\ X0\ X3\ X4\ X6)\ X7)))))) \end{aligned}$$